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Medical Readiness of the Reserve Component

Marygail K. Brauner, Timothy Jackson, Elizabeth K. Gayton

Prepared for the Office of the Secretary of Defense

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Preface

This monograph was written for the Characterizing and Assessing Medical Readiness of the Reserve Components project. It is the final report of a multiyear study to provide options for U.S. Department of Defense (DoD) policy that would help the reserve component achieve higher levels of individual medical readiness in the current operating environment.

The specific goals of the project were to develop a matrix identifying existing medical and dental readiness requirements, quantify the current levels of reserve component medical/dental readiness, identify obstacles to compliance and approaches to improve compliance, review reasons for evacuations out of Iraq or Afghanistan to identify gaps in medical/dental readiness requirements, and identify the cost of alternative approaches to improve medical/dental readiness.

This research was sponsored by the Office of the Secretary of Defense for Reserve Affairs and conducted jointly by RAND Health's Center for Military Health Policy Research and the Forces and Resources Policy Center of the RAND National Defense Research Institute (NDRI). The Center for Military Health Policy Research taps RAND expertise in both defense and health policy to conduct research for the Department of Defense, the Department of Veterans Affairs, and nonprofit organizations. NDRI is a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, the Unified Combatant Commands, the Navy, the Marine Corps, the defense agencies, and the defense Intelligence Community.

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Summary

As an integral part of the U.S. military, the reserve components (RCs) are continually called upon to support operations around the globe. Within the Department of Defense (DoD), there are six RCs: Army Reserve (USAR), Army National Guard (ARNG), Air Force Reserve (USAFR), Air National Guard (ANG), Navy Reserve (USNR), and Marine Corps Reserve (USMCR). Since September 2001, at least 807,809 reservists have been involuntarily and voluntarily called to active duty in a federal status (DMDC, 2011).

The RCs are responsible for the readiness of reservists—they must ensure that reservists are not only properly equipped and trained, but also medically ready to serve. Medical readiness means that service members are free from health-related conditions that could limit their ability to carry out their duties, whether in garrison or deployed. Medically ready reservists require less medical and dental support in theater and fewer medical evacuations from theater, both of which save money and free assets for other purposes. The Office of the Secretary of Defense (OSD) and the armed services have established a set of requirements for individual medical readiness (IMR); each service has its own approach for supporting its RC members in meeting IMR requirements, getting vaccinations, and obtaining medical and dental treatment as needed.

Concerned about potential member medical readiness shortfalls and inconsistencies in the IMR requirements, the Office of the Assistant Secretary of Defense for Reserve Affairs asked RAND to provide options for DoD policy that would help the RCs achieve higher levels of IMR for this new operating environment. Specifically, the study sought to identify existing medical/dental readiness requirements, to quantify the current status of RC medical/dental readiness, to identify obstacles to achieving compliance, and to identify alternatives to improve medical/dental readiness. The study also examined the costs associated with current medical/dental readiness requirements and alternative approaches. Our approach involved several steps, including examination of relevant DoD and service policies, instructions, directives, and orders; review of relevant scientific literature; site visits; analysis of available data; and development of cost models.

Achieving Individual Medical Readiness

The generic concept of medical readiness is embodied in a specific set of requirements established by OSD and the armed services. The requirements rely on personal responsibility: Each member must complete an annual Periodic Health Assessment (PHA) and dental exam, take required medical tests, obtain required immunizations, and be free from deployment-limiting

conditions (DLCs). IMR is assessed on six measures: (1) PHA, (2) DLCs, (3) dental readiness, (4) immunizations, (5) medical lab tests, and (6) medical equipment. The DoD has set a minimum medical readiness goal of having "more than 75 percent of service members" fully medically ready according to these measures (DoDI 6025.19, 2006). The Surgeon General of each service is required to report the medical readiness status of its members to the Force Health Protection Council quarterly.

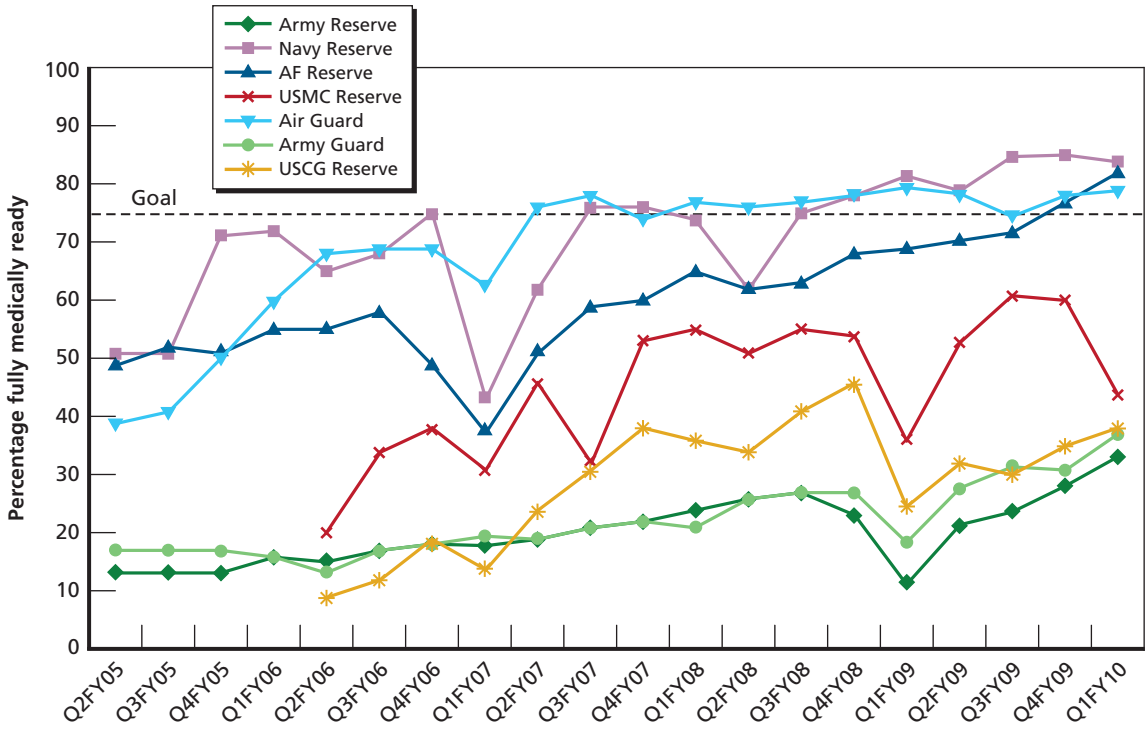
This report is only about IMR requirements. The combatant commands also publish medical readiness requirements for their specific areas of responsibility. These requirements are applicable when a service member is assigned to their command.

RC Members Are Not Achieving Overall Readiness Goals But Have Made Progress in Many Areas

Our analysis found that the DoD goal of having 75 percent of members fully medically ready is not being met by either the active component (AC) or the RC, although great progress has been made. At the end of the second quarter of FY 2006, the RC reported that only 26 percent of its forces were fully medically ready, compared with 42 percent of AC forces. By the end of 2009 (first quarter FY 2010), 47 percent of RC forces were fully medically ready, compared with 72 percent of AC forces.

All the RCs have shown improvement. Figure S.1 shows the percentage of Selected Reserve members fully medically ready for each RC from the second quarter of FY 2005 through the first quarter of FY 2010. The Air National Guard and the Navy Reserve have been at or above the 75 percent fully medically ready goal since 2008. However, the Army and Marine Corps RCs are still struggling to meet the goal.

Figure S.1
Percentage of Selected Reserve Fully Medically Ready



SOURCE: DoD IMR Quarterly Reports.

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There have also been some notable successes in meeting or approaching the DoD medical readiness requirements in certain areas. For example, since the beginning of FY 2009, all the RCs have been above 84 percent compliance with the DoD lab requirement, above 70 percent compliance with the medical equipment requirement, and around 70 percent for the annual PHA. Compliance with the immunization requirement is also around 70 percent for all services except the Marine Corps.

Obstacles to Achieving IMR Include Time and the Expense of Becoming Medically Ready

The study identified several potential barriers to achieving and maintaining medical and dental readiness. These include the time and expense necessary to become medically ready, the limited number of health care providers available within the RCs to help members meet requirements, and inconsistencies in procedures for achieving medical readiness. Further, the procedures for obtaining compliance are not standard across branches or units. Some units arrive at mobilization sites in varying states of IMR compliance, either because they have not received necessary tests or treatments or because the information was not entered into the medical management system.

Options for Improving Readiness Requirements

Our analysis found that most of the IMR requirements are generally sufficient for today's operating environment. There is ample evidence that the requirement for service members to be in dental class 1 or 2 (having had a dental exam in the past 12 months and either requiring no treatment or only nonurgent treatment not expected to result in emergencies in the following 12 months) is essential for both soldiers and military operations ("Executive Summary," 2008, p. xi; York, Moss, and Martin, 2008). However, we identified several ways in which the requirements could be improved.

Standardize the PHA. It is important that annual PHAs be standardized so that all members are measured by the same medical criteria, just as they are measured for the same dental criteria for dental readiness. The Force Health Protection Council is addressing standardization of the PHA.[1]

Modify data reporting and archiving processes. IMR data are not archived by the Defense Manpower Data Center (DMDC) or the services. The raw data behind the quarterly DoD IMR reports would be very helpful for studies and analyses of IMR compliance—for example, in analyzing characteristics of high-performing units and organizations. Because there is no standardization of data collection and archiving, DoD lacks the ability to do analysis on trends and retrospective studies.

Improve individual compliance. DoD should continue its policy of allowing reservists to be eligible for TRICARE 180 days predeployment.[2] Additionally, providing financial or other incentives or bonuses (to individuals or entire units) for being medically ready might improve IMR compliance. Another option is for the reserves to publicize progress toward IMR goals.

---

[1] Final Draft, Force Health Protection Council Minutes, August 10, 2011.

[2] TRICARE is the DoD Military Health System health care program serving active duty and reserve service members, retirees, and their families. It was formerly known as the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS).

Consider looking into additional, specific tests for health conditions that could affect reservists' ability to carry out their duties. For example, the military should consider requiring anemia tests for women, because iron deficiency and anemia affect both physical and mental performance (McClung et al., 2006, 2009a, 2009b). PHA questions that could reveal a preexisting hernia should also be asked.

Expand immunization and testing requirements. The services might also include immunization against the human papillomavirus (HPV), screening for cervical cancer, and testing for chlamydia.

Focus on remineralization ("fix and prevent") rather than cavities ("drill, fill, or extract"). Dentistry focused on remineralization can prevent cavities from developing. Dental sealants, remineralization therapy, and chewing of xylitol gum are effective for preventing and reversing dental decay.

The Cost of Achieving Medical Readiness

We also considered the costs of various options for achieving dental and physical readiness. We identified potential alternatives in each area.

Various Options Are Available to Help Achieve Dental Readiness

Achieving dental readiness is a difficult task for all the RCs. There are few RC dentists available to perform dental readiness exams. Sometimes reserve members expend their own funds to become dentally ready, and those who see a private dentist often have difficulty submitting the paperwork and having the verification confirmed in their military health records.

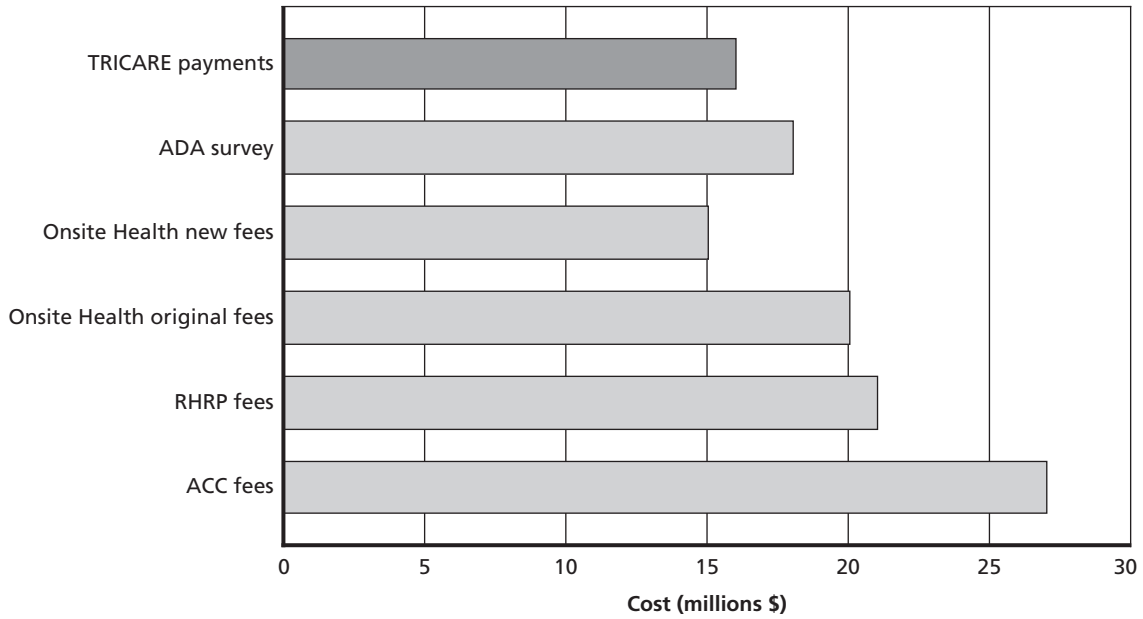
To compare dental costs for various available options, we used October–December 2009 data from the TRICARE Active Duty Dental Program as well as prices from four other dental treatment sources to calculate what the cost would have been under each plan for the total volume of procedures documented in the October–December 2009 TRICARE Active Duty Dental Plan report. Figure S.2 displays the estimated cost of treatment using the various providers.

Creative allocation of resources and competitive bidding could improve current readiness levels while reducing costs. Figure S.2 shows that all providers were more expensive than TRICARE except for the "new fee" schedule from Onsite Health, a privately owned provider of mobile health services.[3] Because there is frequently a difference between the amount charged for dental procedures and the amount paid by insurance companies, we view these responses as an upper bound on the amount received by the dentist.

Group dental events provide another cost-effective option. To assess costs of a group event, we created a "virtual unit" of 300 service members who attended a two-day medical readiness drill weekend. Two contractors (Reserve Health Readiness Program [RHRP] and Onsite Health) provided their costs for this dental readiness event. The average cost ranged between $271 and $332 per member, respectively. These prices include personnel and equipment to perform dental exams and some treatment as well as data entry for the work completed.

[3] The Onsite Health "original fees" represent average prices, while "new fees" represent the lowest prices. The ADA survey "reports statistics gathered from a nationwide random sample of dentists who were asked to record the fee most often charged for most commonly performed dental procedures" (American Dental Association Survey Center, 2009).

Figure S.2
Estimated Dental Treatment Cost Comparisons Show Substantial Spread



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There Are Options for Improving PHA While Reducing Costs

Assessing the cost of the PHA is difficult because implementation and requirements for the PHA are not standard across the services. The questions and length of the self-assessment questionnaire vary by service, as does the list of "vitals," requirements for review by medical personnel, and the way the PHA is implemented. Also, the requirements for members over 40 years of age are not the same across services. All of these differences affect the cost of administering the PHA. Missed appointments and duplicate assessments (if compliance is not accurately recorded) can also add to costs.

We compared the costs of different options for providing two types of PHA events—individual PHA and small-unit group event. The latter is common for National Guard units and frequently performed during drill weekends or as part of annual training.

Comparisons of individual PHAs indicate that, as with dental costs, the PHA can be improved while reducing costs. Table S.1 shows the costs for the five PHA procedures. We used prices from three providers—TRICARE, Onsite Health, and RHRP—to do a virtual comparison of the costs of administering individual PHAs to 1,000 service members. The costs range from a low of $98,640 when the PHA is completed using a nonfacility, nonphysician TRICARE provider to a high of $169,232 for the RHRP in-clinic service. There are slight differences between the TRICARE average and median prices.[4] The most expensive provider is the RHRP in-clinic service.

Group events are cost-effective and emphasize to participants the importance of IMR requirements. Group PHA events can also potentially save costs. We assessed costs for a group event that included self-assessment, height, weight, blood pressure, pulse, vision, pro-

[4] We show both average and median TRICARE prices because the difference between average and median price can be significant in some TRICARE regions. TRICARE cost does not include the cost of having fitness determination made by a provider familiar with deployment readiness.

Table S.1
PHA Costs for 1,000 Service Members, by Provider

Provider's Cost	Total Cost ($)
Median TRICARE nonfacility nonphysician	95,420
Average TRICARE nonfacility nonphysician	98,640
Median TRICARE nonfacility physician	112,020
Average TRICARE nonfacility physician	116,460
Onsite Health	131,960
RHRP	132,632
RHRP in-clinic for PHA	169,232

vider review, cardiovascular screening, and an electrocardiogram for 60 service members over age 40, as well as data entry for all services performed. RHRP and Onsite Health provided prices for PHA exams for 300 members during a two-day event. The average cost per member assessed was $121 for Onsite Health and $143 for RHRP.

Consistent cost savings are likely only if the DoD standardizes the PHA. Use of a standardized self-assessment questionnaire for the PHA and the PHA medical review, as well as a specific set of annual health measurements, can help eliminate some of the variability across services and RCs, which leads to variable costs for the PHA. Reserve organizations would benefit in particular from a standard "checklist" of all medical services required for a group IMR event. Such a list would allow the unit to assess its requirement for organic and contractor support and would greatly reduce the likelihood that a subsequent contract would omit essential services.

Conclusion

Our study highlighted practices that have helped some reserve members become fully medically ready and might be emulated by other reserve organizations. We also identified cost-effective approaches for achieving and maintaining IMR. DoD might also consider additional review of medical procedures and policy. In addition to the options already discussed, DoD might also consider requiring IMR compliance for reservists as a condition for graduation from Advanced Individual Training (AIT) or Officer Basic Course (OBC). Further, greater information-sharing among mobilization brigades, at Soldier Readiness Processing sites, and at units can contribute to greater awareness of requirements and increased IMR readiness.

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Abbreviations

AC	active component
ADA	American Dental Association
ADSW	Active Duty for Special Work
AFRC	Air Force Reserve Component
AFI	Air Force instruction
AFRSSIR	Armed Forces Repository of Specimen Samples for the Identification of Remains
AHLTA	Armed Forces Health Longitudinal Technology Application
AIT	advanced individual training
AKO	Army Knowledge Online
ALC	Assignment Limitation Code
AMA	American Medical Association
ANG	Air National Guard
ARNG	Army National Guard
ASD/HA	Assistant Secretary of Defense for Health Affairs
ASDRS	Army Selected Reserve Dental Readiness System
BUMED	Department of the Navy Bureau of Medicine and Surgery
CDA	corporate dental application
CDC	Centers for Disease Control and Prevention
CENTCOM	U.S. Central Command
COCOM	combatant command
CPT	Current Procedural Terminology
DENCOM	Dental Command
DES	Disability Evaluation System
DLC	deployment-limiting condition
DMDC	Defense Manpower Data Center
DoD	U.S. Department of Defense

DoDI	Department of Defense instruction
DOEHRS	Defense Occupational and Environmental Health Readiness System
DTF	dental treatment facility
FY	fiscal year
GAO	U.S. Government Accountability Office
HA	Health Affairs
HIV	human immunodeficiency virus
HPV	human papillomavirus
HRA	health risk assessment
IDC	Independent Duty Corpsman
IDT	inactive duty for training
IMR	individual medical readiness
ING	Inactive National Guard
IPV	inactivated polio vaccine
IRR	Individual Ready Reserve
LHI	Logistics Health Inc.
MAJ	Major
MEB	medical evaluation board
MEDPROS	Medical Protection System
MDR	medical department representative
MTF	medical treatment facility
MHO	medical hold over
MMR	measles, mumps, and rubella
MOB	mobilization
MRRS	Medical Readiness Reporting System
NCO	noncommissioned officer
NIDBR	Naval Institute for Dental and Biomedical Research
NOSC	Navy Operational Support Command
OASD/RA	Office of the Assistant Secretary of Defense for Reserve Affairs
OBC	officer basic course
OCO	Overseas Contingenecy Operations
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
ONE	Operation Noble Eagle
OSD	Office of the Secretary of Defense

OSUT	one station unit training
PDHA	Post-Deployment Health Assessment
PDHRA	Post-Deployment Health Reassessment
PHA	Periodic Health Assessment/Preventive Health Assessment
PIMR	Preventive Health Assessment and Individual Medical Readiness
PTSD	posttraumatic stress disorder
PULHES	physical capacity/stamina, upper extremities, lower extremities, hearing/ear, eyes, psychiatric
RC	reserve component
RCPHA	Reserve Component Periodic Health Assessment
REFRAD	Release from Active Duty
RHRP	Reserve Health Readiness Program
SELRES	Selected Reserve
SORTS	Status of Resources and Training System
SRP	Soldier Readiness Processing
Td	tetanus-diptheria
TNPQ/TNDQ	Temporarily Not Physically/Dentally Qualified
TPU	troop program unit
TRAC2ES	TRANSCOM Regulating and Command and Control Evacuation System
TRANSCOM	U.S. Transportation Command
TRICARE	Military Health Care System
TSCOHS	Tri-Service Center for Oral Health Studies
USAFR	U.S. Air Force Reserve
USAR	U.S. Army Reserve
USCGR	U.S. Coast Guard Reserve
USMCR	U.S. Marine Corps Reserve
USNR	U.S. Navy Reserve
USPSTF	U.S. Preventive Services Task Force
UTA	unit training assembly
VA	U.S. Department of Veterans Affairs
VistA	Veterans Health Information Systems and Technology Architecture
WTT	warrior task training

CHAPTER ONE

Introduction

Background

As an integral part of the U.S. military, the reserve components (RCs) are continually called upon to support operations around the globe: "The RCs provide operational capabilities and strategic depth to meet U.S. defense requirements across the full spectrum of conflict" (DoDD 1200.17). Since September 2001, at least 807,809 reservists have been involuntarily and voluntarily called to active duty in a federal status (DMDC, 2011). The RCs are responsible for the readiness of reservists—they must ensure that reservists are not only properly equipped and trained, but also medically ready to serve.

Individual medical readiness means that service members are free from health-related conditions that could limit their ability to carry out their duties, whether in garrison or deployed.[1] Medically ready service members require less medical support in theater and fewer medical evacuations from theater, both of which save money and free assets for other purposes. This generic concept of medical readiness is embodied in a specific set of requirements established by the Office of the Secretary of Defense and the armed services. As structured, the requirements rely first of all on personal responsibility: Though the reserve services provide assistance, it is largely up to each reservist to meet the standards of *individual medical readiness* (IMR).[2]

Congress has been concerned with reservists' medical readiness since the RC began large-scale activations in 2003. A 2005 U.S. House of Representatives report states that "The Committee is concerned about the medical readiness of our Reserve Components. At the height of the medical hold over (MHO), the majority of soldiers in MHO status were reservists who were not medically ready to serve, many due to poor dental hygiene" (U.S. House of Representatives, 2005).[3] In 2005, a U.S. Government Accountability Office (GAO) report stated that "the operational readiness of reserve forces has been hampered by long-standing problems with reservists' medical and physical condition," and that "DoD is unable to determine the extent to which the reserve force has complied with routine examinations due to a lack of complete or reliable data" (GAO, 2005).

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[1] Note that medical readiness does not measure a service member's physical fitness, nor does it specifically promote healthy lifestyles or reduce lifetime medical expenditures.

[2] For actual deployments, the combatant command sets theater-specific medical guidelines (see p. 18).

[3] When a military member cannot deploy with his or her unit because of an unresolved medical or dental problem, the member is said to be a medical hold over.

Purpose of Study

Concerned about these member medical readiness shortfalls and potential inconsistencies and insufficiencies in the panoply of IMR requirements, the Office of the Assistant Secretary of Defense for Reserve Affairs (OASD/RA) sponsored a study, the objective of which was to provide options for DoD policy that would help the RCs achieve higher levels of IMR in this new operating environment. The specific goals of the study, documented in this monograph, were

- to develop a matrix identifying existing medical and dental readiness requirements, and to identify automated systems currently in place to capture individual-level compliance with existing medical/dental requirements.
- to quantify, where possible, the current status of RC medical/dental readiness and estimate the cost to maintain RC members at the required level of medical/dental readiness.
- to identify obstacles to compliance and then assess alternative approaches to improve medical and dental readiness that will ensure compliance with RC standards.
- to evaluate the sufficiency of medical readiness requirements for the current military operations.
- to identify the costs of alternative approaches to improve medical/dental readiness.

Why Medical Readiness for the Reserves Is Important

IMR is an ongoing process of meeting annual requirements. Medical readiness has been a particular concern for the RCs. A recent study showed that the RC members from most services were more likely than their active component (AC) counterparts to require medical evacuation during deployment to Operation Iraqi Freedom (OIF) in Iraq and Operation Enduring Freedom (OEF) in Afghanistan. (The Air Force was an exception—its rates for active and reserve were similar [Armed Forces Health Surveillance Center, 2010a, p. 5].) This is important, since medical evacuation "during military deployments directly affects the soldier's military unit and its ability to be combat ready at all times" (Hauret et al., 2010, p. S105). Additionally, a recent study showed that all members benefit from predeployment health screening: "Predeployment mental health screening was associated with significant reductions in occupationally impairing mental health problems, medical evacuations from Iraq for mental health reasons, and suicidal ideation" (Warner et al., 2011).

As "citizen" soldiers, reservists tend to have the same needs for medical and dental health care as the general population. For example, at the end of 2008, 40 percent of Army Selected Reserve members had not seen a dentist in the last year (dental class 4). In the general population (age 18 to 64), 36 percent had not seen a dentist in the last year.[4]

Increased deployment demands on all services have made it imperative that service members arrive at their first duty station fully deployable. According to a 2006 paper in *Military Medicine*, however,

> In the past two years, operational commanders provided feedback to TRADOC [U.S. Army Training and Doctrine Command] that soldiers were not arriving at their first per-

[4] A graph on the CDC website shows that in 2005, 64 percent of household survey respondents reported having seen a dentist in the last year (CDC, 2008).

> manent duty stations fully ready and that remedying soldier dental problems either took the soldiers away from crucial pre-deployment training or, in some cases, delayed the soldier's deployment. (Chaffin et al., 2006, p. 25)

Similar findings were reported by the Tri-Service Center for Oral Health Studies (TSCOHS) in its review of U.S. Department of Defense (DoD) dental records in 1994 and, again, in 2000 (York, Moss, and Martin, 2003). TSCOHS found that 48 percent of new recruits had a high probability of a dental emergency in the next year and thus needed dental care (TSCOHS, no date). It also found that of those in need of such care, 49 percent had more than one tooth needing treatment, 71 percent had periodontal disease, and 68 percent required one or more extractions.

Dental emergencies in theater can be very disruptive to warfighting capability—for example, one in-theater dental emergency can require a convoy of three vehicles and nine personnel for evacuation (Bodenheim, 2009, slide 7). In addition to the direct cost of in-theater transportation in such a circumstance, there are the costs of lost duty days, potential need for backup personnel, and potential exposure to enemy fire for the patient and other personnel. All in all, evacuation from theater can cost anywhere from $10,000 to $200,000.[5] Being prepared to treat a dental emergency means deploying additional dentists or providing for evacuation. The cost-effective alternative is to ensure that members in need of urgent dental treatment are treated prior to deployment.

Service members returning from a deployment may also develop new deployment-limiting conditions (DLCs). A RAND study showed that approximately 20 percent of deployed service members return with mental health issues, which can fall into the DLC category (Tanielian et al., 2008). And a study of National Guard and Reserve soldiers one month prior to their deployment to Iraq found that those who had previously deployed to OEF/OIF reported more posttraumatic stress disorder (PTSD), depression, and other psychiatric symptoms—all of which can be DLCs—than did soldiers preparing for their first deployment (Polusny et al., 2009). New research has shown an increase in hypertension, also a DLC, following deployment (Granado et al., 2009). When a service member has a DLC, health care providers need to pay extra attention when completing the required Periodic Health Assessment (PHA).

Analytical Approach

Our analysis consisted of five integrated tasks:

1. examination of relevant DoD and service policies, instructions, directives, and orders
2. review of relevant scientific literature
3. site visits to drilling units, premobilization exercises, mobilization sites, state headquarters, and reserve support commands
4. analysis of available data
5. development of cost models.

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[5] The avergae cost of evacuation of pregnant woman out of theater during the first Gulf War (1991) was $10,000 (Ritchie, 2001). A 2008 briefing by LTC Eric A. Crawley states that the cost savings of preventing one emergency air evacuation is between $100,000 and $200,000.

More information about specific methods will be found in the individual chapters.

Monograph Organization

The remainder of this monograph is organized as follows:

- Chapter Two furnishes background on the RCs, including how they differ.
- Chapter Three describes current IMR requirements, shows how successful the RCs have been at meeting these requirements, and addresses potential obstacles to success.
- Chapter Four discusses whether current IMR requirements are sufficient for today's operating environment.
- Chapter Five details alternative approaches the military could take to improve medical and dental readiness.
- Chapter Six compares the costs of alternative approaches to IMR.
- Chapter Seven provides conclusions and key options for future reserve readiness policy.
- Appendices A, B, E, and F provide additional statistical information about the AC and RCs. Appendix C describes the IMR information available to members and commanders; Appendix D discusses Army first-term dental readiness; Appendix G details the U.S. Department of Veteran Affairs (VA) dental treatment policy; an additional section at the end of this book contains a matrix of IMR requirements for DoD and each of the services.

CHAPTER TWO

Who Are the Reserves?

In this chapter, we describe the RCs and consider some differences among the RCs that might affect medical readiness. As described in the following sections, the RCs differ from each other in percentage of force structure they supply to the different services, number and percentage of personnel who have deployed to Iraq or Afghanistan, age of members, number of organic medical/dental personnel, and types of medical missions for which they are responsible. These differences affect how members meet their IMR requirements and the costs of helping members meet those requirements.

Overview of the Reserve Components

The U.S. Reserves comprise approximately 1.1 million service members.[1] Within DoD, there are six RCs:

- Army National Guard (ARNG)—358,391 members
- Army Reserve (USAR)—205,927 members
- Navy Reserve (USNR)—66,508 members
- Air National Guard (ANG)—109,196 members
- Air Force Reserve (USAFR)—67,986 members
- Marine Corps Reserve (USMCR)—38,510 members.

The Army and Air National Guards are distinctive in that they have both a federal and state mission. They comprise the organized militias and can be used to enforce state laws. A seventh (and the smallest) RC, the Coast Guard Reserve, works closely with DoD but resides within the Department of Homeland Security. It also mobilizes, and its members—like all other RC members—are expected to meet IMR requirements (in their case, established by the Coast Guard Reserve).

Table 2.1 shows the RC structure and number of personnel. All RC manpower is assigned to one of three categories: the Ready Reserve, the Standby Reserve, and the Retired Reserve. The Ready Reserve is composed of military members of the RCs, organized in units or as individuals, who are liable for recall to active duty to augment the ACs in time of war or national emergency. The Ready Reserve consists of three subcategories: the Selected Reserve, the Individual Ready Reserve (IRR), and the Inactive National Guard (ING). Our study focused spe-

[1] Reserve member counts are from the OASD/RA (2010).

Table 2.1
Reserve Component Structure and Size, September 2009

Reserve Component	Number of Members
Ready Reserve	1,079,627
Selected Reserve	853,581
Individual Ready Reserve	221,312
Inactive National Guard	4,734
Standby Reserve	25,808
Retired Reserve	489,355

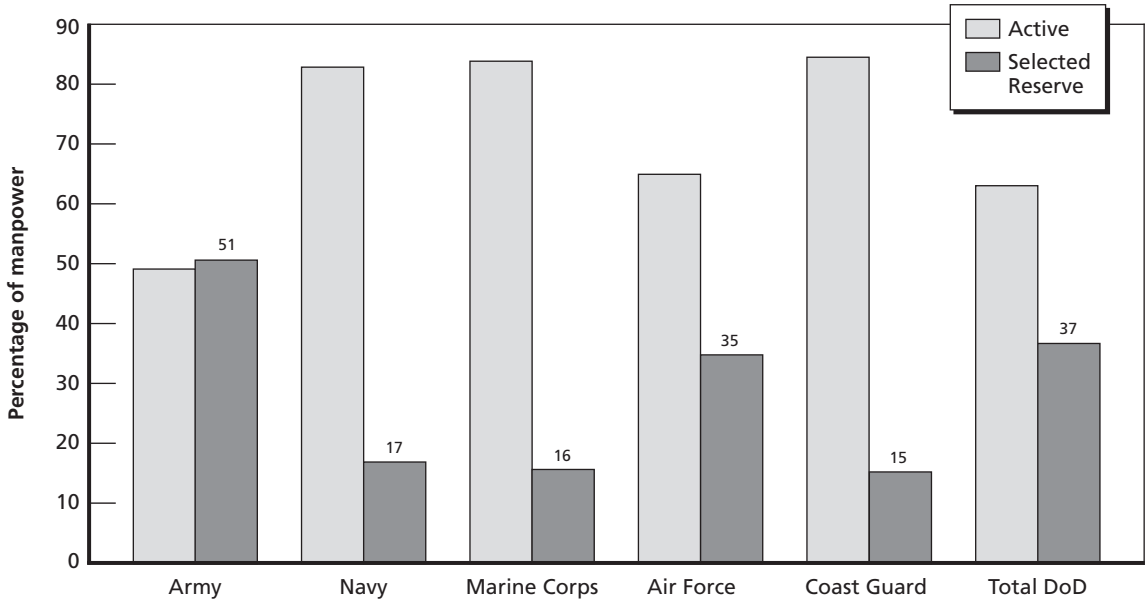
SOURCE: *Uniformed Services Almanac*, 2010.

cifically on the Selected Reserve because its service members are more likely to be mobilized and deployed than are members of the Standby Reserve or Retired Reserve.

The Reserve Components Differ in How Much of the Force Structure They Constitute Within the Services

The RCs constitute more than one-third of the total authorized end strength of the U.S. military forces. The fraction they make up within each of the services differs dramatically, however. As Figure 2.1 shows, the Selected Reserve makes up only about 17 percent of total end strength

Figure 2.1
Percentage of Each Service's Manpower That Is Selected Reserve, FY 2009



SOURCE: *Uniformed Services Almanac*, 2009; *Reserve Forces Almanac*, 2009.
NOTE: See Appendix A for Selected Reserve end strength numbers in FYs 1998–2009.
RAND *MG1105-2.1*

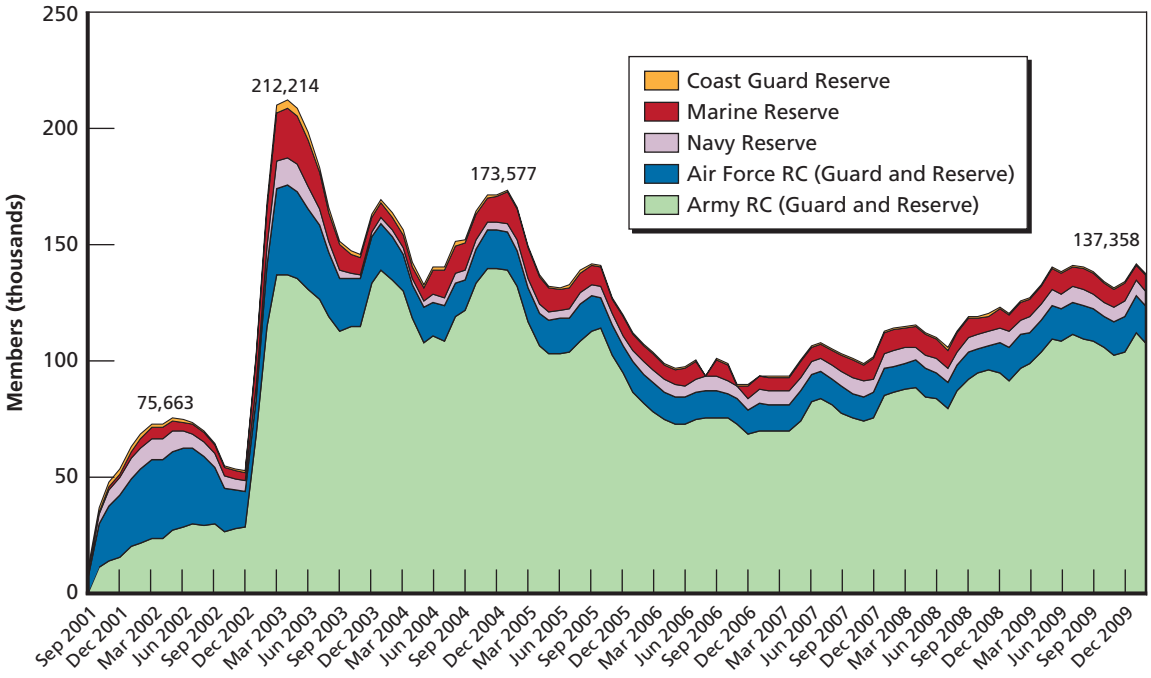
in the Navy and Marine Corps but constitutes approximately half (51 percent) of Army end strength. For the Air Force, the figure is 35 percent; for the Coast Guard, 15 percent.

The Reserve Components Differ in Percentage of Members Who Have Been Activated and Deployed

Figure 2.2 shows the number of RC members on active duty each month from September 2001 through 2009, all of whom were mobilized in support of Operation Noble Eagle (ONE),[2] OEF, and OIF. April 2003 had the largest number of activated reservists: 213,212. The Army Reserve and National Guard had 136,855 members activated; the Air Force Reserve and National Guard had 38,359. The other RCs had significant activations as well. In February 2010, 137,358 reservists were activated, with the Army RCs providing 79 percent of them.

The number of activated reservists is different from the number of deployed reservists. Upon activation, reserve members spend time at training centers, completing training and deployment requirements prior to actual deployment. Other activated reserve members serve as garrison support for deployed members. Table 2.2 shows the deployment percentages for each RC at the end of September 2009. The Marine Corps reserve had 23 percent of its members deployed, which amounted to fewer than 9,000 members. The Army guard and reserve had 20

Figure 2.2
Reserve Component Members on Active Duty (mobilized in support of ONE/OEF/OIF through 2009)



SOURCE: Email from LtCol William Laws, OASD/RA, April 13, 2010.
RAND *MG1105-2.2*

[2] Operation Noble Eagle refers to military operations beginning September 14, 2001, relating to homeland security.

Table 2.2
Percentage of Selected Reserve Deployed in September 2009, by Reserve Component

Reserve Component	Percentage Deployed	Number Deployed
USMCR	23	8,643
ARNG/USAR	20	110,016
USNR	9	6,415
ANG/USAFR	9	16,003
USCGR	8	651

SOURCE: Institute of Federal Health Care, 2009.

percent deployed, equating to more than 100,000 members. The other RCs had lower percentages of personnel deployed (Kozaryn, 2007).[3]

Table 2.3 shows the overall deployment statistics for the AC and the Selected Reserve. A little fewer than half the Selected Reserve members deployed at all during OEF and OIF, and the majority of those deployed only once. Similar percentages of active and reserve members deployed only once. The AC deployed slightly more than the RC (59 percent compared with 45.3 percent).

Members who have deployed are likely to have higher health care costs than members who have not deployed. For example, "Deployed service members are at greater risk for cavities because of starchy foods, sugary drinks and infrequent tooth brushing," reported MAJ Georgia dela Cruz, U.S. Army ("Dental Readiness Improved for War Fighters," 2005). In fact, members of the 3rd Infantry Division returned from their first deployment to Iraq with two-and-a-half times their predeployment number of cavities ("Dental Readiness Improved for War Fighters," 2005). Members returning from deployment may also have developed new DLCs, such as PTSD and hypertension.

Table 2.3
Frequency of Deployment During OEF/OIF for the Active Component and Selected Reserve, as of June 2008

Deployment Frequency During OEF and OIF	Percentage of Selected Reserve Members Who Deployed	Percentage of Active Members Who Deployed
0 times	54.7	41.0
1 time	31.2	32.0
2 times	9.3	17.8
3+ times	4.8	9.2

SOURCE: Defense Manpower Data Center.

[3] The length of time deployed also varies by service. Navy and Marine Corps reserves deploy for six to seven months; the Air National Guard and Air Force Reserve for about four; and Army reserve components for 12 to 15 months.

The Reserve Components Differ in the Age of Their Members

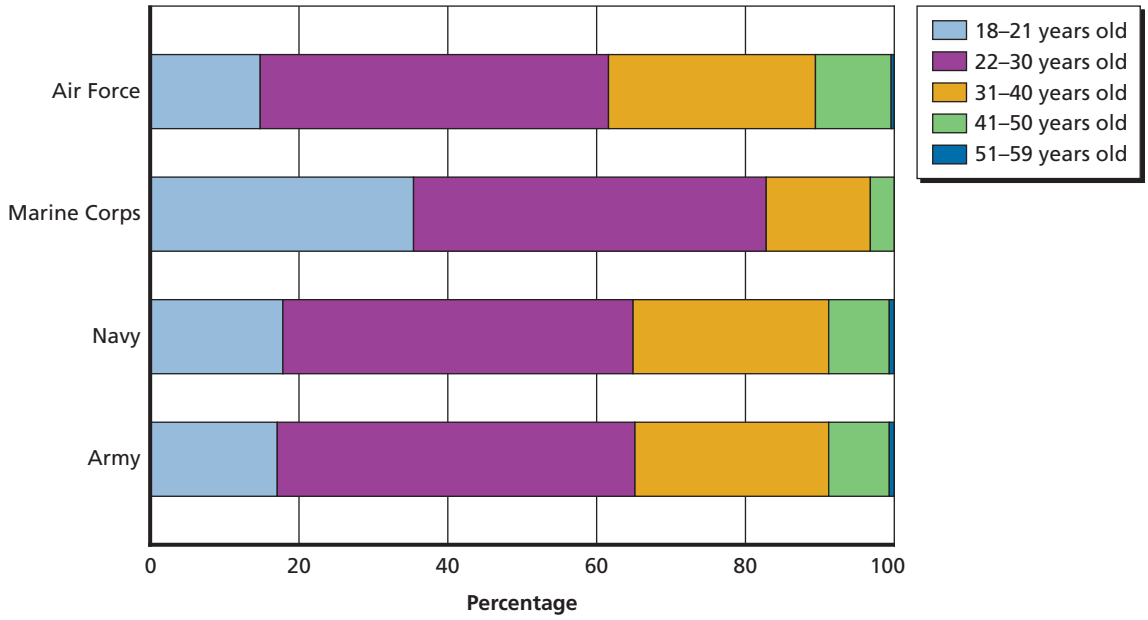
Figure 2.3 displays the age distribution of AC service members. As can be seen, the Navy and Army have very similar age distributions: 65 percent of their members are no more than 30 years old, and only 9 percent are over 40. Marines are the youngest members of the AC, with 82 percent at 30 years old or younger.

Figure 2.4 displays the age distribution for the Selected Reserve. The Marine Corps Reserve also has a very young membership: 81 percent are no more than 30 years old. The Air Force Reserve and the Navy Reserve each have about one-third of their membership at 30 or younger. Compared with the ACs, which have a very small percentage of members between 51 and 59 years old, the Selected Reserve has between 4 and 8 percent in this age range, except for the Marine Corps Reserve, which has fewer.

Dental costs also differ by age, being higher for younger service members. A study of the U.S. Air Force population during FY 2001 through FY 2004 showed that 17.6 percent of airmen under 20 years old were at high risk of developing caries, and 12.8 percent of airmen ages 20 to 24 were at high risk of developing caries. All other age groups had single-digit percentages (Bartoloni et al., 2006). However, because RC members are "citizen" soldiers, data for the U.S. population at large are likely to be more relevant here. The U.S. National Health and Nutrition Examination Survey showed that from 1999 to 2002, 27 percent of those 20 to 39 years old and 21 percent of those 40 to 59 years old had untreated decay in permanent teeth (Beltrán-Aguilar et al., 2005, Table 16). Age of members can affect the cost of providing IMR screening.

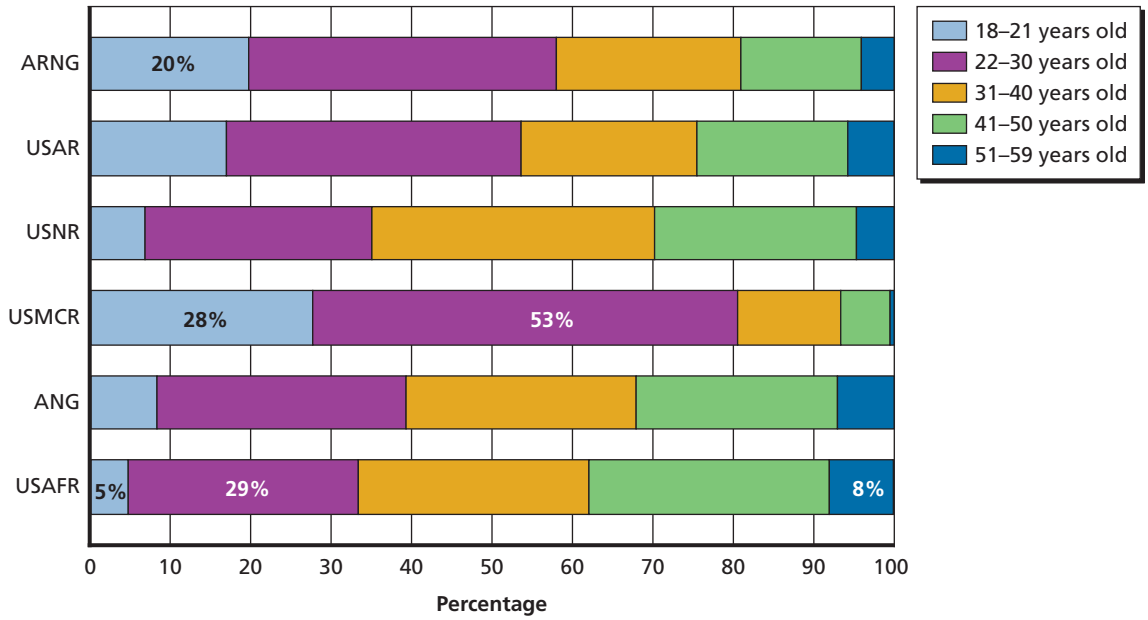
All military members (AC and RC) over 40 are required to have additional medical screenings, which can increase their PHA costs relative to those for younger members. These

Figure 2.3
Age Distribution of the Active Component



SOURCE: DMDC, 2009b.
RAND *MG1105-2.3*

Figure 2.4
Age Distribution of the Selected Reserve, by Reserve Component



SOURCE: OASD/RA, 2009.
RAND *MG1105-2.4*

screenings include glaucoma checks (annual), mammograms (every two years from 40 to 50, annually over 50), and prostate exams (annual) (Navy and Marine Corps Public Health Center, 2000). A colonoscopy is recommended every five years for members who are at high risk for colorectal cancer. For members over 50, additional exams are required, including a fecal occult blood test (annual) and a sigmoidoscopy (every three to five years).[4]

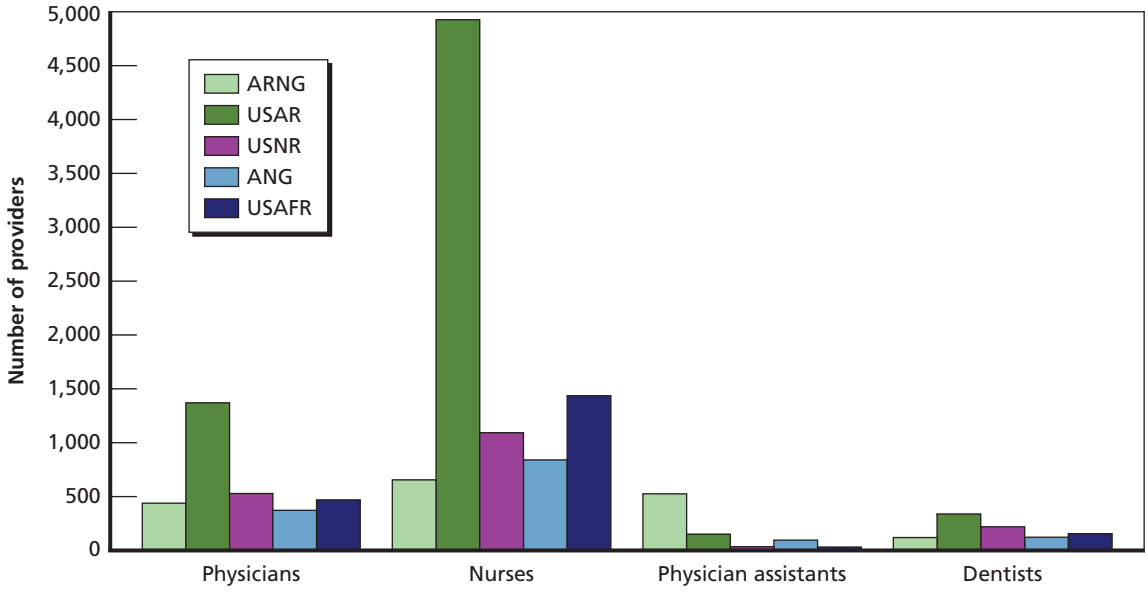
The Reserve Components Differ in Number of Organic Medical Personnel and the Missions for Which They Are Responsible

The RCs within the Army and Air Force are differentiated by the medical-care missions they are intended to perform. Consistent with the traditional combat service support orientation of the Army Reserve and Air Force Reserve, they have taken on the battlefield medical mission within the Army and Air Force. Additionally, the Army National Guard has multifunctional medical battalions that provide modular support tailored to both the division and corps levels (Weightman, 2005). The Army National Guard and Air National Guard, however, retain medical personnel in support of their state (as opposed to federal) missions. These differences in force structure affect the amount of organic resources available to screen members for IMR requirements.

This difference is reflected in the numbers of medical personnel in each RC, as shown in Figure 2.5. The Army Reserve has significantly more physicians and nurses than do the other RCs. The Air Force Reserve has more medical personnel than the Air National Guard in every

[4] For the most part, PHA standards conform to nationally recognized guidelines, such as those published by the Centers for Disease Control and Prevention (CDC) and U.S. Preventive Services Task Force (USPSTF) recommendations A and B. Where there are no national standards, the military services have relied on published studies to develop regulation.

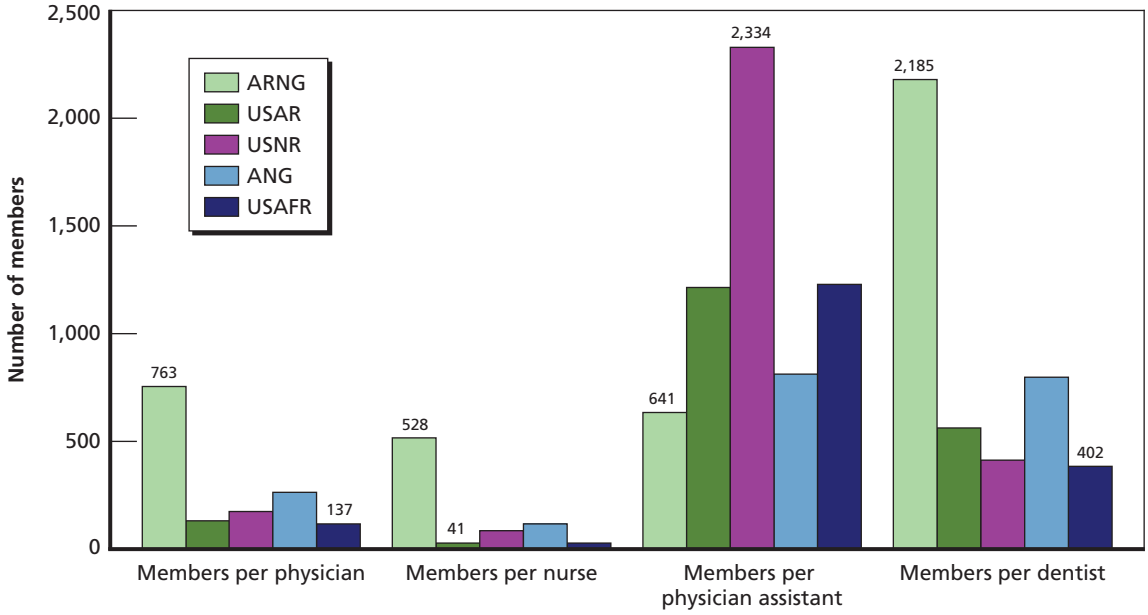
Figure 2.5
Number of Selected Reserve Medical and Dental Personnel, by Reserve Component



SOURCE: DMDC, 2009a.
RAND *MG1105-2.5*

category except physician assistants. And, as Figure 2.6 indicates, the Army Reserve and Air Force Reserve have fewer service members per medical specialist than do the corresponding national guard components. For example, the Army Reserve has only 148 members per physician, whereas the Army National Guard has 763.

Figure 2.6
Number of Selected Reserve Members per Selected Reserve Medical/Dental Personnel



SOURCE: DMDC, 2009a; OASD/RA, 2009.
RAND *MG1105-2.6*

Mission differentiation within the Army and Air Force RCs has implications for IMR achievement costs. Even though medical and dental providers in the Army Reserve and Air Force Reserve are in large supply, their battlefield missions and the need for reserve drill time in which to train for those missions limit their availability to help members meet IMR requirements. These components therefore use outside sources to provide these services, which adds cost.

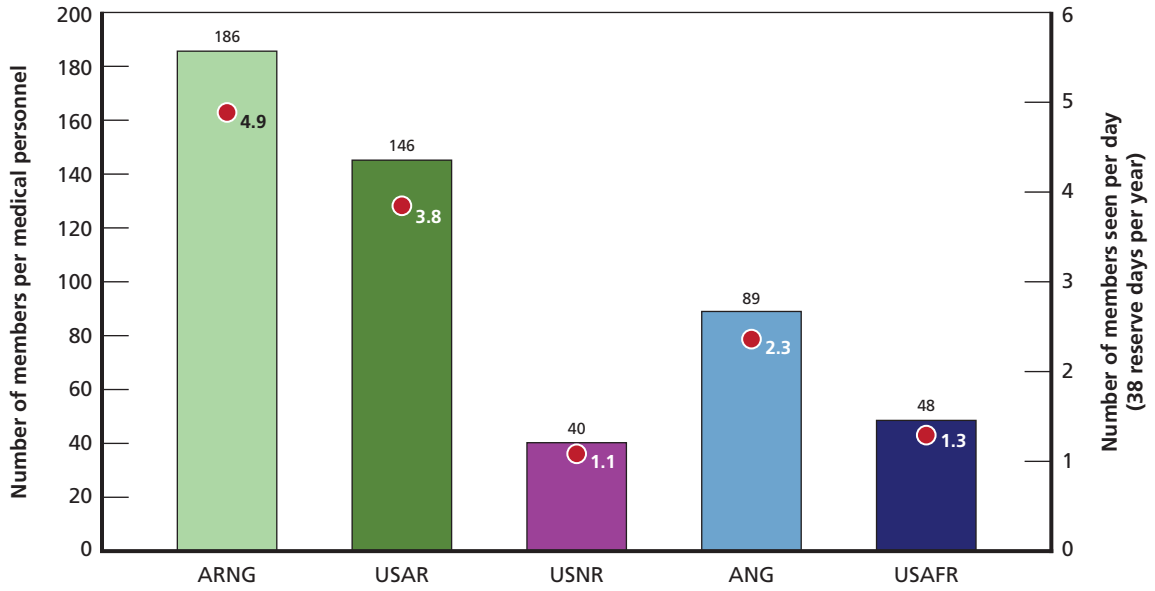
That is in contrast to the national guard components, which frequently use organic medical and dental personnel to complete some of the annual IMR requirements—but only some, because the guard medical complements are smaller. For example, note in Figure 2.6 the large number of Army National Guard members per dentist. With so few dentists, it would be very difficult for them to perform the required annual dental exams—and only dentists are allowed to perform such exams, so other medical providers cannot be substituted.

Since 2005, the DoD total end strength of the RCs has been increasing (see Appendix A), and the number of reserve dentists and physicians as a percentage of the total end strength has declined (see Appendix B, Figures B.1 and B.2). This decline will further constrain the Army National Guard's ability to rely on its own medical providers to review PHAs and provide medical and dental care.

While the annual dental exam must be completed by a credentialed provider, the annual PHA does not have this requirement. How a service member answers the self-assessment questionnaire determines whether nonphysician medical personnel may perform the provider portion of the PHA. This greatly reduces the burden per organic medical provider, but there are still large differences in the size of the burden across components, with that of the Army components being most significant.

Consider Figure 2.7, in which the small circles represent the numbers of reserve members that would have to be seen each drill day by each medical specialist if all members were to be

Figure 2.7
Number of RC Members That RC Medical Personnel Would Have to See Each Drill Day to See All Annually



RAND *MG1105-2.7*

seen annually by organic medical personnel (assuming that the burden is spread evenly). We calculated this number by first dividing the end strength of each RC by the combined number of physicians, nurses, and physician assistants in that RC, yielding the bars shown in the figure. Because Selected Reserve members traditionally drill 38 days per year (12 drill weekends plus 14 days annual training), the height of each bar is divided by 38 to give the number of reserve members that would have to be seen per drill day by reserve medical personnel. In the Army National Guard, there are about 190 RC members per medical specialist, so each specialist would have to see five members per drill day if all were to be seen annually. Another point to be considered is that when medical personnel conduct PHA reviews, they are not themselves training, so such activities come at the expense of their own training.

Chapter Summary

There are clear differences among the Selected Reserve components:

- **Constitution of force structure.** The Selected Reserve makes up about half of the Army end strength. In contrast, it makes up only about 17 percent of total end strength in the Navy and Marine Corps.
- **Percentage of members deployed.** In September 2009, 23 percent of the Marine Corps Reserve was deployed, whereas only 9 percent of the Air Force and Navy RCs were deployed (Kozaryn, 2007).[5]
- **Age of members.** In the Air Force Reserve, 39 percent of members are over 40 years old, compared with only 6.5 percent in the Marine Corps Reserve.
- **Number of organic physicians and dentists and their assigned missions.** There are not enough dentists in the Army National Guard to perform the required annual dental exam. Physicians per RC member vary tenfold across RCs. Medical and dental providers in the Air Force Reserve and the Army Reserve have battlefield missions, for which they need time to train, rendering them unavailable to provide the relevant care.
- **Volume and time.** Not only is the Army RC larger than the Army AC, but the Army RC has only 38 paid days per year for all training and readiness requirements, making completion of annual IMR requirements a significant task for Army RC units.

These differences mainly stem from the roles assigned to each RC in the national defense strategy.

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[5] Again, the length of time deployed also varies by service. The Navy and Marine Corps reserves deploy for six to seven months; the Air National Guard and Air Force Reserve for about four; and Army RCs for 12 to 15 months.

CHAPTER THREE

Achieving Individual Medical Readiness

All active and reserve service members must meet IMR requirements established by DoD and their service. The purposes of these requirements are to

1. ensure that military members can perform duties during deployment and identify those who are medically or dentally nondeployable so that timely cross leveling can occur (Embrey, 2005)[1]
2. provide preventive measures, such as immunizations, to protect members from potential health hazards
3. establish a medical and dental baseline prior to deployment to enable pre- and post-deployment comparisons for possible injuries, such as hearing loss or mental health issues
4. record personal identification information for forensic purposes.

In this chapter, we define IMR and examine the extent to which the RCs have been successful at achieving it and the factors that have acted as obstacles to success.[2] We begin by showing how the content of the IMR requirements has evolved over the past decade and how that content varies across the services. We then discuss why medical readiness is so important, as well as the system of providers and funds that have been established to help service members become medically ready. Finally, we examine the data on RC success at achieving IMR goals and discuss in some detail the factors that may be hindering further success.

Evolution of Individual Medical Readiness Policy

IMR policy has evolved over the years. Today there is a clear definition of the requirement and the associated IMR measurements and goals.

DoD Policy

The Assistant Secretary of Defense for Health Affairs (ASD/HA) first established IMR policy and metrics in May 2003.[3] Table 3.1 shows the current six IMR core requirements for reserves.

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[1] *Cross leveling* is the process of selecting reservists from inactive and selective groups to fill any required positions that are vacant in the deploying unit.

[2] This report is only about IMR requirements. The combatant commands also publish medical readiness requirements for their specific areas of responsibility. These requirements are applicable when a service member is assigned to their command.

[3] HA Policy 03-009 (ASD/HA, 2003).

Table 3.1
Core Elements of DoD Individual Medical Readiness Requirements for Reserves

Measure	Requirements
Periodic health assessment (PHA)	Annually completing a PHA and having it reviewed by a provider
Deployment-limiting conditions (DLCs)	Not having a DLC, defined using service-specific standards and guidelines[a]
Dental readiness	Dentist needs to assess member as class 1 or 2[b]
Immunizations	Although several immunizations are required, only influenza is required annually
Medical lab tests	HIV test within 24 months, DNA predeployment on file
Medical equipment	1 pair protective mask eye inserts (if needed)

[a] The Theater Surgeon has the ultimate authority on theater-specific DLCs.

[b] Dental class 1 = current (within past 12 months) dental exam, no treatment required; dental class 2 = current dental exam and requires nonurgent treatment for oral conditions not expected to result in emergencies within 12 months; dental class 3 = member requires urgent dental treatment for oral condition that if not treated is expected to result in a dental emergency within 12 months; dental class 4 = member needs a dental examination or status is unknown.

NOTE: The details for each of the six IMR requirements are provided in Table M.1 at the end of this document.

(The supplementary material at the end of this book contains detailed requirements for meeting IMR requirements across the services.)

On January 3, 2006, the Undersecretary of Defense for Personnel and Readiness published DoD Instruction (DoDI) 6025.19, *Individual Medical Readiness*. This instruction applies to all active and Selected Reserve members who have completed initial active duty training, with limited exceptions (e.g., those in degree-granting programs). IMR policy requires quarterly reporting of the six IMR performance metrics in the Status of Resources and Training System (SORTS), an electronic data collection system. It also defines the common assessment protocol ("fully medically ready," "partially medically ready," "not medically ready," and "medical readiness indeterminate"[4]) and establishes the required minimum goal of having more than 75 percent of service members fully medically ready. Both the assessment protocol and the goal are common across services, but DoDI 6025.19 does allow each service wide latitude to expand IMR requirements to meet service-specific needs, and it does not require services to report data from expanded requirements.

Health Affairs (HA) Policy 06-001, on oral health and readiness, established the goal that at least 95 percent of members should be in dental class 1 or 2 and 65 percent in class 1 (ASD/HA, 2006a). HA also established PHA policy via HA Policy 06-006, a memorandum that requires implementation of initial and annual health assessments for all active duty and Selected Reserve personnel and sets out the contents of these assessments (ASD/HA, 2006b). For most AC and RC members, the PHA replaced the five-year physical.[5] It consists of a member's self-reported health status, a record review, identification of health risks and recommendation of a plan to manage those risks, identification and management of occupational

[4] Fully medically ready = current in all categories, including dental class 1 or 2; partially ready = lacking one or more immunizations, readiness laboratory studies, or medical equipment; not medically ready = current or chronic deployment-prohibiting condition, including pregnancy, hospitalization, dental class 3; indeterminate status = inability to determine the service member's current health status because of missing health information, an overdue PHA, or being in dental class 4.

[5] As currently implemented, the PHA is a more frequent but less detailed medical check. It may or may not include a physical examination.

Table 3.2
DoD Health Affairs Policies and Guidelines

Policy Number	Date	Title
06-012	March 29, 2006	Uniform Policy for Meeting Mobilization-Related Medical Care Needs at Military Installations
06-014	July 31, 2006	Policy for the Use of Influenza Vaccine for the 2006–2007 Influenza Season
N/A	November 7, 2006	Policy Guidance for Deployment-Limiting Psychiatric Conditions and Medications
07-002	January 22, 2007	TRICARE Prime Enrollment Policy for Reserve Component Members and their Families
07-017	August 28, 2007	Updated Changes to Health Affairs' Policy on Dental Readiness within the Services
07-019	September 11, 2007	Change in Policy for Administration of Anthrax and Smallpox Vaccines
08-004	April 1, 2008	Update to Clinical Policy for the DoD Smallpox Vaccination Program
N/A	September 29, 2008	Policy Guidance for the Use of Influenza Vaccine for the 2008–2009 Influenza Season
08-019	November 21, 2008	Reserve Component Access to AHLTA, the Military Electronic Health Record
10-005	July 19, 2010	Mental Health Assessments for Members of the Armed Forces Deployed in Connection with a Contingency Operation

SOURCE: Military Health System, no date.

NOTES: There have been no additional updates pertaining to IMR as of July 2011. See the Military Health System's "Health Affairs Policies & Guidelines" web page (no date) for more information.

risks and exposures, identification and management of preventive needs, and development of a personalized plan to improve health status.[6]

Since being issued, these policies and guidelines have been updated and new policies have been issued by DoD HA, as shown in Table 3.2. **There have been no additional updates pertaining to IMR as of July 2011.**

Also pertinent is DoD Directive 1200.17, *Managing the Reserve Components as an Operational Force*, which was issued in response to more frequent deployments of the reserves (45 percent of the RC has deployed for OEF and OIF, compared with 59 percent of the AC). The directive's purpose was to establish an "overarching set of principles and policies to promote and support the management of the Reserve Components (RCs) as an operational force." One implication of this directive was that reservists now need to be as medically ready as active duty troops are.

Service and Component Variation

As mentioned earlier, the core IMR elements are consistent across DoD, but the specifics vary across services. For example, some immunizations are "Total force/all service" requirements (e.g., hepatitis A; tetanus-diptheria [Td]; measles, mumps, and rubella [MMR]; inactivated polio vaccine [IPV]; hepatitis B (if the series has begun); and influenza (once per season) (DoDI 6025.19), whereas others (such as rabies and typhoid) are service- and/or occupation-specific.

[6] For management of risks and preventive needs, reservists who are not eligible for TRICARE are referred to civilian providers. TRICARE is the DoD Military Health System health care program serving active duty and reserve service members, retirees, and their families. It was formerly known as the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). TRICARE and its use by reservists are discussed in greater detail later in this chapter.

Another variation is that the Army requires annual IMR Pap smear and chlamydia tests for female members and tracks multiple medical equipment items (including glasses and hearing aids), whereas the Air Force, Navy, and Marine Corps have no gender-specific tests and track only the military protective mask corrective insert. Some requirements, such as for anthrax, smallpox, and yellow fever immunizations, apply only to service members deploying to specific areas.

In the case of dental readiness, all services are executing the classification system established by ASD/HA in June 2002 (ASD/HA, 2002). However, how the services define each class can differ. For example, the Navy's class 2 is similar to the Army's class 1. There is also a difference in how dental assessments are made. Until recently, the Army used panoramic x-rays when screening recruits in the first-term dental readiness program (Bodenheim, 2008, p. 11),[7] whereas the other services use bite wing x-rays for diagnosis of cavities and panoramic x-rays for an overall view of oral health (impacted teeth, abnormal growths, infections, etc.). Now the Army also uses bite wing x-rays for evaluation of new recruits. All services use panoramic x-rays for forensic identification (Chen and Jain, 2008).

The implications of the requirements also vary across branches. In the Army, reservists are not penalized for failing to correct dental class 3 problems or even for failing to have an annual dental screening. The Air Force, in contrast, withholds salary payments to any reservist who is not fully medically ready (Headquarters, Air Force Reserve Command Surgeon General, 2009, p. 11). Both the Army and the Navy consider DLCs to be dichotomous—reservists either do or do not have DLCs. The Air Force, however, recognizes grades of DLCs, allowing reservists with particular DLCs to be deployed to some locations.[8]

Additional information on RC IMR requirements for each service is found in Table M.1 at the end of this document.

The Role of the Combatant Commands

In addition to DoD directives, HA policies, and service-specific requirements, the combatant commands (COCOMs) play a role in defining IMR. As mentioned above, for IMR reporting, the services set policies on what health conditions are considered DLCs. However, for actual deployment, the COCOM sets theater-specific medical guidelines. Currently, with most deployments occurring to Iraq and Afghanistan, the U.S. Central Command (CENTCOM) is the COCOM of greatest relevance. CENTCOM has published ten iterations of *Individual Protection and Individual/Unit Deployment Policy*; Modification 9, published on September 10, 2008, was in effect during much of our data collection.[9] Modification 9 defines medical deployability and the waiver process for deploying members who do not meet medical deployment criteria and clearly establishes the CENTCOM Surgeon as the authority for waiver approvals. Modification 9 medical conditions that limit deployment are diabetes mellitus (type I or II), asthma, hernias, and uncontrolled high blood pressure, among others. The document also contains a women's health section, which specifies required predeployment tests. Modification 10 was released March 5, 2010. It contained 15 changes, including the removal of a waiver requirement for members with type 2 diabetes on oral medication who

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7 Recent studies have shown that panoramic x-rays alone are insufficient for diagnosing dental cavities. See, for example, Akkaya et al., 2006; Vandenberghe et al., 2010.

8 See AFI 41-210, 2011, Table 10.1, "Stratification Levels and Member Approval Authority."

9 "MOD Nine to USCENTCOM Individual Protection and Individual/Unit Deployment Policy," 2008.

have a low risk of coronary heart disease and an added requirement for screening of coronary heart disease risk for civilians age 40 or older.

How the Reserves Become Medically Ready

Medical and dental readiness is the personal responsibility of each service member. Each member must complete an annual PHA and dental exam, take the required medical tests and obtain the required vaccinations, and obtain medical and dental treatment as needed. Readiness is also an issue for military leadership, because resource limitations may present challenges for individuals attempting to fulfill their IMR responsibility. For example, reservists without access to AC medical and dental facilities often have difficulty completing the yearly requirements.

Army members can track their compliance via their Army Knowledge Online (AKO) account, and Navy Reserve members can track their compliance on BUPERS Online (BOL). Other RC members must rely on unit clerks for IMR deadlines. Appendix C details the information and systems available to members and commanders for tracking IMR requirements and compliance.

Providing IMR Services

Required IMR services may be delivered by military or civilian providers. When members use civilian providers, they usually do so on their own time, so there is little impact on training schedules.

Military providers include

- active and reserve physicians, physician assistants, nurses, nurse practitioners, dentists, and medical assistants
- civilian medical providers who work in military medical treatment facilities
- state guard medical personnel who assist at readiness events.

Civilian providers include

- providers contracted through the Reserve Health Readiness Program (RHRP) (formerly "FEDS-HEAL")[10] or through other means[11]
- providers participating in TRICARE Reserve Select, a premium-based health plan for Selected Reserve members (and their families) who are not on active duty (few RC members purchase this plan[12])
- other community-based providers.

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[10] The RHRP contract is currently managed through Logistics Health Inc. (LHI), which won a competitive bid.

[11] Private companies, such as OnSite Health, ReachOut Healthcare America, and ACC Consultants, provide mobile dental and health care services. Such mobile services originally were used for military and underserved populations. Today, large corporations find it cost-effective to have regularly scheduled visits by mobile dental and health care screening vans. Providing health care services from company parking lots assures more personnel complete preventive health care and reduces lost work time.

[12] The monthly 2011 TRICARE premiums are $53.16 for members only and $197.76 for members and family. Additionally, there is a yearly $100-$150 member and $100-$300 family deductible (depending on rank) plus cost sharing for medical services. The yearly catastrophic cap is $1,000. As of 2011, TRICARE Dental monthly premiums are $12.69 for

Less commonly, IMR needs are met by VA providers.

The Army Reserve uses RHRP contractors to meet its IMR requirements; the state National Guard organizations limit their use of RHRP, mainly using state guard physicians and dentists for annual exams and often using contract dentists for corrective procedures. Table 3.3 shows the number of service members in each RC who were receiving care from RHRP in the fourth quarter of 2009. Of the 158,017 total reservists who received dental care through RHRP, 66 percent were members of the Army Reserve and 26 percent were members of the Army National Guard. The other RCs made minimal use of RHRP dental services. As can be seen in the table, the distribution among the RC of RHRP services for PHA and immunization is similar to that for dental services.

At the beginning of the wars in Afghanistan and Iraq, many reserve units used the "just in time" method of getting soldiers medically ready for deployment. When a unit was notified that mobilization to active duty was in its future, unit administrators put increased emphasis on the need for members to become medically ready. For most members, that meant getting a dental screening. Still, when reserve and guard units went to the mobilization platform, many members were often in need of medical and dental treatment. In consequence, the time required to bring soldiers to IMR compliance either lengthened the unit's time at the mobilization platform or detracted from unit training. Since neither of these outcomes is desirable, units began holding medical readiness events at their home stations or at state training locations prior to reporting to the mobilization platform.

Table 3.3
IMR Services Provided by RHRP to Reservists, Fourth Quarter of 2009

	Dental		PHA		Immunizations	
Reserve Component	Number	Percentage of Component Members	Number	Percentage of Component Members	Number	Percentage of Component Members
ARNG	41,645	12	12,424	3	25,586	7
USAR	104,324	51	42,786	21	90,233	44
USNR	5,549	8	2,419	4	443	1
USMCR	3,037	8	1,927	5		0
ANG	2,181	2		0		0
USAFR	1,097	2		0	50	0
USCG/R	184	2	2,837	37	345	4
Total RC served	158,017	18	62,393	7	116,657	14

SOURCE: DoD, 2010, individual medical readiness metrics.

members only, and range from $31.72 to $91.98 for additional family members. Additionally, there is cost sharing ranging from 0 percent to 50 percent with an annual maximum of $1,200 per enrollee per contract year (TRICARE, 2011).

Assistance for Achieving Medical Readiness

Although reserve members are responsible for their own IMR, they are offered some assistance. They may purchase TRICARE Reserve Select Medical and Dental Insurance for themselves and their families (few reserve members enroll in these programs, however), and military funds pay for required immunizations, lab tests (such as HIV testing), medical equipment (such as protective mask inserts), and the annual PHA review. The FY 2010 National Defense Authorization Act extends TRICARE eligibility to reserve members for 180 days prior to active duty, which helps members become medically and dentally ready.[13] However, if a member's PHA review indicates that further exams or treatments are needed, he or she must bear the cost unless those services are obtained as part of deployment preparation (within 180 days of mobilization). In some reserve organizations, military funds are used to pay for members' annual dental exams, along with treatment to achieve dental class 2 status.[14] But in most cases in which civilian providers perform annual exams and preventive or reparative care, reserve members pay for the services.

Prior to deployment, many Army National Guard organizations hold Soldier Readiness Processing (SRP) events at state training facilities. These events, which are staffed with guard and contract medical and dental personnel, have become a vital way of making deploying reservists medically ready before they report to mobilization sites.

However, SRP sites have often been overwhelmed by the volume of reservists needing services, many of whom have gone without care for extended time and thus need significant medical and dental attention. In response, many units have started using drill weekends to conduct mass health care events before reservists are sent to SRP events. These weekends usually have health care providers available to administer immunizations. Some bases also have reservists complete their annual PHAs at this time.

Some installations appear to have helped the IMR process along by establishing communication via personal visits and video teleconferences among mobilization brigades, SRP sites, and units. According to a 2009 Department of the Army Inspector General report, communication at this level and of this type is felt to have "contributed greatly to increased medical readiness and fewer 'Release from Active Duty' (REFRAD) cases" (Department of the Army Inspector General, 2008). Statistics from Camp Shelby, a reserve mobilization site, have shown a decrease in the number of reserve members released from active duty (REFRAD).[15] According to the head Army Nurse at Camp Shelby, "FY 2008 we had an overall REFRAD rate of 23.5 percent; FY 2009 we had an overall REFRAD rate of 14 percent. I truly anticipate that this will be around 5 percent for FY 2010."[16] In the Navy, the commanding officer of the Navy Operational Support Command (NOSC)[17] at each installation must "scrub" the list of deployment candidates, meaning that he/she reviews all deployment candidates for medical readiness. For reservists not medically ready, the NOSC can either facilitate getting them ready or take

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[13] Previously, reserve members were only eligible 90 days prior to active duty (Pub. L. 111-84).

[14] In FY 2009 and FY 2010, the Army Reserve had funding to pay for exams and treatment to dental class 2 for all its members, and it contracted with RHRP for the dental care. The Army National Guard received similar funding in FY 2010 and used both civilian contractors and RHRP to provide dental assessment and treatment. This resulted in increased dental readiness for both components.

[15] REFRADs are a problem because a trained, deployable replacement must be found for the member who is sent home.

[16] Email from Jennifer L. Petersen, LTC(P), AN Commanding, MTF-Camp Shelby, December 17, 2009.

[17] The NOSC is a Navy reserve training center.

them off the list of deployable persons (which is not an attractive option given that the demand for reservists usually exceeds the supply). Commanders are rated on their success in sending qualified reserve members to Navy mobilization processing sites, and the NOSC medical unit officer in charge is rated on the readiness numbers of the entire NOSC. Thus, it behooves both of these leaders to keep readiness up and to send the most prepared members for deployment.

Post-Deployment Health Assessment

Upon returning from deployment, service members are required to complete the Post-Deployment Health Assessment (PDHA) form, DD Form 2796, and 90 to 180 days after return, the Post-Deployment Health Reassessment (PDHRA) form, DD Form 2900, which are standardized across branches and should be able to serve as PHAs for the following year (DoDI 6490.03; ASD/HA, 2005). As is the case for the PHA, the PDHA must be completed electronically. Reservists complete it at the demobilization site.

How Well Are the Reserves Faring on Medical and Dental Readiness?

Achievement of Medical Readiness Goal

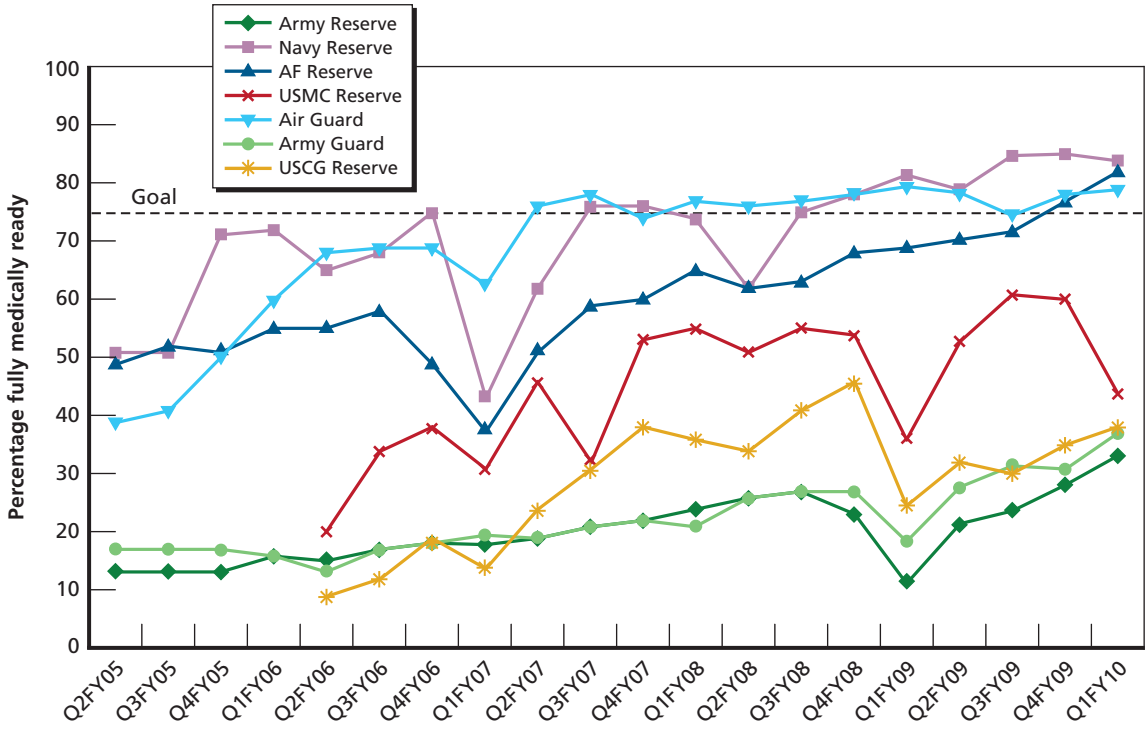
Each service's Surgeon General is required to report quarterly to the Force Health Protection Council on the medical readiness status of its members (DoDI 6025.19, p. 4). As of the first quarter of FY 2010, neither the AC nor the RC was meeting the DoD minimum goal of having more than 75 percent of members fully medically ready. At the end of the first quarter of FY 2010, the RC reported that only 45 percent of its forces were fully medically ready, and the AC reported that 72 percent of its forces were.

Figure 3.1 shows the percentage of members fully medically ready for each RC from the second quarter of FY 2005 through the first quarter of FY 2010. The Air National Guard has been at or above the 75 percent IMR goal since the first quarter of FY 2008; the Navy Reserve has continuously achieved this goal since the third quarter of FY 2008; the Air Force Reserve achieved this goal in the fourth quarter of FY 2009. The Army RCs, however, have clearly had difficulty meeting the goal: In the period shown, they have never reported more than 40 percent fully medically ready. In recent quarters, the Coast Guard Reserve has been only moderately more successful than the Army, and the latest number from the Marine Corps Reserve is not much higher. (Appendix F shows the percentage of fully medically ready members for the AC.)

Hidden within these problematic overall IMR rates are some notable successes in meeting the DoD medical readiness requirements (listed in Table 3.1) that constitute a military member's being "green" (fully medically ready). Since the beginning of FY 2009, all of the RCs have been above 84 percent compliance with the DoD lab requirement and 70 percent compliance with the medical equipment requirement. Compliance with immunization requirements has been steadily increasing; by the first quarter of FY 2010, only the Marine Corps Reserve was below 70 percent. Similarly, the requirement for an annual health assessment has improved, with all RCs reaching about 70 percent in the first quarter of FY 2010. Table 3.4 shows RC readiness status for each IMR requirement as of the first quarter of FY 2010.

The percentage of reserve members with a DLC has generally stayed low (see Figure 3.2). Beginning in FY 2006, however, the percentage of members with DLCs rose in both Army

Figure 3.1
Percentage of Selected Reserve Fully Medically Ready



SOURCE: DoD IMR Quarterly Reports.
RAND *MG1105-3.1*

RCs. Notably, the rate of members with a DLC in the Army Reserve is more than double that in the non-Army-affiliated RCs.

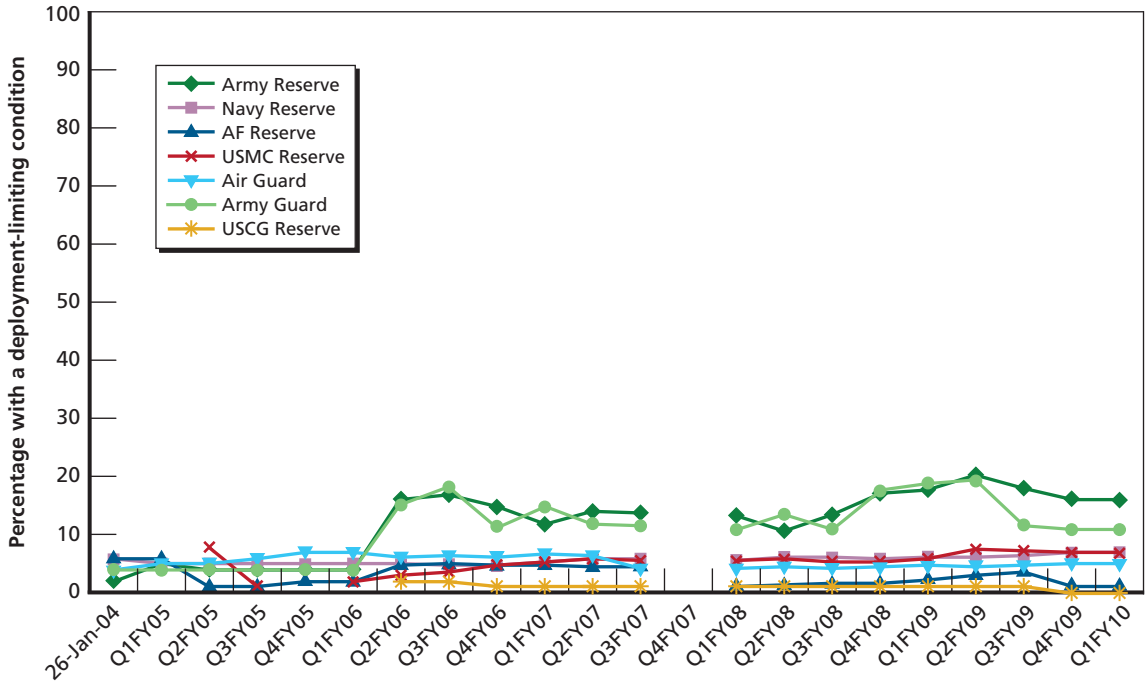
Dental Readiness

Only rarely has an RC met the DoD goal of 95 percent of members being in either dental class 1 (having had a dental exam within the past 12 months with no treatment required) or dental class 2 (having had a dental exam within the past 12 months with no urgent treatment required) and 65 percent of members being in class 1. Figure 3.3 graphs the percentage of

Table 3.4
Reserve Component IMR Status for Each of the Six Requirements (%), First Quarter FY 2010

Requirement	Army Reserve	Navy Reserve	Air Force Reserve	Marine Corps Reserve	Air National Guard	Army National Guard	Coast Guard Reserve
Dental class 1 or 2	62	95	91	78	91	58	80
Immunizations	78	96	95	63	96	72	73
Medical readiness labs	92	96	96	87	97	92	94
No DLCs	84	93	99	93	95	89	100
Health assessment	71	98	93	87	95	72	88
Medical equipment	77	95	94	78	92	81	100

Figure 3.2
Percentage of Selected Reserve with a Deployment-Limiting Condition



SOURCE: DoD IMR Quarterly Reports.
NOTE: Data are missing for Q4FY07.
RAND *MG1105-3.2*

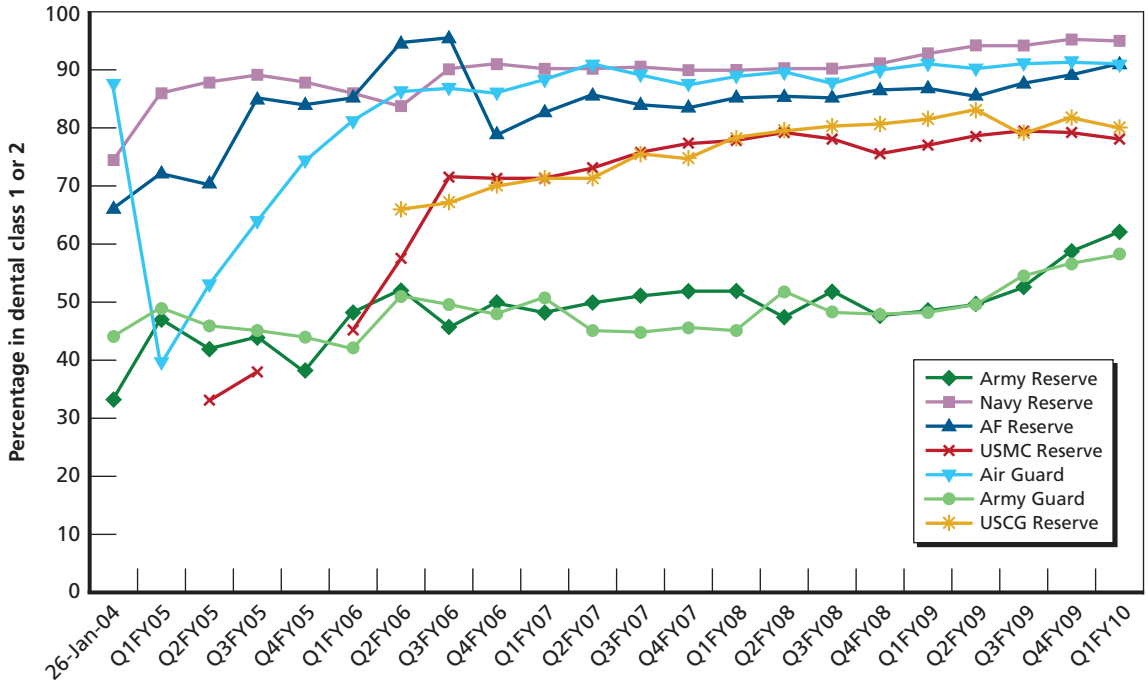
Selected Reserve members in dental class 1 or 2 from 2004 through 2009. Although only the Navy Reserve has been at or almost at goal in recent quarters, the tendency, with a few exceptions, has been toward increased compliance. The Army RCs show a modest increase of about 10 percentage points beginning in 2009, when soldiers were given dental exams and treatment with expenses paid by the military.

Dental Readiness at Army Mobilization Sites

Dental readiness of Army RC members at mobilization sites has improved since 2003, primarily because of SRP events held prior to units' reporting to mobilization sites. Table 3.5 shows the improvement from FY 2006 to FY 2010. According to these data, the gains have been steady for the Army National Guard and Army Reserve. In FY 2006, only 56 percent of mobilized Army National Guard members were dentally ready, but by FY 2010, that figure was up to 85 percent. This is a remarkable achievement. The Army Reserve started with a lower dental readiness rate, of 34 percent, in 2006, and by 2010 had increased it to 61 percent. According to Colonel Mark Bodenheim, "This shows the success of implementing the Army SELRES [Selected Reserve] Dental Readiness System (ASDRS) when commanders and Soldiers are held accountable."[18]

[18] Email correspondence with Mark B. Bodenheim, COL, DC, USAR, Chief, Reserve Components Operations, U.S. Army Dental Command, June 10, 2010. Under the ARMY SELRES Dental Readiness System, Army Reserve soldiers receive annual dental exams and treatment using RHRP dentists on an individual basis. The Army Reserve pays for this dental care.

Figure 3.3
Percentage of Selected Reserve in Dental Class 1 or 2



SOURCE: DoD IMR Quarterly Reports.

RAND *MG1105-3.3*

Table 3.5
Dental Readiness at Mobilization Stations for Army RC Soldiers (%)

	FY 2006		FY 2007		FY 2008		FY 2009		FY 2010 (Oct 2010–April 2011)	
Dental Status	**ARNG**	**USAR**	**ARNG**	**USAR**	**ARNG**	**USAR**	**ARNG**	**USAR**	**ARNG**	**USAR**
Ready (dental class 1 and 2)	56	34	61	40	74	43	77	51	85	61
Not ready (dental class 3)	12	22	15	17	8	14	7	13	6	9
Not ready (dental class 4)	33	44	24	43	18	43	16	36	9	30

SOURCES: Email correspondence with COL Bodenheim, June 10, 2010; and Bodenheim (2008), in which he draws on data from the DENCOM Corporate Dental Application (CDA) RC Mobilization Module.

Obstacles to Maintaining Medical and Dental Readiness for the Reserve Component

As shown in Figures 3.1 through 3.3 and in Appendix F, the ACs and RCs both have, for the most part, been unable to meet the minimum IMR goals of at least 75 percent medical readiness overall and 65 percent/95 percent dental readiness. We turn now to discussing obstacles that may be preventing the RCs from meeting these goals. We identified several potential obstacles: reservists' having insufficient time to become medically and dentally ready, expenses

that reservists incur in becoming ready, the complicated nature of the military's funding for getting reservists ready, the supply of health care providers, and inconsistencies in the procedures associated with becoming medically compliant. The following subsections address each obstacle in turn.

No Requirement for Medical or Dental Readiness When Graduating from Training

A military member is not a deployable asset until he is both trained and medically and dentally ready. Yet, there is no IMR requirement for graduation from training—basic training, advanced individual training (AIT), one station unit training (OSUT), or officer basic course (OBC) (Department of the Army, 2011, p. 30). For the AC member who is assigned to a military installation with medical and dental facilities, becoming IMR compliant is much easier than for the RC member who relies on community-based providers.

In 2003, the Army initiated a pilot study to increase the number of dentally ready first-term soldiers. The goal was to have 95 percent of graduates from AIT dentally ready. The pilot study was very successful: Only five of the 4,458 soldiers did not achieve dental class 2 (Chaffin et al., 2006, p. 25). Appendix D outlines the Army's program for first-term dental readiness. The need for supplying dental services to recruits has grown; in 2002, 42 percent of recruits were nondeployable due to lack of dental readiness; by 2010 that number had grown to 62 percent (Hall, 2011, p. 2).

With the current high operating tempo, it is imperative that all recruits begin their military service compliant with IMR requirements. Such a policy change would decrease the number of soldiers needing treatment at mobilization sites.

Limited Time to Become Medically and Dentally Ready

RCs have limited time to become medically ready. As Figure 3.4 shows, monthly Army reserve training weekends are fully scheduled; unit training, warrior task training (WTT),[19] and physical fitness consume much of the available time. Until recently, time to complete IMR requirements was not on the training schedule; the Army expected members to complete these on their own time. However, both the Army National Guard and the Army Reserve are hoping to get funding to pay all members who use personal time to complete IMR requirements. In the FY 2009 and FY 2010 budgets, the Army Reserve received funding to pay some reservists for one or two days[20] of personal time used to complete IMR requirements. The Army National Guard expects similar funding to begin in FY 2011.[21]

Another aspect of time as a factor limiting medical readiness was the 90-day TRICARE-eligibility period for reservists. Many Army reserve organizations have found 90 days to be insufficient for becoming medically ready (see Department of the Army Inspector General, 2009). This may be true for other branches as well. As noted previously, the FY 2010 National Defense Authorization Act extends TRICARE eligibility for reserve members to 180 days before they go on active duty. It is too early to determine whether this change will affect the readiness statistics, because service members are not eligible for TRICARE until mobilization orders are processed. Sometimes the list displaying members is not set 180 days prior to activation.

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[19] Warrior task training is what used to be known as common task training.

[20] A day is a four-hour unit training assembly (UTA). A reserve member in a troop program unit (TPU) is paid on a day-by-day basis. Usually, one drill weekend consists of four UTAs.

[21] Phone conversation (June 2010) with the Chief Dental Officer for the National Guard Bureau.

Figure 3.4
A Typical Training Schedule Has Little Time for IMR Requirements

	1st QTR			2nd QTR			3rd QTR			4th QTR		
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Higher Headquarters Requirements	DIV CTG/LRC Published (1) Urinalysis Testing	CMD Retreat Urinalysis Testing TY08 Ammo Forecast	7th BDE CTG TY 08 suspense (1) Urinalysis Testing Planning Conf @ VanCouver, WA	DIV Staff Workshop Urinalysis Testing	DIV TY08 YTG/ YTC publ (1) OICs/NCOICs PRE CAMP CONF. ROTC, F TLewis, WA Urinalysis Testing	Urinalysis Testing	Urinalysis Testing	Urinalysis Testing	Susp. 7th BDE TY08 YTG/YTC (1) Urinalysis Testing	WURC Conf Urinalysis Testing	Urinalysis Testing	ROTC AAR, FT Lewis, WA Urinalysis Testing
REPORTS, BRIEFINGS & SUSPENSES	– USR – NCOER's – BDE Soldier of Year Board – Jr Enl Promo Board – Sensitive Item Inventory	– BDE Awards Bd – NCOER's – Sensitive Items Inventory – Senior Enl Promo Packets Due	– WTT/Instr. Reports (12) – NCOER's – TY08 Ammo Forc – 2nd Qtr TY08 Ammo Forc – Senior Promo Bd – Jr Enl Promo Packets Due – Sensitive Item Inventory – Family Readines Brief	– USR – BDE YTB: CO CDRs Brief BDE Cdr – Publish Bde OPORD April Wpns Fire – NCOERs – Publish BDE CTG – Jr Enl Promo Board – Sensitive Item Inventory	– BDE Awards Bd – NCOER's – Sensitive Items Inventory – 100% Inventory OCIE All (pre AT) – Sensitive Item Inventory	– WTT/Instr. Reports (20) – NCOER's – 3rd and 4th Qtr TY08 Ammo Forcast – Sensitive Item Inventory	– USR – Firing Report – BN 3-year Calendars due – NCOER's – Jr Enl Promo Packets Due	– Publish BDE YTG for TY08 – BDE Awards Bd – NCOER's – Sensitive Items Inventory – Senior Enl Promo Packets Due – Jr Enl Promo Board	– WTT/Instr. Reports (20) – Publish BDE MOI for Soldier of the Year Board – 1st Qtr TY09 Ammo Forcast – NCOER's – Sr Enl Promo Board – DS PacketsDue – Jr Enl Promo PacketsDue	– USR – Susp. BN TY08 YTG/YTC (1) – NCOER's – Jr Enl Promo Board	– BDE Awards Bd – NCOER's – Sensitive Items Inventory – 100% Inventory OCIE All (post AT)	– WTT/Instr Reports (20) – 3rd Qtr TY09 Ammo Forecast – NCOER's – Jr Enl Promo Packets Due
TIME MANAGEMENT	AMBER	AMBER	AMBER	RED	RED	GREEN	GREEN	GREEN	GREEN	RED	RED	RED
UNIT TRAINING	– BDE MOBEX – 7th BDE (TS) E5/E6 Prom. Board – Mob File Update	– WTT – Logistics Training – HHD 7th Bde, 1/2/3 Bns – WeaponsTNG – Combatives – CMD Insp HHC	– WTT – Wpns Maint	– WTT – MTT's (TBD) – Combatives	– WTT – 3/319th CMD INSP Logistics Training – HHD 7th Bde, 1/2/3 Bns	– WTT – Update Unit Mobilization File, – PMI for Firers Wpns Maint – IED Training	– BDE Annual Weapons Qual – M16 Zero, Day Record, NBC Fire, Night Fire – 9mm Qual – LMTS – Concurrent Training – WPN/Mask Maintenance – WTT	– WTT – Wpns Maint – CMD INSP 1/319th – BDE(TS) E5/E6 Prom. Board – Logistics TNG–HHD 7th Bde, 1/2/3 Bns	– Wpns Maint – WTT – Combatives	– WTT – IED Training	– WTT – BN Soldier of the Year Boards – CMD Insp 2/319th – Wpns Maint – Combatives	– WTT – Logistics Training – HHD 7th Bde, 1/2/3 Bns – Wpns Maint – IED Training
MONTHLY TRAINING Requirements	– Trng. Mtng. – Instructor Rehearsals – NCODP/ODP – **NCOER format** – Chapel	– Trng. Mtng. – Instructor Rehearsals – NCODP/ODP – Chapel	– Trng. Mtng. – Instructor Rehearsals – NCODP/ODP – **ACUs** – Chapel	– Trng. Mtng. – Instructor Rehearsals – NCODP/ODP – Chapel	– Trng. Mtng. – Instructor Rehearsals – NCODP/ODP – **IED Recognition** – Chapel	– Trng. Mtng. – Instructor Rehearsals – NCODP/ODP – Chapel	– Trng. Mtng – Instructor Rehearsals – NCODP/JOPD – **Ethical Decision Making** – Chapel	– Trng. Mtng. – Instructor Rehearsals – NCODP/ODP – Chapel	– Trng. Mtng. – Instructor Rehearsals – NCODP/JOPD – **Fratricide** – Chapel	– Trng.Mtng. – Instructor Rehearsals – NCODP/JOPD – Chapel	– Trng. Mtng. – Instructor Rehearsals – NCODP/ODP – **Area Security Operations** – Chapel	– Trng. Mtng. – Instructor Rehearsals – NCODP – ODP – Chapel
OPPORTUNITY TRAINING	WTT	WTT	WTT	WTT	WTT	WTT	WTT	WTT	WTT	WTT	WTT	WTT
P.T.	**APFT**	**3 Mi Ruck March**	**MS/3 Mi Run**	**4 Mi Ruck March**	**MS/3 Mi Run**	**5 Mi Ruck March**	**MS/3 Mi Run**	**APFT**	**6 Mi Ruck March**	**MS/3 Mi Run**	**6 Mi Ruck March**	**MS/3 Mi Run**
ASSEMBLIES/ LOCATION	MUTA 5 USARC	MUTA 4 USARC	MUTA 2 USARC	MUTA 4 USARC	MUTA 4 USARC	MUTA 4 USARC	MUTA 5 USARC FT Pickett	MUTA 4 USARC	MUTA 4 USARC	MUTA 4 USARC	MUTA 4 USARC	MUTA 4 USARC
DRILLDATES	20–22	18–19	16	20–21	24–25	17–18	20–22	19–20	23–24	21–22	18–19	15–16

SOURCE: Army Reserve Unit Training Schedule.

RAND *MG1105-3.4*

Expenses Incurred by Members to Become Medically Ready

The second potential obstacle to the RCs' reaching their IMR goals is that reservists have been required to pay some of their medical and dental treatment costs. As shown in Table 3.6 (and discussed earlier), the military pays for the annual PHA review but does not pay for any treatment indicated by the review. Some DLCs resolve themselves with time (e.g., broken bones, pregnancy), but reservists must pay for treatment of those that do not (such as hypertension and diabetes). Also, most military branches have historically required reservists to pay for treatment required to achieve at least dental class 2 status, for preventive dental care (such as sealants), and for any costs incurred from using civilian dentists. Currently, the Army Reserve has enough FY 2010 funding to pay for annual dental exams and treatments by RHRP civilian dentists for members in dental class 3.[22] But since much of the increased FY 2009 and FY 2010 funding comes from Overseas Contingenecy Operations (OCO) supplemental funds and thus is subject to being reduced in the future, these payments for dental services may be short lived. No funding exists for preventive dental care, such as annual teeth cleaning (prophylaxis), fluoride treatment, and periodontal care.

Complicated Nature of Medical Readiness Funding

A third potential obstacle to meeting reserve readiness goals is the complicated nature of medical readiness funding. Currently, funding is increasing, and it is possible to show how funding is budgeted. But determining how funding is spent is a difficult task, which causes two further difficulties. First, how can RC headquarters determine what programs need more resources?[23] Adding to this issue is the fact that there is a huge incentive for reserve organizations to spend all their allocated resources early in the fiscal year so that they will be able to receive additional funding if it becomes available. Second, how can unit commanders plan for medical readiness when they do not know future resource levels?

Table 3.6
Before FY 2009 Reservists Paid for Some IMR Requirements

IMR Requirement	Who Pays
Annual periodic health assessments (PHAs)	Service, for the assessment; reserve member, for any care the assessment indicates is needed
Deployment-limiting conditions (DLCs)	Reserve member
Annual dental exam/dental treatment to reach dental class 1 or 2[a]	Exam = service or reserve member; treatment = reserve member
Annual immunizations	Service
Medical labs (HIV every 2 years, DNA)	Service
Medical equipment (protective mask eye inserts, if needed)	Service

[a] Class 1 = current dental exam and no treatment required; class 2 = current dental exam and requires nonurgent treatment for oral conditions not expected to result in emergencies within 12 months.

[22] The new program is called the Army Selected Reserve Dental Readiness System (ASDRS).

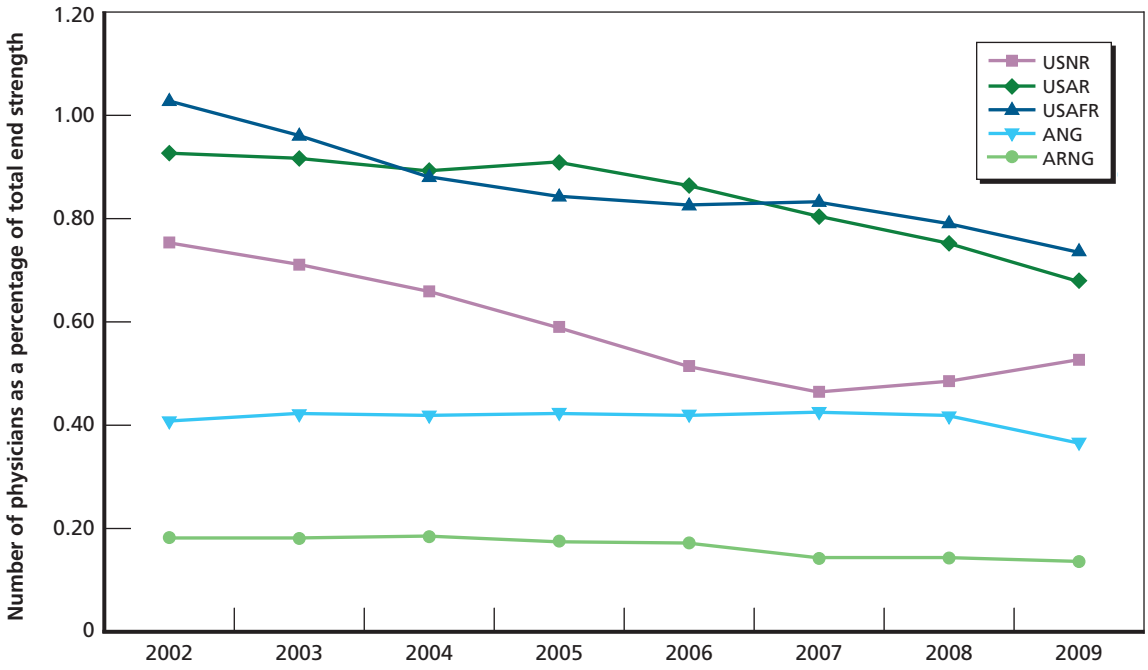
[23] An Army National Guard surgeon told RAND researchers, "I know how much money I gave to a state but I do not know how it was spent."

Supply of Health Care Providers

Another potential obstacle has to do with the number of organic health care providers available to help members meet medical readiness requirements. While the end strength of RCs is now increasing (see Appendix A), the number of reserve dentists and physicians as a percentage of the total end strength declined slightly over the past six years (see Figures 3.5 and 3.6). In 2002, the Air Force Reserve had the largest number of physicians as a percentage of its total end strength: 1.02 percent. But by 2009, this percentage had dropped to 0.73 percent. The Army Reserve experienced a similar drop in the number of physicians as a percentage of its total end strength, and the Army National Guard had the lowest number of physicians as a percentage of its total end strength in 2009: 0.13 percent.

The drop in the number of Army Reserve dentists as a percentage of total end strength has been precipitous—from 0.33 percent in 2002 to 0.18 percent in 2009. As for the Army National Guard, it has significantly fewer dentists per member than any other RC (which is also the case for its physicians). In 2009, its number of dentists as a percentage of total end strength was 0.05 percent. This issue bears importantly on the National Guard because it uses its own medical and dental providers to review PHAs and provide medical and dental care. In contrast, medical and dental providers in the Air Force Reserve and Army Reserve have combat missions and thus are not available to provide relevant care for reserve members. Instead, these two components use outside sources to provide care, so the percentage of providers in uniform in these components is not as relevant to IMR as it is in the other components. See Appendix E for comparable AC statistics.

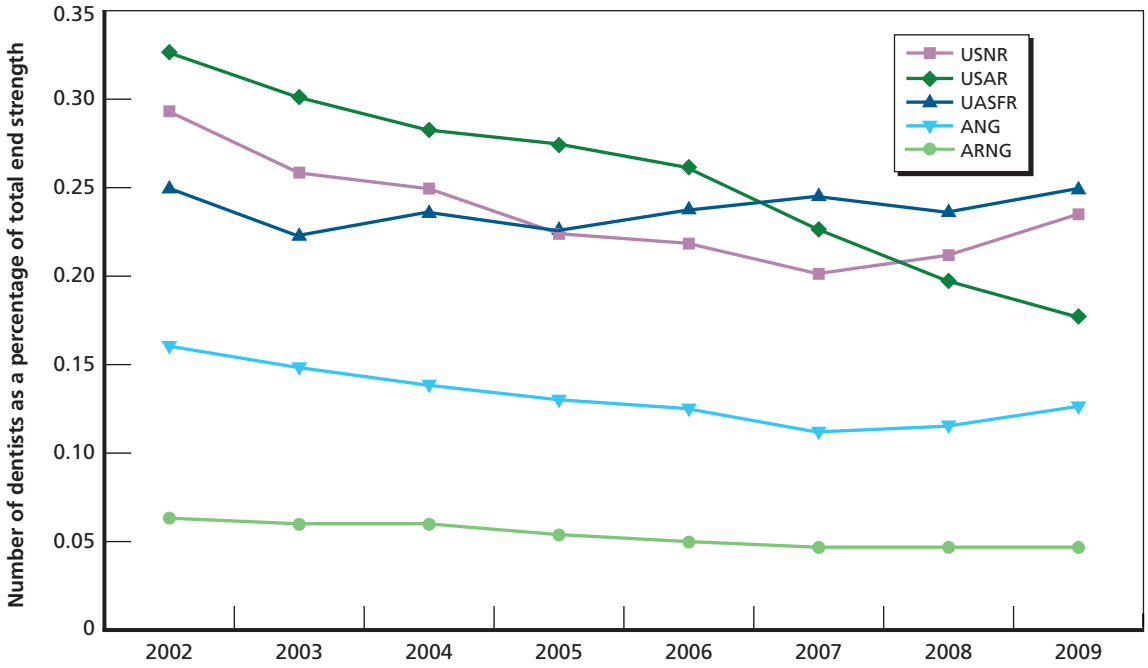
Figure 3.5
Number of Selected Reserve Physicians as a Percentage of Total End Strength, 2002–2009



SOURCES: DMDC, 2008, pp. 80–81; DMDC, 2009a, p. 77.

RAND *MG1105-3.5*

Figure 3.6
Number of Selected Reserve Dentists as a Percentage of Total End Strength, 2002–2009



SOURCES: DMDC, 2008, pp. 80–81; DMDC, 2009a, p. 77.
RAND *MG1105-3.6*

Inconsistencies in Procedures for Obtaining Medical Readiness Compliance

Another possible obstacle to achieving medical readiness is that the procedures for obtaining compliance are not standard across branches or units. The standards for DLC waivers have been especially problematic. The Army's 2009 *Executive Summary of the DAIG Inspection of the Army Medical Deployment Process* states: "Most unit commanders and a majority of medical providers at SRP sites were not aware of the requirement to request CENTCOM waivers for Soldier's medical conditions that do not meet CENTCOM medical standards for deployment" (Department of the Army Inspector General, 2008). Additionally, documentation of compliance is unreliable. Until the test, immunization, lab, etc. is recorded in the member's IMR record, the member is noncompliant.

Army RC members may mobilize at either an RC mobilization site (e.g., Camp Shelby, Camp Murphy) or an AC mobilization site (e.g., Fort Bragg, Fort Bliss). These sites have different types of medical and dental service providers. SRPs at Army RC mobilization sites are manned by RC member or contractor providers who are not medical/dental specialists, so any health condition requiring specialized treatment must be attended to off-base through local TRICARE providers, who may not be familiar with military medical standards. In contrast, SRPs at AC mobilization sites with a co-located medical treatment facility (hospital) have medical personnel available, many of whom are specialists; health conditions can be treated on base by medical personnel accustomed to military medical standards.

Lack of standardization in performing tests and recording information can result in duplicate care. AC mobilization sites enter data into the Armed Forces Health Longitudinal Technology Application (AHLTA), which does not communicate with the Army's Medi-

cal Protection System (MEDPROS), the system containing data on IMR compliance. Service members with physical limitations are assigned a score in the military physical profiling system, PULHES,[24] where a score of 3 or 4 indicates significant limitations in the particular area being scored. All PULHES scores from nonmilitary providers must be certified by a military provider. When medical care is provided but the service member or military clerk does not enter that information into the medical management system, the military can end up providing the member with duplicate care. This frequently occurs in the case of members who have received care from a civilian dentist or have had a Pap smear in a public health clinic.

Additionally, some units arrive at mobilization sites in varying states of IMR compliance, either because they have not received necessary tests or treatments or because they did receive it but the information was not entered into the medical management system (e.g., MEDPROS, in the Army). Paper copies of medical records often accompany Army National Guard and Army Reserve members to their mobilization sites. In fact, when units arrive at mobilization sites in varying states of apparent IMR compliance, some of that variance is due to inadequate record-keeping. Until the exam and results are documented in the service's medical record[25], the member has not met the IMR requirements. SRP site visits revealed that RC members may have preexisting conditions from prior deployments that have been recorded in AHLTA but not entered into MEDPROS that, if recorded in MEDPROS, would identify those members as unfit for deployment, resulting in a REFRAD (Westerband, 2009).

Another inconsistency issue, as mentioned above, is that each service has its own policies detailing specifics for nondeployability or DLCs. Some of the services have stricter policies than others do, which might make reaching medical readiness more difficult. But, of course, stricter policies may reflect different needs. However, according to the Inspection of the Army Medical Deployment report issued in late 2008, the Army, and perhaps other branches, appears to "not have a single, comprehensive source listing all medical deployment and readiness guidance." Without an easily accessible source, there is no way for service members and units to reliably determine what they are supposed to be in compliance with and thus what actions to take.

Yet another issue is that the medical readiness requirements for the theater may not agree with those recommended by the service's Surgeon General. For example, the report *Inspection of the Army Medical Deployment* (Department of the Army Inspector General, 2009) showed that the COCOM coordinates only with the Army Service Component Command instead of also with the Assistant Secretary of the Army for Manpower and Reserve Affairs and the Chairman of the Joint Chiefs of Staff to ensure that the medical readiness requirements are in line with the Surgeon General's recommendation.

Finally, some technical inconsistencies may hinder IMR achievement. First, access to computers might be an issue for those members without computers at home. Unit computers tend to be occupied during drill weekends, when unit administrators or medical and dental providers are entering data. Second, anecdotal evidence suggests that some reservists consider the online personal PHA to be lengthy.[26] It currently is many pages long, making it potentially

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[24] PULHES is an acronym for the six factors the system profiles: physical capacity/stamina, upper extremities, lower extremities, hearing/ear, eyes, psychiatric.

[25] The Army documents compliance in MEDPROS, the Air Force in PIMR, and the Navy in MRRS. See Appendix C for details on how compliance is recorded.

[26] Personal communication with RAND Air Force Fellows LTC Patrick Grady and LTC Elizabeth Gayton, November 2008.

difficult for some members to complete.[27] The same sources also suggest that some reservists appear unaware of the form's existence. Third, some SRP sites (e.g., the Camp Murray SRP) rely on paper medical records instead of electronic records. Fourth, DoD and VA health records are not interoperable. The two departments are, however, aiming to have a completely interoperable system in place soon. As of the end of FY 2011, there is a working bi-directional interface to view VA records and for VA to view AHLTA outpatient records.[28] Reserve members with deployment-related health concerns can be treated in VA medical facilities (Pub L. 110-181). When they are, their health problems are documented in the VA medical records but often are not documented in reserve members' military medical records.

Chapter Summary

The DoD goal of having 75 percent of members fully medically ready is not being met by the reserve components, although great progress has been made. For example, between the end of the second quarter of FY 2006 and the first quarter of FY 2010, the percentage of reservists achieving full medical readiness increased from 26 to 47 percent.

Hidden within these problematic overall IMR rates are some notable successes in meeting the DoD medical readiness requirements, including above 84 percent compliance with the DoD lab requirement and 70 percent compliance with the medical equipment requirement. Compliance with immunization requirements has been steadily increasing, and the requirement for an annual health assessment has improved, with all RCs reaching about 70 percent in the first quarter of FY 2010.

There are several potential barriers to achieving medical readiness:

- limited time for RC members to become medically ready
- individual expenses incurred to become medically ready
- insufficient supply of health care providers
- inconsistencies in procedures for achieving medical readiness
- unreliable documentation of IMR compliance.

[27] The online version of the PHA varies by service. The length of the Air Force online form depends on the member's answers.

[28] Based on conversation with LTC Patrick M. Arida, MS, USA.

CHAPTER FOUR

Are DoD Medical Readiness Standards Sufficient for Military Operations?

To assess the sufficiency of IMR requirements for today's military operations, we considered two sources of information. First, where available, we checked the data on reasons for evacuation of service members from theater to see whether medical conditions that interfere with military operations and are preventable or could be screened for prior to deployment are playing a role. Second, to supplement these data, or where these data were not available or pertinent, we compared DoD policies with such prevention guidelines as those issued by the U.S. Preventive Services Task Force (USPSTF). Our intent in conducting this comparison was to verify that service members are getting at least the preventive services recommended for U.S. civilians of a similar age.

We thus examined the medical and scientific basis for the IMR requirements. We reviewed published studies and military evacuation data from Iraq and Afghanistan; we compared IMR standards with nationally recognized guidelines, such as those published by the Centers for Disease Control and Prevention (CDC) and those given a recommendation grade A or B by USPSTF; and we reviewed the Army's medical surveillance data.

In consequence, we were able to reach conclusions verifying the sufficiency of some IMR requirements and suggesting the possibility of expanding others. Of course, where the objective is to assess sufficiency for military operations, there should at least be a kind of proportionality between (1) the costs and capability losses in theater associated with treatment and possibly evacuation in the event of a medical problem and (2) the costs of adding a new screening element to be administered to many or all deploying service members, along with possibly treating those who do not pass the screen. We do not systematically assess that proportionality here.

Dental Readiness

The requirement for U.S. service members to have healthy teeth dates back to the 18th century, when musketeers needed strong front teeth to pull off caps on gunpowder tubes. In the American Civil War, recruits could be rejected if they did not have a sufficient number of teeth to chew food (Hyson, Whitehorne, and Greenwood, 2008). Prior to and during World War II, the Selective Service noted that the requirement for six opposing teeth was the leading cause of rejection of potential recruits (U.S. Department of Health and Human Services, 1988). Today, "dental readiness continues to be the greatest obstacle to medical readiness for most of the Reserve Components" (Task Force on the Future of Military Health Care, 2007).

Current DoD policy states that all military members must have an annual dental exam and must be in dental class 1 or 2 for deployment (DoDI 6025.19). (See Chapter Two for a definition of the dental classes.) **While this continues to be the most difficult of all IMR requirements to meet, it is absolutely essential for today's operational environment.**

Numerous studies over many years have shown that members in class 3 dental status have higher dental emergency rates than those in other classes. Table 4.1 summarizes studies on dental emergencies in both deployed and garrison environments ("Executive Summary," 2008, p. xi). In every study but one, the number of class 3 dental emergencies (standardized to emergencies per 1,000 person-years of service) across all classes was more than the sum of class 1 and 2 emergencies.

The data from TSCOHS are graphed in Figure 4.1. Clearly, deploying only members who are in class 1 or 2 greatly reduces the number of potential dental emergencies.

It would be helpful to be able to supplement these predominantly pre-9/11 data with in-theater experience from Iraq and Afghanistan. Unfortunately, Army dentists have noted that it has been difficult to identify dental emergencies within current operations in those countries (Chaffin and Moss, 2008). A study of Army members medically evacuated from Iraq and Afghanistan from September 2001 to May 2005 showed that 228 members out of 18,195 (1.3 percent) had a dental issue as the primary reason for evacuation (Perkins, 2006).[1] However, the study's author noted that "The broad and vague nature of diagnostic categories for dental issues in medical CPT [Current Procedural Terminology[2]] codes does not allow

Table 4.1
U.S. Military Dental Emergency Rates (per 1,000 person-years)

Study	Years	Service	Class 3	Class 2	Class 1	Location	Percentage of Dental Emergencies in Class 3
TSCOHS	1994–1998	DoD	749	192	85	Garrison	73
TSCOHS	1994	DoD	169	145	80	Garrison	43
TSCOHS	1994–1998	Army	1127	271	139	Garrison	73
Sinai	1987	Army	530	145	67	Garrison	71
TSCOHS	1994–1998	Marine Corps	529	135	32	Garrison	76
NIDBR	2004	Marine Corps	214	77[a]		Garrison	74
NIDBR	1997	Navy	536	130	97	Garrison	70
TSCOHS	1994–1998	Navy	524	118	75	Garrison	73
NIDBR	1997–2001	Navy	244	111[a]		Garrison	69
NIDBR	1997	Navy	96	53	35	Deployed	52
TSCOHS	1994–1998	Air Force	1193	238	81	Garrison	79

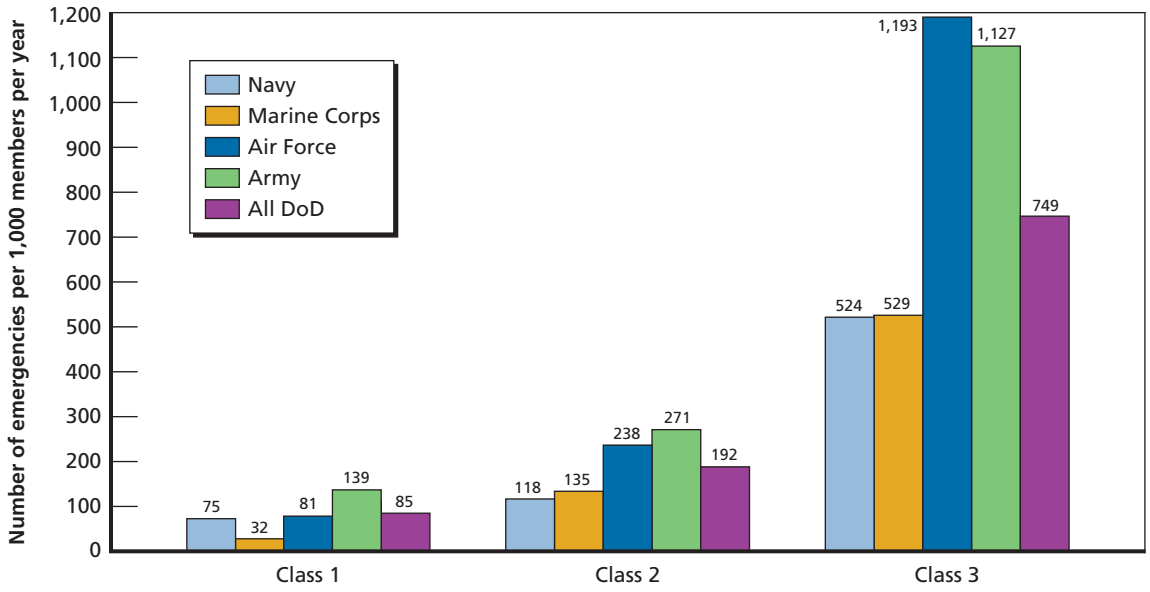
[a] Class 1 or 2.

NOTES: The first three data columns give, for every 1,000 person-years of military service, the number of dental emergencies, allocated according to the dental class of the person with the emergency. The last column gives the percentage of all dental emergencies for which those in class 3 were responsible. NIDBR = Naval Institute for Dental and Biomedical Research; Sinai = Army exercises in Sinai.

[1] An evacuation occurs any time a patient is transported (within or out of theater) to a location other than the assigned location to obtain treatment.

[2] CPT codes are used to describe medical and surgical services performed by health care providers.

Figure 4.1
Dental Emergency Rates by Dental Class During the First Four Years of Military Service



SOURCE: York, 2008.
RAND *MG1105-4.1*

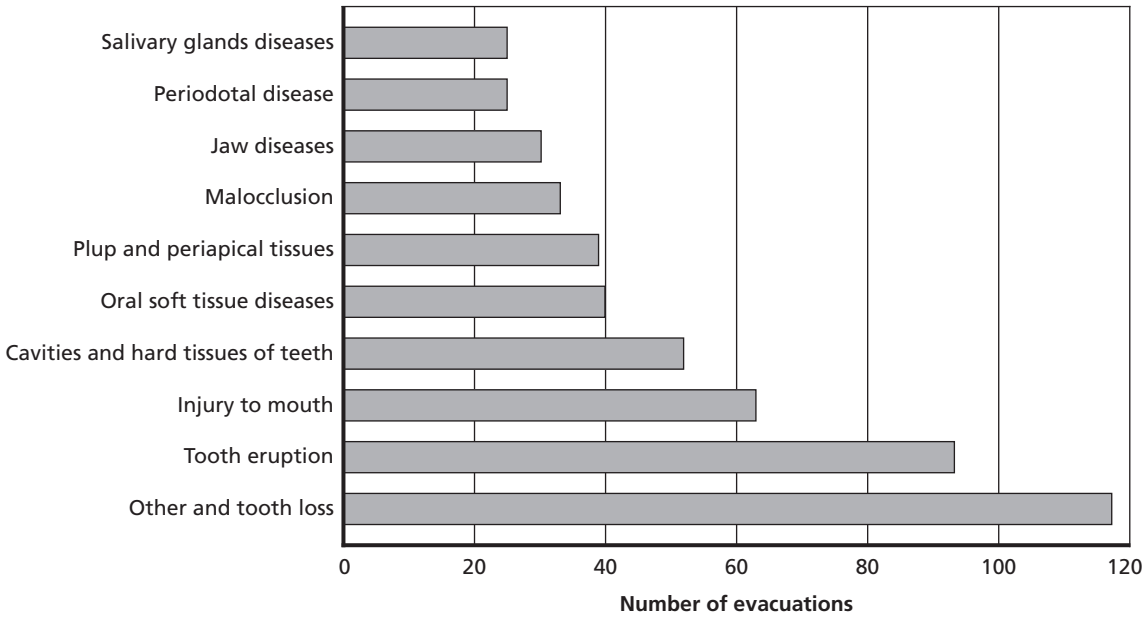
for much granularity as to the true nature of the conditions resulting in evacuation" (Perkins, 2006).

RAND obtained U.S. Transportation Command (TRANSCOM) Regulating and Command and Control Evacuation System (TRAC2ES) data for all evacuations out of Iraq or Afghanistan from 2003 to 2007 (U.S. Transportation Command, no date). In the four years of evacuation data for nonbattle injuries, there were only 517 medical evacuations whose primary reason for evacuation was dental. Data on reasons for evacuation could help us determine whether the dental IMR standards were appropriate or were missing pertinent conditions. Unfortunately, the coding is not very helpful in this regard (see Figure 4.2). "Other and tooth loss" is the largest category for evacuation due to dental problems; there is little helpful information in this coding. The second largest category is "tooth eruptions"; this is the category in which problems with wisdom teeth would be recorded. More detailed coding of reasons for dental evacuation or a retrospective study of dental records for evacuated military personnel might identify areas in which IMR standards could be augmented with a requirement for more careful screening and treatment prior to deployment. For example, currently there is no consensus on how the military should treat wisdom teeth (Langsten and Dunn, 2008). TRAC2ES does not contain records for everyone who leaves the theater for a medical reason. For example, pregnancy may be handled with an administrative transfer.

Periodic Health Assessment

The PHA assesses changes in a service member's health status, especially changes that could affect the member's ability to perform military duties. In February 2006, DoD Health Affairs

Figure 4.2
Nonbattle Injury Dental Evacuations, OEF/OIF, September 2001–May 2005



RAND *MG1105-4.2*

directed that all active duty and Selected Reserve members complete an annual PHA (ASD/HA, 2006b). DoD policy states that the assessment should include (1) a self-assessment questionnaire, (2) a medical record review,[3] (3) a referral for treatment of medical problems (if indicated), and (4) an update of medical records using DD Form 2766, "Adult Preventive and Chronic Care Flowsheet" (Navy and Marine Corps Public Health Center, 2000).

The DoD change to the PHA is consistent with both the American Medical Association (AMA) position (Council on Scientific Affairs, 1983) and the USPSTF recommendations for periodic health examinations (USPSTF, 1996). The USPSTF offers specific recommendations for periodic health examinations based on clinically proven preventive services, including screenings for height, weight, blood pressure, vision, and hearing, as well as counseling for tobacco use, alcohol, and sexually transmitted diseases.

While the change to PHA is consistent with current medical practice, the services' implementation of the PHA is not. Each service and each RC has its own requirements for what constitutes completion of the PHA (as will be discussed in subsequent chapters).

In terms of sustaining military operations, the PHA's principal value is to catch DLCs not caught through other IMR elements. From that standpoint, PHAs, as currently timed and structured, appear insufficient to the task. (For detailed discussion of this point, see the section below on DLCs and Chapter Five's "Standardize the PHA" section.)

Immunization Status

Immunizations play an important role in disease prevention:

[3] The policy contains no guidance on the purpose of the medical record review or how it is to be performed.

> Vaccines have long been used by military forces in order to prevent communicable diseases and thereby preserve the fighting force. A tradition that began with the mass vaccination of the Continental Army against smallpox during the War of the American Revolution in the late 18th century continues today with routine and deployment-based vaccination of military forces against potential pathogens of nature and biological weapon threats. (Artenstein, 2009)

Immunization policy for all services is standardized in one document, titled *Medical Services: Immunizations and Chemoprophylaxis* (Headquarters, Departments of the Army, the Navy, the Air Force, and the Coast Guard, 2006), with four numbers:

- Army Regulation 40-562
- Navy Bureau of Medicine and Surgery Instruction 6230.15A
- Air Force Instruction 48-110
- Coast Guard Commandant Instruction M6230.4F.

All but one of the DoD immunization requirements corresponds to the recommendations of the AMA and the USPSTF: DoD requires immunization against adenovirus. This vaccine, which is not commercially available, is administered during basic training to prevent respiratory disease. Studies have shown the value of adenovirus immunization in a military environment; its potential benefit in the civilian population is being reviewed (Russell et al., 2006).[4]

Special immunizations, sometimes referred to as "flagged" vaccines, are required for specific military occupational hazards (e.g., rabies, typhoid, hepatitis B) or for a specific planned operation due to the location or threat (e.g., anthrax, smallpox, Japanese encephalitis, yellow fever).

Few service members have been evacuated from OIF and OEF for vaccine-preventable illnesses (Armed Forces Health Surveillance Center, 2010a). **We thus conclude that the current slate of required vaccinations appears sufficient for military operations.**

Individual Medical Equipment

DoD requires one pair of protective eye mask inserts for all deployable military members needing visual correction. Service-specific policies identify additional items of medical equipment (such as a second pair of prescription spectacles, hearing aids, batteries), but they are not part of the DoD core IMR requirements. **We considered this requirement to be different from the other five IMR requirements because it is for equipment, not personal health. It is more akin to the requirement that service members are in possession of six months of prescription medication upon deployment.**

[4] In 2009, the largest category of disease in military recruits was respiratory infections (Armed Forces Health Surveillance Center, 2010b, p. 21).

Laboratory Tests

DoD requirements for laboratory studies state that results from an HIV test taken within the past 24 months must be on file and that a DNA sample must be on file in the Armed Forces Repository of Specimen Samples for the Identification of Remains (AFRSSIR). If either of these is missing, the member is regarded as having failed the lab test requirement. A member who tests positive for the HIV antibody is nondeployable. Policies specific to the military departments or services identify additional lab tests for readiness; these include tests for Glucose-6-phosphate dehydrogenase or hemoglobin S (sickle cell disease), but they are not part of the DoD core-reporting element.

DODI 6025.19 requires HIV testing every 24 months and provides timelines for pre- and post-deployment HIV testing. The Armed Forces Health Surveillance Center periodically publishes statistics for the results of this testing. The August 2009 *Medical Surveillance Monthly Report* shows the HIV test results for each AC and Army and Air Force RCs since 1990. Only sailors on active duty in the Navy showed an increased HIV infection rate. "The prevalence of seropositivity in 2008 continued a trend of generally increasing prevalences since 1999" (Armed Forces Health Surveillance Center, 2009, p. 3).

The CDC recommends (at least) annual HIV testing for high-risk populations, including "high-risk heterosexuals," i.e., men or women who are sexually active and not in a mutually monogamous long-term relationship (CDC, 2006). Because military members are increasingly deploying to areas of the world where HIV infection is epidemic and because they live in close quarters during deployments, the frequency of testing should be reviewed.

The current requirements are useful, but not sufficient. DoD should consider two further tests for its core requirements. DoD should require annual chlamydia screening of "all sexually active non-pregnant young women aged 24 and younger and for older non-pregnant women who are at increased risk" (USPSTF, 2008). This recommendation is consistent with the guidelines of the USPSTF, which gives it an "A" (strong) recommendation;[5] research within the military has shown such screening to be cost-effective as well (Shafer et al., 2008). Additionally, DoD should adopt the recommendations of the American College of Obstetricians and Gynecologists to require cervical cytology screening every two years for women between the ages of 21 years and 29 years and every three years for women age 30 and older who are of low risk (American College of Obstetricians and Gynecologists, 2009). These screenings/examinations should be evaluated for addition to the core requirements.

Deployment-Limiting Conditions

There are many kinds of DLCs. Some are temporary (such as pregnancy, broken bones); others are permanent but can have their effects mitigated (such as asthma); and still others are permanent and limit a member's ability to perform military duties (such as the use of blood thinners, specific types of diabetes, bipolar disorder). DLCs are defined by policies specific to the military departments. We reviewed evacuation data obtained from TRAC2ES, where all such data are stored for Iraq and Afghanistan for injuries not sustained in battle. We were looking for large numbers of evacuations for conditions that could have existed prior to deployment and identified during the annual PHA. There was no evidence of such conditions, leading us to conclude that current policies on DLCs are appropriate.

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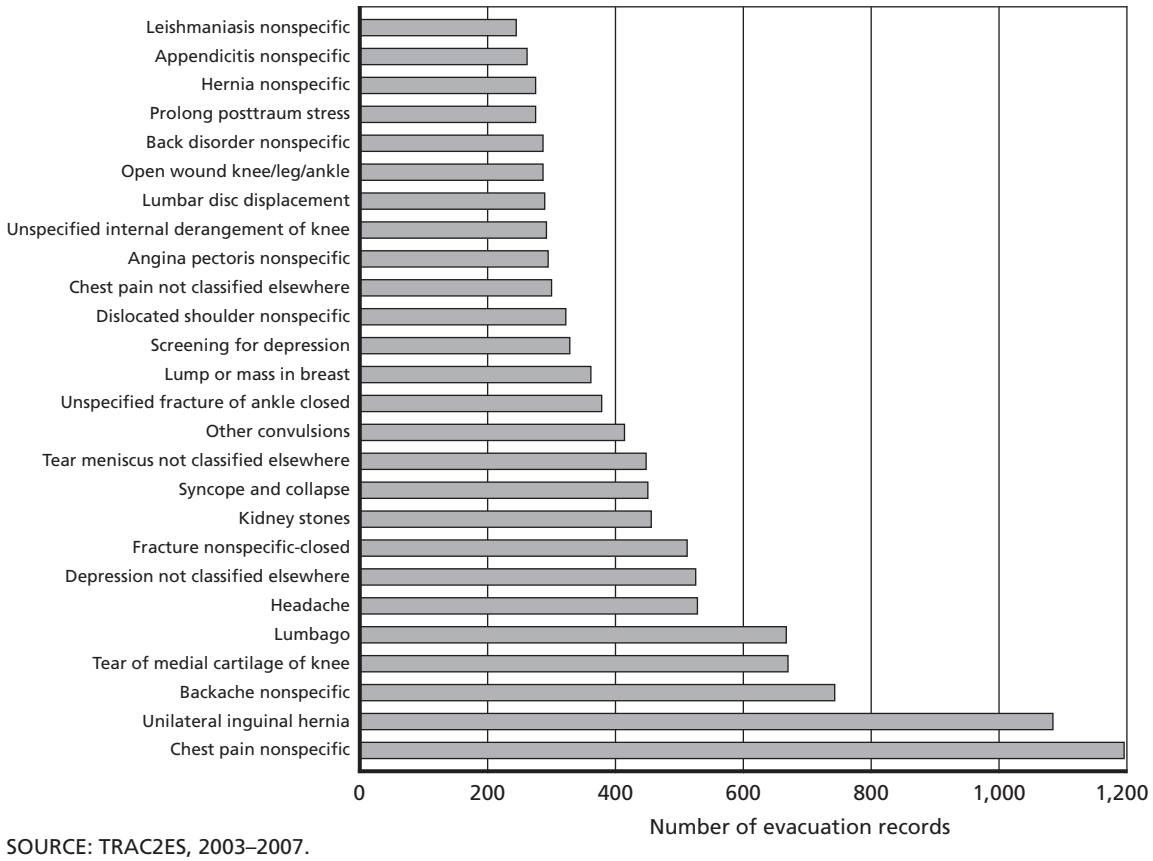
[5] A = "The USPSTF recommends the service. There is high certainty that the net benefit is substantial" (USPSTF, 2008).

The Armed Forces Health Surveillance Center also used TRAC2ES data to summarize reasons for medical evacuations (Armed Forces Health Surveillance Center, 2010a). Its groupings of conditions were fairly coarse, however. The second-largest category of evacuation reasons (after "battle injury") was conditions related to the "musculoskeletal system," which covers numerous different injuries. This overall finding is consistent with summaries of nonbattle injuries from other conflicts (Blood and Jolly, 1995) and from other studies of OIF and OEF (Cohen et al., 2010).

We broke the data down to finer levels than previously published studies had, our goal being to help identify specific medical conditions that might be screened prior to mobilization. Figure 4.3 summarizes the reasons for and frequency of nonbattle injury evacuation using the TRAC2ES data at this lower level of aggregation. Here, for example, muscular/skeletal injuries are broken down into backache, tear of medial cartilage, lumbago, fracture, tear of meniscus, etc.

These data show that, in general, IMR requirements are screening sufficiently for identifiable medical conditions. Many of the conditions listed—dislocated shoulder, fractures, appendicitis, and leishmaniasis—likely occurred during deployment. Other conditions, such as kidney stones, may have been present prior to deployment but, if asymptomatic, would likely not have been found.

Figure 4.3
Summary of Reasons for Evacuation from Iraq and Afghanistan, as Recorded in Evacuation Data, 2003–2007



SOURCE: TRAC2ES, 2003–2007.

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The classifications for two conditions—chest pain and hernia—suggest that the military should evaluate whether additional screening for these conditions would be beneficial. The most frequent reason for nonbattle injury evacuation was "chest pain nonspecific." Combining the two codes for chest pain shows that there were almost 1,500 evacuations for chest pain; if evacuations for angina were included with chest pain, the count would increase by more than 300. The PHA self-assessment questionnaires should ask whether the member has experienced chest pain and under what circumstances. The second most frequent diagnostic code was for "unilateral inguinal hernia." In fact, there were 25 different diagnostic codes indicating "hernia," accounting for 1,970 evacuations. A hernia is a weakening in the abdominal wall; with heavy lifting and strenuous activities, the condition can be very painful. Other research has shown "a lifetime risk of 27% in men and 3% in women" for hernias (Jenkins and O'Dwyer, 2008). In light of this information, the services should consider steps to decrease hernia incidents in theater. For example, during the PHA (or during predeployment at the latest), ask questions that could reveal a preexisting hernia and provide appropriate treatment.

Our analysis of TRAC2ES data also showed more than 100 evacuations for an abnormal Pap smear. Only the Army requires female soldiers to have a Pap smear as part of its IMR requirements, but guidance from CENTCOM and the services requires female members to have a Pap smear prior to deployment. The evacuations shown in the data were avoidable. Members should not be allowed to deploy until the results of a Pap smear are known and recorded in members' medical records. In the first Gulf War, evacuation for an abnormal Pap smear was the second most common reason to evacuate a female member (the first was pregnancy) (Ritchie, 2001).

As noted in Chapter Three, an increasing number of Army National Guard and Army Reserve members have DLCs. Our analysis did not study the effect of this increase or of allowing members with permanent DLCs to remain in the RC.[6] As previously stated, each service has its own criteria for DLCs and for retaining members with permanent DLCs. A critical question for the RCs: Does the current policy for DLCs affect the frequency with which fully medically ready members deploy?

Chapter Summary

Most of the IMR requirements are generally sufficient for today's operating environment. There is ample evidence that the dental requirement (for service members to be in dental class 1 or 2) is essential for both soldiers and military operations. However, the PHA should be improved. In terms of sustaining military operations versus preventive health, a principal value of the PHA is to identify DLCs that are not found through other IMR elements. From this perspective, PHAs, as currently timed and structured, appear insufficient.

We recommend more detailed analysis of underlying causes of medical evaluation and looking into additional laboratory tests that have the potential to reduce evacuations and lost time caused by illness and injury. These include an annual chlamydia screening of all active-duty female members until the age of 26 and annual pelvic examinations and a cervical cytologic screening test for cancer.

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[6] The August 2009 *Medical Surveillance Monthly Report* shows the number of active and reserve Army members who had positive diagnosed HIV infection and were still in military service. There were 144 Army National Guard and 161 Army Reserve soldiers with HIV infection (Armed Forces Health Surveillance Center, 2009).

CHAPTER FIVE

Alternative Approaches for Meeting Medical and Dental Readiness Requirements

There are many steps available to the military to improve compliance with IMR requirements. We begin this chapter by discussing actions that could help improve medical and dental readiness in general. We then turn to preventive health alternatives for improving, respectively, medical readiness and dental readiness. The costs and potential effectiveness of these alternatives will be affected by how they are implemented; they are suggested by analysis in earlier chapters.

Alternatives for Improving Medical and Dental Readiness in General

Standardize the PHA

The Army Inspector General's report on the medical deployment process found conflicting guidance on medical readiness and deployment policies: "Commanders rely greatly upon medical providers when making deployment decisions. Inconsistencies between DoD and service medical regulations, policy and guidance make those decisions more difficult for commanders" (Department of the Army Inspector General, 2008, pp. 2–5). It is important that annual PHAs be standardized so that all members are measured by the same medical criteria, just as they are measured by standardized criteria for dental readiness. Standardizing the PHA would eliminate duplication and other inefficiencies associated with differing standards.

Create a standardized self-assessment questionnaire for the PHA and the PHA medical review. Currently, each service creates its own self-assessment questionnaire. DoD should create standardized self-assessment questionnaires for the PHA and PHA medical review—as it has for dental form DD2813 and the forms for the PDHA (DD2795) and the PDHRA (DD2900). The individual services should be able to add requirements (as they do with other IMR categories)—in this case, adding items to the questionnaire—but there needs to be a core set of questions common to all services.

Even though the DoD policy on PHAs includes a self-assessment (ASD/HA, 2006b), the Navy's self-assessment, called a health risk assessment (HRA), is voluntary and anonymous (Navy and Marine Corps Public Health Center, 2011). The instructions for the HRA are contained in SECNAV Instruction 6120.3-1, dated December 1, 2009.[1] The HRA must

[1] For more detailed information, see Navy and Marine Corps Public Health Center, 2011. Members can also access the Fleet and Marine Corps HRA through Navy Knowledge Online at the "Personal Development /Health and Wellness" page (information obtained January 12, 2010).

be reviewed by Independent Duty Corpsmen (IDCs), physicians, nurse practitioners, or physician assistants.[2]

In the Army and the Air Force, answers to the self-assessment questionnaire must also be reviewed by medical personnel. In the Army, the PHA parts 1 and 2 may be documented by medics, nursing assistants, licensed practical nurses, or registered nurses; part 3 is completed by a physician, nurse practitioner, or physician assistant (AR 40-501). Air Force instructions specify that PHA reviewers must be privileged providers in primary care, family medicine, occupational medicine, preventive medicine, or flight medicine; in some instances, they must be Independent Duty Medical Technicians (AFI 44-170). Based on service policy and answers to the questionnaire, a face-to-face interview may not be required of all members. As part of the review, additional health measurements may be taken—for example, height/weight/body mass index, blood pressure, vision, and hearing. Requirements specific to the Army can be found in AR 40-501.[3] The Air Force PHA (which in this case stands for "preventive health assessment") is governed by AFI 44-170. Both the Army and the Air Force have online versions of their PHA.[4]

Army personnel can access a web version of the questionnaire through Army Knowledge Online (AKO). Despite this convenience, there is anecdotal evidence suggesting that some reservists consider the online PHA form to be lengthy, making it potentially difficult for some members to complete.[5] Shortening the online version may improve compliance.

The Air Force also has an online PHA. Members receive an email instructing them to log into a website and complete the questionnaire. This online questionnaire is the most detailed of all the service PHAs. During the review, a medical technician "cuts and pastes" the information from the questionnaire into the individual's electronic medical record (in the Armed Forces Health Longitudinal Technology Application [AHLTA]). If the member has no access to the Air Force web form, a paper questionnaire (AF Form 4321) may be completed at the clinic.[6]

Clarify which health measurements need to be taken annually. DoD should also be specific about annual health measurements. Because being overweight or having uncontrolled hypertension is a DLC, at a minimum, height, weight, and blood pressure should be recorded yearly.

Identify which medical personnel can perform PHA reviews and provide suitable training for those who administer PHAs, including nonmilitary providers. Currently, the standards differ by service. A medical corpsman reviews the PHA in the Navy, whereas the Air Force uses a "credentialed provider." DoD should also standardize the content of face-to-face assessments and identify who can perform them. The face-to-face PHAs are completed by providers from both military and nonmilitary organizations; DoD should prescribe suitable

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[2] The Marine Corps Reserve follows Navy practices and policy that is codified in Department of the Navy Bureau of Medicine and Surgery (BUMED) documents.

[3] A sample questionnaire can be found at the website of the Dunham U.S. Army Health Clinic (no date).

[4] For example, see U.S. Federal Forms website, no date.

[5] The form's length ranges by service, but the Army's is at least ten pages long and the Air Force's can take over an hour to complete (personal communication with RAND Army Fellows Patrick Grady and Elizabeth Gayton, November, 2008).

[6] AF Form 4321 is available at the "U.S. Federal Forms" website (no date).

training for personnel involved with administering PHAs, including training in PULHES, the military physical profiling system.

Face-to-face PHAs must be standardized to ensure that training for all providers is adequate, further assist military personnel in identifying medical issues and solutions, and enable consistent feedback to leaders.

Justification for this recommendation is threefold:

1. Nonmilitary medical personnel may not necessarily be familiar with or aware of many signs and symptoms from unresolved or newly developed illness, which may be deployment-related. Suitable training to standardize the process must occur to ensure quality of care is met.
2. As originally conceived, face-to-face PHA assessment was to be connected with broader initiatives related to health and well-being.[7] For example, medical information gathered as part of the Army's Comprehensive Soldier Fitness Campaign and during the annual face-to-face PHA should be integrated. Physicians who see Army Reserve/National Guard soldiers during the comprehensive fitness campaign have both the knowledge and means to connect a soldier with the needed resources for medical issues identified during the exam. The same is not true for face-to-face exams, where there may be no follow-on medical support for the reservist.
3. PHA face-to-face assessments can reinforce the role and relevance of preparing for deployments and the need for members and leaders to work together. For example, if a reservist is assessed with high blood pressure during the PHA and does not have medical coverage to secure remediation, what happens next? Because high blood pressure may be indicative of a potential DLC, the unit leaders must work with the member to seek medical care or face the loss of a trained member.

As discussed in earlier chapters, the number of reserve dentists and physicians as a percentage of total end strength has declined slightly over the past six years. This is a problem in that a lack of sufficient medical and dental providers can lead to difficulties in completing timely reviews of PHAs, which causes medical readiness to suffer. One solution used by many units to deal with this issue is to hire private medical providers to perform PHA reviews. However, many of these private providers do not receive enough training in how to review PHAs so that they understand what constitutes a DLC. As such, private providers may mistakenly classify members who have DLCs as not having them, only to have those DLCs later erupt into medical emergencies in theater. Private providers may also erroneously classify members as having DLCs, thus preventing those members from being deployed. The Oregon Army National Guard found an alternative approach that could work elsewhere. It used Active Duty for Special Work (ADSW) funds to hire a reserve medical provider to temporarily work full-time performing PHA reviews and medical examinations (Departments of the Army and the Air Force, 2005). All providers performing PHA review, whether private or military, need appropriate training.

Provide guidance on completion of the PHA. Additional DoD guidance is also needed on what constitutes "completion" of the PHA. Current DoD policy on the PHA is incomplete.

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[7] Service intent to integrate PHA and other health initiatives can be seen in the website of the Nave and Marine Corps Public Health Center (2011) and in the U.S. Army's 2010 Army Posture Statement website (2010).

Is completion of a PDHA or PDHRA equivalent to filling out the PHA for that year? Given that more than 700,000 members completed the PDHA and/or PDHRA from June 2009 through May 2010 (Armed Forces Health Surveillance Center, 2010d, p. 14), an affirmative answer on this question would significantly reduce the workload of conducting PHAs and potentially reduce cost.

Modify Data Reporting and Archiving Processes

Consider potential modification of the data reporting and storage processes used by the military to track medical and dental readiness and DLCs. Currently, the services report unit medical readiness status in SORTS (Status of Resources and Training System) every quarter (DoDI 6025.19). The services draw the information for the SORTS report from their medical record systems—MEDPROS (Army), the Preventive Health Assessment and Individual Medical Readiness (PIMR) system (Air Force), the Medical Readiness Reporting System (MRRS) (Navy, Marine Corps, and Coast Guard), and AHLTA (DoD medical record system for the AC). The Defense Manpower Data Center (DMDC) maintains historical Global SORTS (GSORTS) data for all services (DoD, 2006). Unfortunately, the IMR data, in contrast to other SORTS data, are not archived by DMDC or the services. The raw data behind the quarterly DoD IMR reports would be very helpful for studies and analyses of IMR compliance—for example, in analyzing characteristics of high-performing units and organizations.

Reserve members who have deployed may have pertinent medical information in AHLTA or the Veterans Health Information Systems and Technology Architecture (VistA) (discussed later). These two systems are not interoperable with MEDPROS, PIMR, and MRRS. Until they are, reserve members, unit readiness clerks, and commanders must be responsible for ensuring that the IMR information in each member's medical record (in MEDPROS, etc.) accurately reflects that member's health. Particular attention should be paid to ensuring that DLCs and PULHES scores are recorded.

Provide training to personnel who oversee medical and dental readiness and enter relevant data into automated systems. Most reserve units have an experienced enlisted member whose job is to oversee medical and dental readiness (in the Army, this person is called a "readiness NCO"). It is important that these personnel receive current training on IMR requirements and data entry. Additionally, many reserve units have enlisted personnel whose job it is to enter medical and readiness data into the automated systems. Appropriate training for these individuals is essential if unit IMR records are to accurately reflect members' information. (Appendix C contains detailed information on how commanders and service members track IMR.)

Improve Individual Compliance

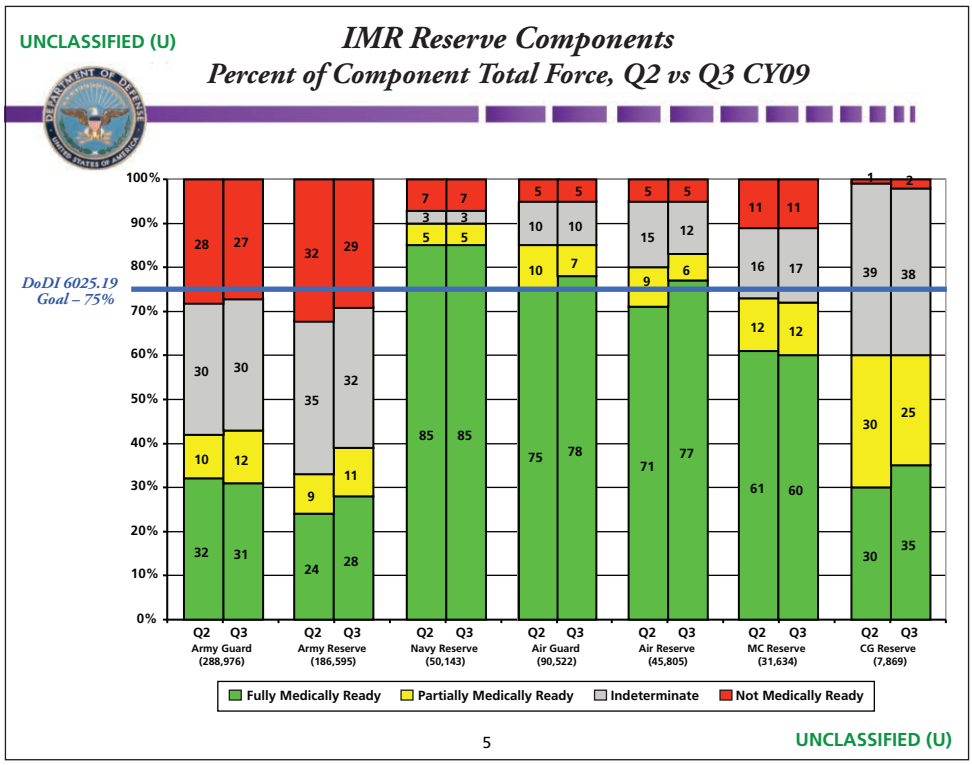
Extend RC TRICARE eligibility. The FY 2010 National Defense Authorization Act extends reserve TRICARE eligibility from 90 to 180 days predeployment (Pub. L. 111-84). The intent is to help deploying members become medically and dentally ready. The Army Inspector General's 2009 report recommended this action based on interviews with deployment reserve organizations. The additional coverage should provide sufficient time to, for example, treat and heal reservists' bad backs or knees, thus making more reserve members deployable. The cost-effectiveness of this legislation should be evaluated.

Providing financial or other incentives or bonuses for being medically ready might improve IMR compliance. Bonuses are given for members demonstrating language proficiency, so there is a precedent for using bonuses to meet a required capability. Either the entire unit or individual members could be rewarded for achieving green status.

Behavioral research has shown that incentives are most effective when targeted to a specific group (Sutherland, Leatherman, and Christianson, 2008). To entice younger reserve members to become medically and dentally ready, one approach is to make compliance a condition for promotion and to give preference in selection for school and advanced training courses to members who are fully medically ready. For older reservists, "points" toward retirement could be given for steps they take to become medically and dentally ready, the same way they currently earn points toward retirement when they attend drill weekends, annual training, and activities related to training.[8]

The reserves might consider adopting successful business and manufacturing strategies in which progress toward goals is visibly displayed. One of these, the "balanced scorecard" (Kaplan and Norton, 1996), is already in use, as evidenced by the quarterly IMR reports published by the ASD/HA, titled *DoD Balanced Scorecard: Individual Medical Readiness Metrics* (DoDI 6025.19, paragraph 5.1.4). Figure 5.1 is an example of the reserve "balanced scorecard" for the second and third quarters of 2009; as can be seen, the progress bars make the goal appear achievable. Currently, reserve members at the unit level rarely see their unit's

Figure 5.1
Example of Chart in DoD Balanced Scorecard IMR Metrics Briefing



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[8] Reservists must earn 50 points annually for the year to count toward retirement. Additionally, retirement pay is based on the total number of points accrued. Members can retire after 20 "good" years.

progress in meeting the goal of at least 75 percent fully medically ready. Development of a balanced scorecard for each unit could be used to show members how they, as a unit, are progressing toward meeting IMR goals.

Preventive Health Alternatives for Improving Medical Readiness

There are several good alternatives for improving medical readiness (exclusive of dental readiness, which is discussed in the next section). These are based on common practices for health screening in physicals for civilians of reservist age.

Consider looking into additional, specific tests for health conditions that could affect reservists' ability to carry out their duties. For example, the services should consider requiring anemia tests for women (many units already have the diagnostic equipment). A recent study of female recruits showed that 15 percent had an iron deficiency and 10 percent had anemia (Constantini et al., 2006). In another study, CDC found that 12 percent of all U.S. women age 16 to 19 had an iron deficiency, with black and Hispanic women having high incidence (19 and 22 percent, respectively) (CDC, 2002, Table 1). Iron deficiency and anemia affect both physical and mental performance (Merkel et al., 2008). A longitudinal study of female soldiers during basic training showed that their iron levels decreased, and such a decrease was associated with diminished aerobic performance (McClung et al., 2009a, 2009b). Iron deficiency can also affect adjustments to moderate and high altitude (Wilson, 2010). Currently, the PHA asks members whether they have anemia, but this approach is inadequate because few individuals actually recognize anemia. Moreover, accession physical examinations do not ask about or test for anemia: "The accession medical examination is limited to questions regarding history of STI (sexually transmitted infections), physical examination of external genitalia, and HIV antibody testing" (Niebuhr et al., 2006).

Expand immunization and testing requirements. Another strategy, as discussed in Chapter Four, is for the services to revise their immunization and testing requirements to include immunization against the human papillomavirus (HPV) and testing for chlamydia. In June 2010, the CDC Advisory Committee for Immunization Practices published new guidelines for HPV: "Vaccination is recommended for females aged 13 through 26 years who have not been vaccinated previously or who have not completed the 3-dose series" (CDC, 2010b). Female HPV infection is linked to incidence of cervical cancer. Prior to the availability of the HPV vaccine, the only way to prevent cervical cancer was for women to have regular Pap smears. Guidelines for cervical cancer screening are under review; the most current ones are available at the CDC website (CDC, no date). Only the Army includes an annual Pap smear as part of its IMR requirements, but DoD requires a Pap smear for all female service members prior to deployment.

A study of women's health care in OIF found that "almost one-half (44%) of the soldiers surveyed would not have met current cervical cytologic screening (Pap smear) guidelines before deployment" (Thomson and Nielsen, 2006). The study concluded that Pap smears should be required at least six months before deployment to allow time for results and potential treatment and remediation plans. As a result of the failure to screen and treat prior to deployment, medical care is now offered in theater:

> Women who receive abnormal results on Pap smears, a test for cervical cancer, no longer have to be evacuated to Landstuhl Regional Medical Center in Germany, said Lt. Col. Marybeth Lenz, a women's health nurse at Landstuhl. Air Force hospitals at Balad and Bagram, for example, are now equipped to perform colposcopies, a procedure that checks for cervical abnormalities indicative of cancer. (Robbins, 2010)

DoD should compare the costs of testing and treating prior to deployment against the cost of deploying medical personnel and equipment to the theater to remediate these conditions.

According to the CDC (2011), chlamydia is the most frequently reported bacterial sexually transmitted disease in the United States. Additionally, infection incidence is highest among females 14 to 19 years old, and there are "substantial racial disparities, with non-Hispanic blacks disproportionately affected" (CDC, 2010a). In June 2010, the Armed Forces Health Surveillance Center reported treating over 10,000 cases of chlamydia in service members and beneficiaries at military medical facilities in the first six months of 2010 (Armed Forces Health Surveillance Center, 2010c).[9] This high incidence of chlamydia infection argues for DoD to adopt the USPSTF's "strong" recommendation to routinely screen all sexually active women under the age of 25 years and other women who are at increased risk for infection (USPSTF, 2007). Currently, none of the services completely follows this USPSTF recommendation: All branches address women under 25 but do not address older, nonpregnant women. Furthermore, only the Navy requires chlamydia screening and an educational session for all women *upon accession*, while the other branches require chlamydia screening up to 12 months *following accession*, meaning other service members could go up to a year longer without screening than women in the Navy do. With detection and treatment of chlamydia, military members would have fewer instances of pelvic inflammatory disease, chronic pelvic pain, and infertility (Gaydos et al., 2009).

Preventive Health Alternatives for Improving Dental Readiness

The CDC's most recent survey showed that approximately 22 percent of adults in the general population over 20 years old—the population to which reserve members belong—have root caries. Table 5.1 shows the prevalence of adult untreated coronal tooth decay from two survey periods, 1988–1994 and 1999–2002. There is no reason to suspect that these rates should be much different among reservists.

Focus on remineralization ("fix and prevent") rather than cavities ("drill, fill, or extract"). The services should address the need for dental care by adopting a new approach that focuses on remineralization[10] and on treating demineralization before cavities develop, rather than continuing to focus on cavities and surgical restoration of cavities (Steinberg, 2007). Below, we discuss specific alternatives for managing dental health to meet the 95 percent dental readiness goal, including topical fluoride, xylitol gum, and sealants.

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[9] The Armed Forces Health Surveillance Center is a DoD executive agency that performs comprehensive medical surveillance and reporting of rates of diseases and injuries among DoD service members.

[10] Bacteria in the mouth produce acid that removes minerals from the tooth surface; this process is called demineralization. Demineralization leads to cavities.

Table 5.1
Percentage of Untreated Tooth Decay in U.S. Adults

	1988–1994	1999–2002
Age group		
20–39	30.35	26.93
40–59	25.94	20.73
60+	26.62	18.57
Sex		
Male	31.17	25.14
Female	24.84	20.57
Race/ethnicity		
White, non-Hispanic	23.89	18.44
Black, non-Hispanic	49.00	41.30
Mexican-American	40.99	35.93
Education		
Less than high school	46.91	40.79
High school	32.14	29.84
Beyond high school	16.04	13.59

SOURCE: CDC, 2005, Table 16.

Cavities predominantly occur in two locations—on the smooth surfaces (sides and between teeth) and on biting surfaces, where decay occurs in the pits and fissures. The Navy has begun using a preventive approach to dental care. A retrospective review of Navy dental records suggested that 25 percent of the planned restorations could be successfully undertaken without resort to traditional drill-and-fill methods (Diefenderfer and Stahl, 2008).

Remineralization therapy can effectively arrest or reverse the progression of new cavities between teeth. Topical fluoride applied at home or professionally over time facilitates remineralization. Dental guidelines are specific in characterizing cavities that are effectively remediated using fluoride treatment.

Several reputable studies have shown that chewing xylitol gum also aids the remineralization of teeth.[11] Xylitol is a naturally occurring sweetener that blocks cavity-causing bacteria. The protocol found most effective has been chewing xylitol gum three times per day for five minutes (Makinen et al., 1995).

The act of chewing gum increases the flow of saliva, which helps to increase saliva's buffering capacity. This in turn reduces the acidity in the mouth that promotes tooth decay (Burt, 2006). The services should implement a policy that encourages the use of xylitol gum through education of members on the benefits of chewing it; they should also research the benefits of providing gum in dining facilities. When service members began returning from Iraq, demobilization dental officers noted a dramatic increase in the number of caries they had compared with the number before deployment ("Dental Readiness Improved for War Fighters," 2005). One solution proposed for reducing the risk of caries during deployment was to replace the sugar gum in meals-ready-to-eat (MREs) with xylitol gum (Scott, 2006).

[11] See, for example, Steinberg, Odulsala, and Mandel, 1992.

Sealants are an extremely effective way to prevent decay when properly applied. They act as a physical barrier to decay, their level of protection being determined by their ability to adhere to the tooth. In fact, studies have shown that sealants stop the decay process when placed on top of a slightly decayed tooth.

The 1994 Tri-Service Comprehensive Oral Health Survey of Active Duty personnel showed that almost 50 percent of military dental patients 26 years of age or younger needed dental sealants (Chisick, Poindexter, and York, 1998). Also, 25 percent of patients in the study had new decay in the pits and fissures of their teeth that could have been prevented by using sealants (U.S. Army Center for Health Promotion and Preventive Medicine, no date). In a Navy study of sailors who received sealants during their first two years of service, 87.8 percent of the 1,467 sealed teeth remained cavity free after 35 months (Simecek et al., 2005). Another Navy study noted that "Dental sealants have proven successful in preventing or even halting occlusal caries" (cavities on biting surfaces) (Leal et al., 1998). Other evidence-based studies have shown the effectiveness of pit-and-fissure sealants for adult patients susceptible to cavities (Beauchamp et al., 2008). Sealants are frequently applied to children's teeth, where they are very successful in preventing decay. However, despite the evidence of their effectiveness in preventing decay in adult teeth, sealants are infrequently used for adults.

The CDC also notes the efficacy of these dental remediations:

> Dental caries is a common chronic disease that causes pain and disability across all age groups. If left untreated, dental caries can lead to pain and infection, tooth loss, and edentulism (total tooth loss). Dental sealants are effective in preventing dental caries in the occlusal (chewing) and other pitted and fissured surfaces of the teeth. . . . Exposure to fluoride throughout life is effective in preventing dental caries. (CDC, 2005)

The protocols for adopting a new model of "fix and prevent" rather than the traditional "drill, fill, or extract" are detailed in numerous journal articles and on the American Dental Association website. Such a model would be especially beneficial to younger service members who have fewer decayed, missing, or filled tooth surfaces and thus have more tooth surfaces at risk for cavities.[12] The cost savings for the military would also be significant—fillings cost between $78 and $1,000 per tooth, whereas sealants cost between $30 and $65 per tooth (American Dental Association Survey Center, 2009).

Chapter Summary

There are many steps available to the military to improve compliance with IMR requirements. Options include the following:

General

- **Standardize the PHA.** It is important that annual PHAs be standardized so that all members are measured by the same medical criteria, just as they are measured for standardized dental criteria for dental readiness. The Force Health Protection Council is addressing standardization of the PHA.[13]

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[12] Guidelines for the appropriate use of dental sealants can be found in Beauchamp et al., 2008.

[13] Final Draft, Force Health Protection Council Minutes, August 10, 2011.

- **Modify data reporting and archiving processes.** The raw data behind the quarterly DoD IMR reports would be very helpful for studies and analyses of IMR compliance—for example, in analyzing characteristics of high-performing units and organizations. Because there is no standardization of data collection and archiving, DoD lacks the ability to do analysis on trends and retrospective studies.
- **Improve individual compliance.** The FY 2010 National Defense Authorization Act extends reserve TRICARE eligibility from 90 to 180 days predeployment. The intent is to help deploying members become medically and dentally ready.
- **Provide financial or other incentives or bonuses for being medically ready.** Either the entire unit or individual members could be rewarded for achieving green status. Incentives might also be targeted specifically to older or younger reservists. The reserves might also consider adopting successful business and manufacturing strategies in which progress toward goals is visibly displayed.

Medical

- **Consider looking into additional, specific tests for health conditions that could affect reservists' ability to carry out their duties.** For example, the military should consider requiring anemia tests for women.
- **Expand immunization and testing requirements.** Include immunization against the HPV, screening for cervical cancer, and testing for chlamydia.

Dental

- **Focus on remineralization ("fix and prevent") rather than cavities ("drill, fill, or extract").** The services should address the need for dental care by adopting an approach that focuses on remineralization and on treating demineralization before cavities develop, rather than continuing to focus on cavities and surgical restoration of cavities.

CHAPTER SIX

The Cost of Achieving Medical and Dental Readiness

Chapter Two established how the Selected Reserve components differ in personnel and medical missions. What we discuss here is how and why those differences rule out the idea that one single approach for achieving IMR is the best or the least costly approach for all RCs. Additionally, each RC can choose to accomplish each of the six IMR requirements differently. This chapter covers the costs of meeting the IMR dental, PHA, medical laboratory tests (HIV only), and immunization requirements.[1]

Various Options Are Available to Help Achieve Dental Readiness

Achieving dental readiness is a difficult task for all the RCs (as well as the ACs). The dental readiness requirement is that members have an annual dental exam and be in dental class 1 or 2.[2] To some, the use of organic assets for the exams seems cost-effective. But, as discussed in Chapter Two, there are few RC dentists available to perform this task and, at the same time, train for their wartime mission. The Army National Guard has over 2,000 members per dentist. Other components have around 500. Additionally, many RC medical personnel have other support missions to perform in case of deployment and must use their drill weekends to train for these missions.

RC members are not restricted to using organic assets to achieve dental IMR. They can see their own private dentists, who then complete DD Form 2813 to certify their dental readiness. However, this is at RC members' own cost, which some members believe they cannot afford. Those who do see a private dentist often have difficulty submitting the paperwork and having the verification confirmed in their military health records.

Because of these problems, a TRICARE dental program was established specifically for reserve members. The program's cost to those who enrolled in 2009 was $12.12 per month. The monthly fee covers annual exams and some dental treatments; for any additional treatments, such as root canals, the member pays a reduced fee. Few RC members have taken advantage of this program. One state's National Guard has tried paying the cost of the TRICARE dental program for members scheduled for deployment. This group had previously used non-

[1] The costs for medical equipment, new DLCs, and lab tests other than HIV are not discussed.

The PHA will identify new DLCs, but RCs are not funded to provide corrective medical care for these conditions—they are the affected member's responsibility. The PHA includes vision assessment, and corrective glasses are usually ordered upon mobilization. HIV is the only recurring IMR lab test; DNA sampling is usually done upon accession.

[2] Class 1 = current (within last 12 months) dental exam, no treatment required. Class 2 = current dental exam and require nonurgent dental treatment for oral conditions not expected to result in emergencies within 12 months.

TRICARE contractors for this purpose, and made the switch after concluding that the TRICARE option would be less costly.

Another option for achieving dental readiness is the Reserve Health Readiness Program (RHRP, formerly called "FEDS-HEAL"). The RHRP contract is managed through Logistics Health Incorporated (LHI), which won a competitive bid. In 2009, the Army Reserve budget included funds to use RHRP exclusively for the annual dental check for all its members. The Army Reserve and other reserve organizations like using RHRP because its personnel enter the requisite information resulting from the dental checks into the appropriate medical records. This is an important consideration in choosing an approach, because until the exam and results are documented in the medical record, the member has not met IMR requirements.

Other entrepreneurial providers offer screening for dental and other medical readiness, as well as immunizations, for RC members. Often, reserve organizations contract with these companies for mass readiness events during unit drill weekends.

Some Dental Plans Are Cheaper—Comparison of Five Treatment Sources

To compare RC dental costs for various treatment sources, we compared the cost of the same treatments under the different these different sources. We started with data from the TRICARE Active Duty Dental Program. The program issues monthly reports on payments for dental care preauthorized and referred to civilian TRICARE providers by DoD dental treatment facilities (DTFs), as well as treatment received by members using the Remote Active Duty Dental Program. For the 75 American Dental Association (ADA) codes competed in the most recent contract, the payment includes administrative fees. The report used in our analysis was from all services for October through December 2009. Each monthly report contains the frequency with which the coded procedure was performed and the total paid. The October–December 2009 quarterly report shows the amount paid for a total of 31,534 dental exams and 180,175 dental procedures.

In addition to the prices from the TRICARE Active Duty Dental Plan reports, we used prices from four other dental treatment sources to calculate what the cost would have been under each plan for the total volume of procedures documented in the October–December 2009 TRICARE Active Duty Dental Plan report. The four sources used, along with the provenance of the pricing data, were

- RHRP—prices for September 24, 2009, through December 31, 2009
- Onsite Health,[3] which provides services for the National Guard in more than 40 states, typically on drill weekends—two current fee schedules[4]
- ACC Consultants Inc., a small business providing mobile on-site dental services to the military—current prices

[3] Onsite Health is a privately owned provider of mobile health services, including dental exams and treatment, periodic health assessments, immunizations, etc. The company provides on-site services to corporations and the U.S. military. See the Onsite Health homepage (2011).

[4] Prices for dental procedures vary by region of the country and population density. The original fee schedule provided by Onsite Health contained average prices. When Onsite Health competes for a contract, its prices are lower.

- ADA Survey Center 2009 Survey of Dental Fees—average fee.

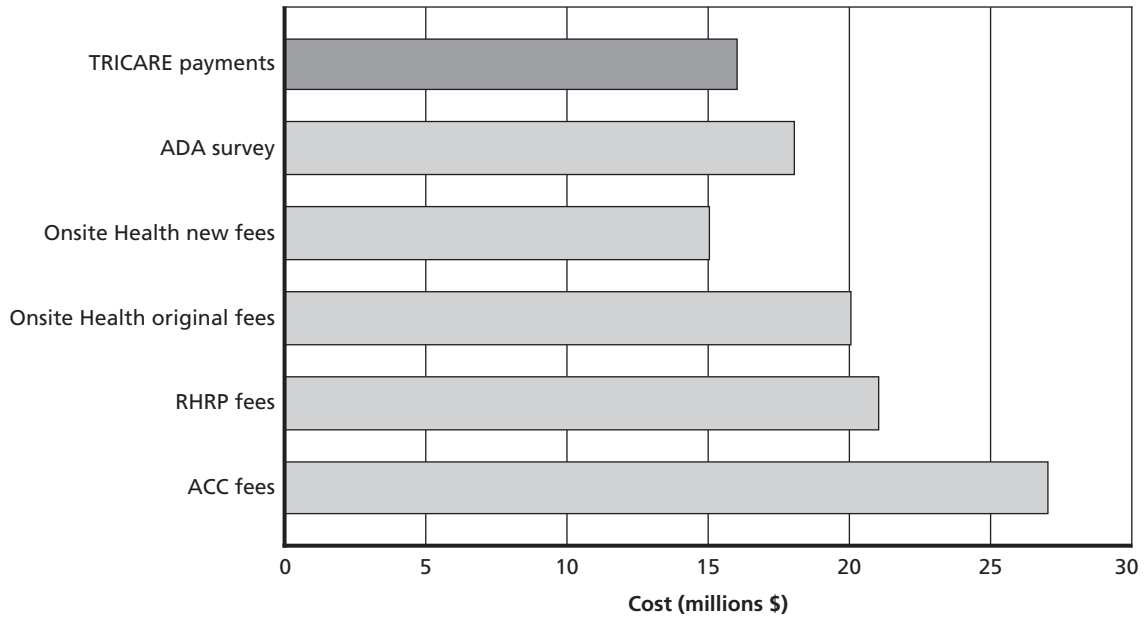
There were 32 ADA codes common to all five data sets; for these codes, there were 107,000 treatments in the TRICARE data. Figure 6.1 displays the costs of those treatments using the various providers.

A few of the bars warrant explanation. The original fee schedule provided by Onsite Health contained average prices. However, like all contractors providing health care services, Onsite Health tries to use the cheapest price possible when competing for a contract.[5] The "new fees" schedule represents Onsite Health's lowest prices. The ADA survey "reports statistics gathered from a nationwide random sample of dentists who were asked to record the fee most often charged for most commonly performed dental procedures" (American Dental Association Survey Center, 2009).

We note that there is frequently a difference between the amount charged for dental procedures and the amount paid by insurance companies. Thus, we view these responses as an upper bound on the amount received by the dentist. The bars in Figure 6.1 show that all providers were more expensive than TRICARE except for the "new fee" schedule from Onsite Health.

Table 6.1 provides a comparison of dental treatment costs. The first column of numbers in the table contains the dollar values plotted in Figure 6.1. The second column of numbers contains the percentage increase over TRICARE costs. Because some of the data sets had more than 32 common ADA codes, we made some further comparisons. The middle column is the comparison for 43 ADA codes common to TRICARE, the ADA survey, Onsite Health's new fee schedule, and RHRP. For these 43, TRICARE paid for 117,000 treatments. The relative

Figure 6.1
Dental Treatment Cost Comparisons Show Substantial Spread



RAND *MG1105-6.1*

[5] Discussions with Joshua D. Perry, President, Onsite Health, April 2010.

Table 6.1
Comparison of Dental Treatment Costs, by Provider

	32-Code Comparison (107,000 treatments)		43-Code Comparison (117,000 treatments)		46-Code Comparison (124,000 treatments)	
	Cost	Change Relative to TRICARE Cost (%)	Cost	Change Relative to TRICARE Cost (%)	Cost	Change Relative to TRICARE Cost (%)
TRICARE Payments	$16 million		$18 million		$20 million	
ADA Survey	$18 million	12	$21 million	13		
Onsite Health Fees—new	$15 million	–8	$17 million	–8	$19 million	–7
Onsite Health Fees—original	$20 million	23				
RHRP Fees	$21 million	30	$24 million	31	$26 million	31
ACC Fees	$27 million	67				

differences in costs among the providers are almost identical to those for the 32-code comparison. The ADA survey was 12 percent more than TRICARE in the first comparison and 13 percent more in the second. Finally, we compared TRICARE, Onsite Health's new fee schedule, and RHRP for 46 ADA codes, which covered payments for 124,000 treatments. In this comparison, the RHRP fees were similar to the corresponding costs from the other analyses—31 percent more than the TRICARE payments.

Under the Army SELRES [Selected Reserve] Dental Readiness System (ASDRS), Army Reserve members receive annual dental exams and treatment using RHRP dentists in appointments set up on an individual basis. Other RCs frequently have group dental events on drill weekends to complete their annual dental exams and as much dental treatment as can be accomplished during the event. Members who require additional dental treatment may be given vouchers for contracting dentists for completion of the dental care required to bring the member to dental class 2.

Determining contractor costs for group dental events can be difficult because of differences among pricing strategies. Equipment and personnel may be priced separately from costs for dental exams and treatment, and treatment costs may be averaged or per individual. Data entry is sometimes a separate fee, and there may be an additional mileage charge for driving dental vans to the drill site. These differences make direct comparisons of contract services and costs difficult and time-consuming for reserve units.

To price group dental events, we created a "virtual unit" of 300 service members attending a two-day medical readiness drill weekend. Two contractors provided their costs for this dental readiness event. The price includes personnel and equipment to perform dental exams and some treatment, as well as data entry for the work completed. Table 6.2 shows the comparable prices for Onsite Health and RHRP. The average costs were $271 and $332 per member, respectively.

Dental readiness is the most expensive component of medical readiness, but creative allocation of resources and competitive bidding could improve current readiness levels and reduce costs. The two fee schedules provided by OnSite Health show potential cost savings from working with contractors to reduce costs. While collecting cost data for these comparisons, we

Table 6.2
Cost Comparison of Dental Group Event for 300 Service Members

Provider	Cost
Onsite Health	$81,300
RHRP	$99,495

found contractors to be very competitive—willing to reduce costs and able to adapt services to meet RC needs. Because many new recruits are in need of extensive dental work, using contractor providers like Onsite Health or paying for TRICARE dental for new recruits could increase dental readiness. Also, paying for TRICARE dental for reserve members one year prior to deployment would allow members time to become dentally ready well before predeployment preparations. Finally, all reserve members should be encouraged to make use of VA facilities during their post-deployment window.[6]

By implementing these suggestions, units may be able to use organic assets to accomplish annual dental checks for the remainder of their members. The cost comparisons clearly show that when organic assets are not available, some contractors (e.g., OnSite Health) can provide dental treatment at costs roughly comparable to TRICARE's.[7]

Calculating PHA Costs Is Difficult Because of Variation in the Way the Assessment Is Conducted

After dental readiness, the next most time-consuming and costly IMR requirement to meet is the annual PHA. Traditionally, the military services performed a physical exam for each of their members at accession and at separation. They have also conducted a physical in every fifth year of service. In February 2006, however, with the release of DoD HA Policy 06-006, annual health assessments became a requirement for all active-duty and Selected Reserve personnel (ASD/HA, 2006b). These assessments are to focus on changes in health status that could affect a service member's ability to perform military duties. This shift from five-year physicals to annual assessments was based on guidelines from USPSTF.[8] Studies specifically for the DoD and VA concluded that "Current medical evidence suggests that DoD should retain the accession and separation physical and replace other routine, periodic, and occupational physical examinations with age, sex, and risk factor adjusted annual PHA" (Goodrich, 2006).

The PHA consists of the member's self-reported health status combined with several elements requiring the involvement of a health professional: a records review, identification of health risks and recommendation of a plan to manage those risks, identification and management of occupational risks and exposures, identification and management of preventive needs, and development of a personalized plan to improve health status. For management of health risks and preventive needs and for associated care, reservists must pay out of their own pocket.

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6 For more details, see U.S. Department of Veterans Affairs, 2011.

7 Other contractors providing dental services to the military include ACC Dental, Mid America Health Inc., and Dentaline.

8 In 1983, the AMA withdrew its support of annual physicals in favor of specific, clinically proven preventive services. The USPSTF was formed to provide recommendations for appropriate examinations. See Council on Scientific Affairs, 1983.

As discussed in Chapter Four, implementation of and requirements for the PHA are not standard across the services: The questions and length of the self-assessment questionnaire vary by service, the list of "vitals" varies, the requirements for review by medical personnel are not standard, and special requirements for members over 40 years of age vary. In some reserve organizations, there is no further review if the answers to the self-assessment indicate no problems. All of these differences affect the cost of administering the PHA, as does the use of paper forms versus computer forms for the administration of the self-assessment, another element that is not standardized.

Implementation of the PHA differs not only across services, but also across the RCs within the services. For example, the Army National Guard has a two-part PHA, comprising a self-assessment, completed by the service member, and a provider assessment, which is entered into MEDPROS[9] as the member's updated PULHES.[10] The provider assessment may be completed by a National Guard medic or physician or by a civilian contractor.

The Army Reserve, in contrast, has a three-part PHA. Like the Army National Guard PHA, it begins with a self-assessment. But then,

> In part two, a physician or physical provider reviews the Soldier's height and weight, and performs a medical screen for health related issues, traumatic brain injury exposures, and other diagnostic tests. In part three, a clinical provider performs a focused health examination. (U.S. Army Reserve Command, 2008a)

The clinical provider, who also reviews records, must be a physician, nurse practitioner, or physician assistant (AR 40-501, paragraph 8-20.b.[4]). RHRP provides PHA services to Army Reserve members. Members may use the RHRP call center or their units may schedule group events with RHRP.

These differences in how the PHA is administered affect the medical procedures used to assess the members' health status, the electronic information available about members' health status, and the cost of providing PHA services. For example, the use of paper forms versus computer forms affects costs. Electronic forms require that personnel have computer access, and paper forms require that personnel manually input data into the electronic medical records. Another example of a difference is that the Army Reserve uses RHRP almost exclusively for PHA, at a cost of at least $82 million per year if all its members use the RHRP call center.

Other Costs Add Significantly to IMR Costs

One of the consistent problems for both the AC and the RC is that members miss their appointments for their PHA and other IMR requirements. RHRP charges $30 per missed appointment. An article on the Sheppard Air Force Base website stated a cost of $46,893 for missed PHA appointments in FY 2009 (Miller, 2009). Also, the RCs often do not record IMR compliance in MEDPROS. One Army National Guard brigade combat team preparing for deployment spent $35,000 for hearing tests that had to be redone at the SRP center because the exam results had not been recorded in the Defense Occupational and Environmental Health Readi-

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[9] All medical and dental readiness is stored in MEDPROS, including immunizations, permanent physical profiles/duty limitations, eyeglasses/inserts, blood type, medical warning tags, personal deployment meds, pregnancy screening, DNA, HIV, and dental status.

[10] U.S. Army, 2010.

ness System (DOEHRS). Frequently, members who use private providers for annual dental exams do not successfully update their military records.

Other additional costs are difficult to quantify. For example, when reserve physicians and dentists are performing IMR checks, they are not available for their own training. There are costs associated with this nonavailability.

National Guard units preparing for deployment have used reserve physicians and dentists in a full-time capacity through ADSW funding. These units believe that having military physicians and dentists review records of deploying members is the only way to ensure that military regulations are appropriately applied. To fully cost the use of physicians and dentists in this capacity requires taking into account health care and retirement benefits in addition to salary (Dahlman, 2007).

There Are Options for Reducing PHA Costs: Comparison of Two Types of PHA Events

We compared the costs of two types of PHA events—individual PHAs and a small-unit group event. These comparisons indicate that, as with dental costs, there are options for improving the PHA while reducing costs.

Individual PHAs

For the individual PHAs, we performed a virtual comparison using 1,000 military members. The number of females was equal to the DoD average of 18 percent for all RCs; the number of "over 40" physicals was also equal to the DoD average, 22 percent age 40 or older for all RCs. Table 6.3 displays the procedures that were performed, the CPT codes for the procedures, and the number of military members evaluated per procedure.

We used prices from three providers—TRICARE, Onsite Health, and RHRP—to compare the costs of administering individual PHAs to 1,000 service members. Since PHA examinations of reservists almost always occur in nonfacility settings (meaning nonhospital facilities), we used TRICARE nonfacility prices. We also used TRICARE prices for physicians and nonphysicians, since PHAs may be completed by either a physician or another medical provider. We used both Onsite Health and RHRP price schedules for PHA procedures.

Table 6.3
PHA Procedures Performed for the Individual PHA Costing

Procedure	CPT code	Number of Service Members Evaluated
PHA 18–39 years	99395	780
PHA 40–64 years	99396	220
Hearing	92551	1,000
Pap	88141	180
EKG	93000	220

Table 6.4 shows the costs for the five PHA procedures. The costs range from a low of $98,640 when the PHA is completed using a nonfacility, nonphysician TRICARE provider to a high of $169,232 for the RHRP in-clinic service. As can be seen, there are slight differences between the TRICARE average and median prices.[11]

Group Event PHA

Group event PHAs, which are common for National Guard units, are frequently performed during drill weekends or as part of annual training. Providers contract for these group events in two different ways. In the first of these, the contract is for a specific number of exams. If fewer than that number of exams are performed, the unit still pays the full amount; if more than that number of exams are performed, the contractor loses profit. With the other type of contract, a number of exams is planned for, but the charges are for the actual number of exams performed.

The cost we used for group event PHA services included costs for self-assessment, height, weight, blood pressure, pulse, vision, provider review, cardiovascular screening and an electrocardiogram for 60 service members over age 40, and data entry for all services performed.[12] RHRP and Onsite Health provided prices for PHA exams for 300 members during a two-day event. Their costs are shown in Table 6.5. The average cost per member assessed was $121 for Onsite Health and $143 for RHRP.

These cost comparisons indicate that options are available for reducing the costs of the PHA. Group events are cost-effective and emphasize to participants the importance of IMR requirements. Frequently, when units conduct medical and dental readiness events, they

Table 6.4
PHA Costs for 1,000 Service Members, by Provider

Provider's Cost	Total Cost ($)
Median TRICARE nonfacility nonphysician	95,420
Average TRICARE nonfacility nonphysician	98,640
Median TRICARE nonfacility physician	112,020
Average TRICARE nonfacility physician	116,460
Onsite Health	131,960
RHRP	132,632
RHRP in clinic for PHA	169,232

Table 6.5
Cost Comparison of PHA Group Event for 300 Service Members

Provider	Cost
Onsite Health	$36,205
RHRP	$42,946

[11] We show both average and median TRICARE prices because the difference between average and median price can be significant in some TRICARE regions.

[12] When the National Guard began implementing the PHA, they purchased computers and printers centrally and distributed them to each of the 54 states and territories (U.S. Army, 2010). The purchase of these computers is an expense not included in the PHA cost estimates.

are able to use a combination of organic and contract providers to cost-effectively meet the requirements.

However, consistent cost savings are likely only if the DoD standardizes the PHA, as discussed in Chapter Five. Use of a standardized self-assessment questionnaire for the PHA and the PHA medical review, as well as a specific set of annual health measurements, can help eliminate some of the variability across services and RCs, which leads to variable costs for the PHA. Reserve organizations would benefit in particular from a standard "checklist" of all medical services required for a group IMR event. Such a list would allow the unit to assess its requirement for organic and contractor support and would greatly reduce the likelihood that a subsequent contract would omit essential services (such as data entry or the vaccine for a specific immunization).

Cost for HIV Testing Is Incurred Every Two Years

DODI 6025.19 requires HIV testing every 24 months (DoDI 6025.19). As discussed in Chapter Four, the frequency of testing should be reviewed; the close ties of the RC to the civilian community make testing of the reserve members especially important. It is difficult for the services to find alternative providers for HIV testing because of DoD privacy constraints, and recording regulations complicate this test's administration and documentation. Costs now range from $18 to $91 depending on the provider, so competitive pricing for this requirement would save RCs a substantial amount of money. Caution, of course, would be needed in verifying that the contractor can meet DoD regulations concerning HIV testing.

There Are Many Cost-Effective Ways to Meet Immunization Requirements

In contrast to HIV testing, there are many cost-effective ways to meet immunization requirements, and it is unlikely that the current costs for immunizations can be reduced. The RCs usually provide immunizations during drill weekend readiness events. Sometimes organic medical personnel administer vaccinations; at other times, RHRP or other contractors administer them. The most cost-effective approach is to have the military provide the vaccine, because the military price for the vaccine is less than what a contractor would pay.

The current cost for vaccine administration ranges between $10 and $29 when the service provides the vaccine. Influenza vaccine is required yearly, with a cost ranging from $20 to $59 per administration, including vaccine. The Td/TD-pertussis (Tdap) booster is required every ten years, with costs ranging from $18 to $70.[13] As with HIV testing, recording immunizations in the reservists' medical records (MEDPROS) has been a problem.

Chapter Summary

Our cost comparisons clearly show that **aggressive contracting of dental and PHA services could reduce the costs** of achieving reserve medical readiness. Group events are cost-effective and emphasize to participants the importance of IMR requirements. Frequently, when units conduct medical and dental readiness events, they are able to use a combination of organic and contract providers to cost-effectively meet the requirements. Organic personnel are used for

[13] This is one shot containing two (TD) or three (Tdap) vaccines.

some of the PHA requirements, and contractors are used for the dental and remaining PHA requirements.

However, the potential to reduce costs while improving medical readiness can be fully realized only if **annual PHAs are standardized** so that duplication and other inefficiencies associated with differing standards are eliminated. As with all IMR requirements, services should be allowed to add additional tests and screenings to the PHA, but the core requirements should be standardized.

Reserve organizations would benefit from a standard "checklist" of all medical services required for a group IMR event. Comparing the costs for meeting the annual dental screening requirements using various provicers is relatively easy because dental standards are common across the services. Comparing the costs for meeting annual PHA requirements, however, is relatively difficult because there are no common standards. If there were, the unit could easily assess its requirement for organic and contractor support, and the likelihood that a subsequent contract would omit essential services (such as data entry or the vaccine for a specific immunization) would be greatly decreased.

CHAPTER SEVEN

Conclusions and Key Recommendations for Improving Reserve Individual Medical Readiness

Use of the RCs in support of overseas contingencies has increased significantly since September 11, 2001, and the subsequent U.S. invasion of Afghanistan and Iraq. Although the number of RC members on active duty has declined over the past few years, from a peak in May 2003, the current level still remains far higher than in decades past. The objective of our study was to provide options for DoD policy that would help the RC achieve higher levels of IMR for this new operating environment.

In Chapters Five and Six, we have presented alternative approaches for meeting medical and dental readiness requirements (Chapter Five) and for reducing the costs associated with meeting these requirements (Chapter Six). In this chapter, we highlight the high-level options from our study. We group these options in four categories:

- DoD policy
- current practices of successful reserve organizations
- cost-effective practices for maintaining IMR
- possible additional requirements for IMR.

Table 7.1 provides a high-level summary of our study options, along with reference to the detailed discussion in the body of the paper.

DoD Policy

Standardize the DoD PHA requirements. As discussed in Chapters Four and Five, implementation of and requirements for the PHA are not currently standard across the services: The questions on and length of the PHA self-assessment questionnaire vary by service, the list of "vitals" varies, the requirements for PHA review by medical personnel are not standard, and the requirements for members over 40 years of age differ among the services. This situation can be rectified by standardizing the annual PHA requirements, just as the PDHA requirements are standardized. Nonstandard practices can result in duplicated services, increased anxiety for deploying reservists who find one standard at their home SRP and another at the mobilization site, and increased costs for the DoD when reservists are screened as deployable, then found not to meet CENTCOM standards, and must be replaced. Standardizing the PHA will also help support the cost-reduction steps recommended below. Additionally, standardizing who does the assessments (e.g., physician, Navy corpsman, other) will improve the quality of the assessment.

Table 7.1
Summary of Key Options

Category	Options	Discussion
DoD Policy	Standardize the DoD PHA requirements to include provider criteria	Chapter Four, p. 35; Chapter Five, p. 41
	Require IMR compliance for graduation from AIT/OBC	Chapter Three, p. 26
	DoD should adopt a standard system for recording and archiving IMR data	Chapter Three, p. 30; Chapter Five, p. 44
Current Practices of Successful Reserve Organizations	Provide incentives and structure to help achieve IMR compliance	Chapter Five, p. 45
	Adopt preventive dental practices	Chapter Five, p. 47–49
	Promote information sharing	Chapter Three, pp. 21, 30–31; Chapter Seven, p. 63
	Make unit SRPs part of the yearly training schedule, standardize list tasks to be completed during IMR group events, and prominently display the unit's balanced scorecard	Chapter Three, pp. 21, 24
Cost-effective Practices	Continue to fund TRICARE for 180 days prior to deployment	Chapter Three, pp. 21, 26; Chapter Five, pp. 44, 50
	Use competitive bidding for annual IMR requirements	Chapter Six, pp. 54–55
Possible Additional Requirements for IMR	Include the medical tests required for deployment in the DoD IMR requirements	Chapter Five, p. 46
	Revise testing and immunization requirements to conform to current CDC and USPSTF guidance	Chapter Five, p. 46

Require IMR compliance for graduation from AIT/OBC. To be a deployable asset, a military member must be both trained in a military specialty and medically ready. Currently, service members may graduate from AIT or OBC without being medically ready. This is not a problem for AC members, because they have access to medical and dental care at their first duty station. RC members, however, do not. One might think that the installation medical and dental facilities would be able to provide the services needed for these reservists to meet IMR requirements, but the large numbers of recruits graduating all at one time make this a challenge. It might be best to use contract providers for these graduates, in much the same way that they are used for unit SRPs. Marine Corps Reserve members must meet medical and dental readiness standards before joining their reserve unit.

Archive IMR SORTS reports at DMDC. Every quarter, the services report medical readiness status in SORTS (DoDI 6025.19). They also report equipment readiness and training. Currently, IMR data are not archived at DMDC as the other SORTS metrics are. The raw data behind the quarterly DoD IMR reports would be very helpful for studies and analyses of IMR compliance. DoD policy should be changed to include archiving of all SORTS quarterly reports, including IMR reports.

Current Practices of Successful Reserve Organizations

Provide incentives and structure to help achieve IMR compliance. As discussed in Chapter Five, examples of possible nonmonetary rewards are enlisted promotion points, preference for school assignments, and additional retirement points. Monetary incentives could be similar to current bonuses for language competency, flying, and hazardous duty. Both individuals and

units could be rewarded. And incentives should target areas where they are most needed, e.g., full-time or part-time members, officers or enlisted.

Adopt preventive dental. As discussed in Chapter Five, preventive dental practices—such as sealants, fluoride treatments, and xylitol gum—have proved to be effective in the military environment. Because the need is greatest and the payoff highest for younger members, they should be the focal point of preventive dental practices. These practices could be implemented in conjunction with the process of becoming medically ready during AIT.

Promote information sharing. As noted in Chapter Three and the Army Inspector General's report, information sharing among mobilization brigades, SRP sites, and units contributed to fewer REFRADs and increased IMR readiness at mobilization sites.[1] All RCs should be encouraged to emulate these information-sharing practices.

Make unit SRPs part of the yearly training schedule, standardize list tasks to be completed during IMR group events, and prominently display the unit's balanced scorecard. Because members need to be both trained and medically ready to deploy, medical and dental readiness events must be part of the unit's training schedule. Standardizing the tasks to be completed during readiness events improves the unit's ability to get all members ready during these training assemblies. Displaying the group and individual readiness metrics makes progress on the DoD readiness goals more visible, as well as making the goals seem more achievable.

Cost-Effective Practices

Continue to fund TRICARE for 180 days prior to deployment. As described in Chapter Six, we found through analysis that TRICARE is clearly a cost-effective alternative for achieving IMR compliance. By providing deploying reservists with TRICARE for 180 days prior to deployment, members are given the time needed to correct deficiencies, especially DLCs that otherwise might make them nondeployable or unable to deploy with their unit.

Use competitive bidding for annual IMR requirements. In collecting data for our cost comparisons in Chapter Six, we found that provider contractors are eager to serve the RC and willing to significantly reduce costs and provide required services. Many reserve organizations had similar experiences. Using competitive bidding for unit medical and dental readiness events will reduce costs.

Possible Additional Requirements for IMR

Include the medical tests required for deployment in the DoD IMR requirements. When a member is to be deployed, certain tests are required, including a tuberculosis skin test (required pre- and post-deployment), a Pap smear (required within six months of deployment), and a blood pressure test (required because high blood pressure is a DLC). It would be beneficial to review medical records for reservists who could not deploy with their units (REFRAD) in order to assess the effect of including such tests in IMR requirements and thus being able to better know members' true deployment status.

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[1] Department of the Army Inspector General, 2009.

Revise testing and immunization requirements to conform to current CDC and USPSTF guidance. In 1983, the AMA withdrew its support for the standard annual physical examination in favor of specific, clinically proven preventive services (Council on Scientific Affairs, 1983). Those preventive services, which are contained in CDC and USPSTF guidance, should be made part of the testing and immunization requirements. In addition, as discussed in Chapter Five, the military services should test female members for anemia and conduct more frequent HIV testing of all members.

APPENDIX A

Active Component and Selected Reserve End Strength

Table A.1
Active Component End Strength, FY 2002–2009

Fiscal Year	Army	Navy	Marine Corps	Air Force	DoD Total	Coast Guard
2002	484,527	379,367	173,897	363,994	1,401,785	37,172
2003	493,563	376,970	177,583	370,945	1,419,061	38,389
2004	494,286	368,212	177,021	372,610	1,412,129	39,003
2005	486,476	357,853	179,840	349,363	1,373,532	39,630
2006	500,693	345,098	180,252	344,529	1,370,572	39,980
2007	517,783	332,269	186,425	329,094	1,365,571	40,650
2008	539,675	326,684	198,415	322,900	1,387,674	41,362
2009	549,015	324,239	203,075	328,847	1,450,176	42,426

SOURCE: *Uniformed Services Almanac*, 2010 and earlier years.

Table A.2
Selected Reserve End Strength, FY 1998–2009

Fiscal Year	ARNG	USAR	USNR	USMCR	ANG	USAFR	DoD TOTAL	USCGR
1998	362,444	204,968	93,171	40,842	108,096	71,970	881,491	7,587
1999	357,469	206,836	89,172	39,953	105,715	71,772	870,917	8,110
2000	353,045	206,892	86,933	39,667	106,365	72,340	865,242	7,965
2001	351,289	205,628	87,913	39,810	108,485	73,757	866,882	5,199
2002	351,078	206,682	87,958	39,905	112,071	76,632	874,326	7,816
2003	351,089	211,890	88,156	41,046	108,137	74,754	875,072	7,720
2004	342,918	204,131	82,558	39,644	106,822	75,322	851,395	8,011
2005	333,177	189,005	74,466	39,938	106,430	75,802	820,818	8,187
2006	346,288	189,975	70,500	39,489	105,658	74,075	825,985	7,945
2007	352,707	189,882	69,933	38,557	106,254	71,146	828,479	7,777
2008	360,351	197,024	68,136	37,523	107,679	67,565	838,278	7,970
2009	358,391	205,927	66,508	38,510	109,196	67,986	846,518	7,693

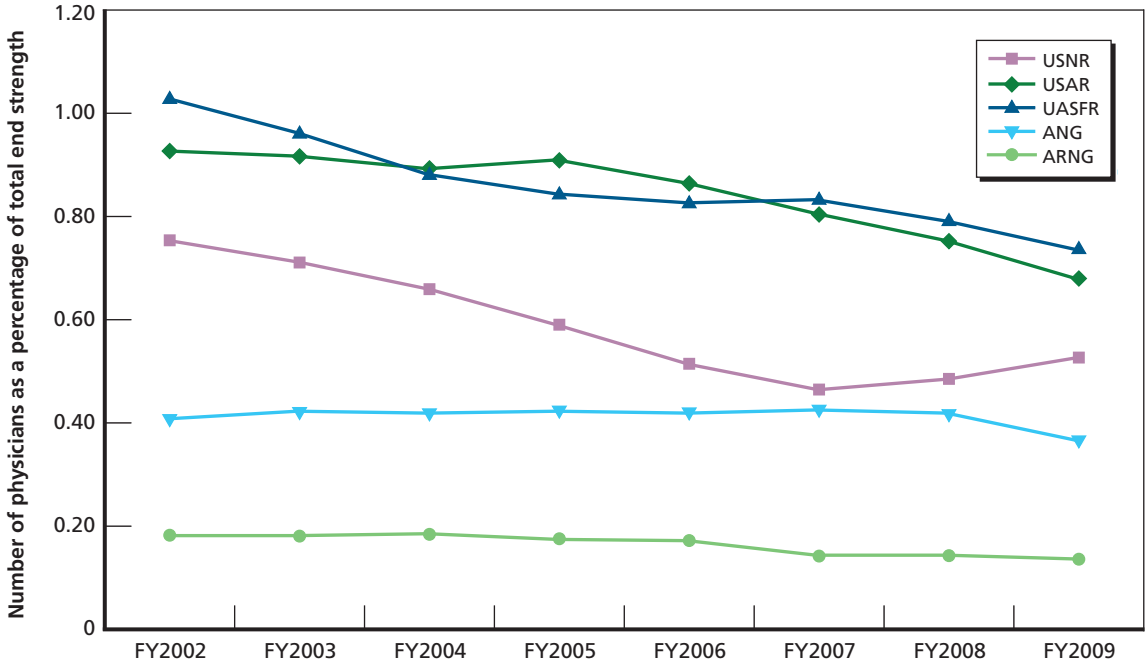
SOURCE: *Reserve Forces Almanac*, 2010 and earlier years.

APPENDIX B

Active Component and Reserve Component Physicians and Dentists as a Percentage of the Total End Strength

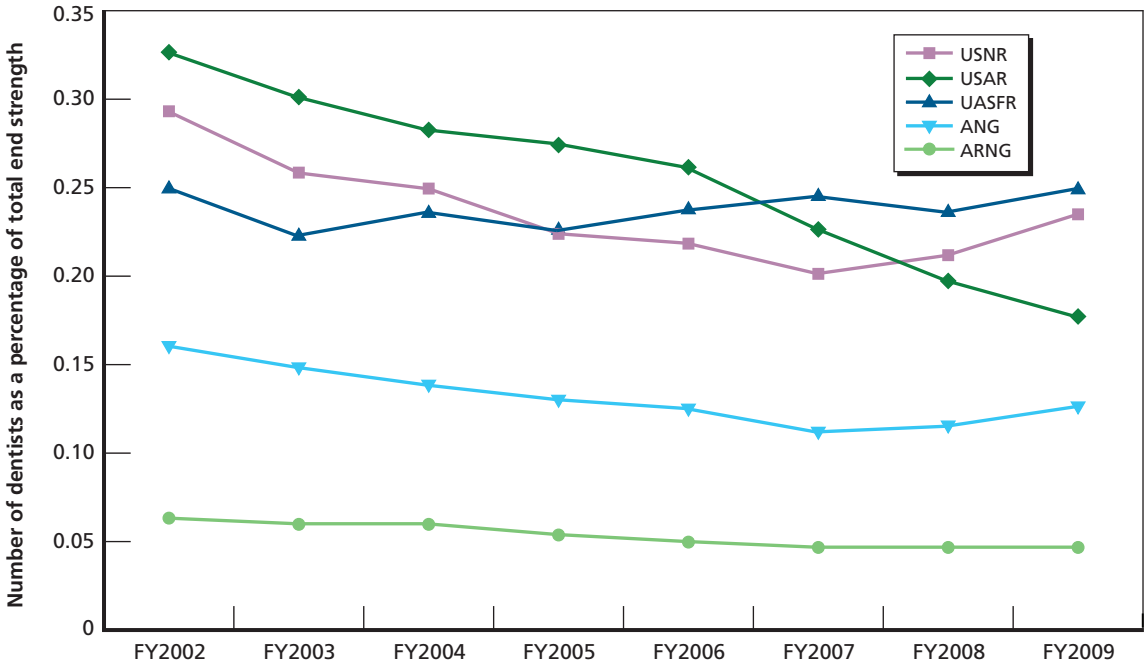
RAND has studied the effect on Air Force active duty retention of multiyear special pay (Keating et al., 2009). Because compensation is comparable for all services, this study may be of interest for all of DoD.

Figure B.1
Number of Selected Reserve Physicians as a Percentage of Total End Strength, 2002–2009



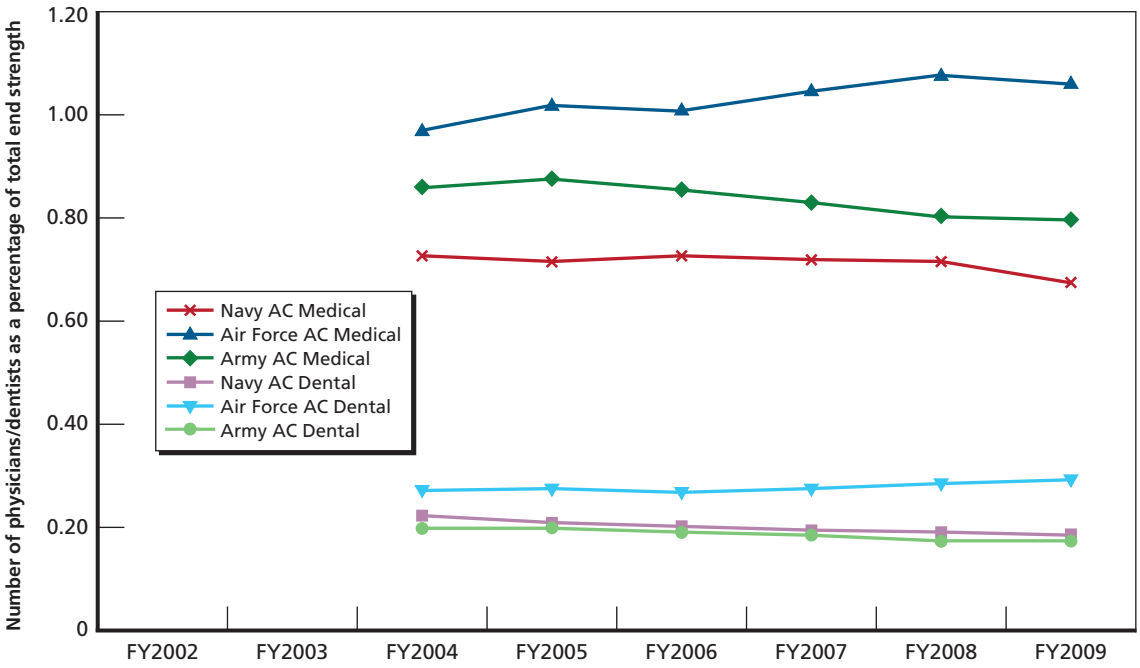
SOURCE: Defense Manpower Data Center, 2009b.
RAND *MG1105-B.1*

Figure B.2
Number of Selected Reserve Dentists as a Percentage of Total End Strength, 2002–2009



SOURCE: Defense Manpower Data Center, 2009b.
RAND *MG1105-B.2*

Figure B.3
Number of Active Component Physicians and Dentists as a Percentage of Total End Strength, 2002–2009



SOURCE: Defense Manpower Data Center, 2009b.
RAND *MG1105-B.3*

APPENDIX C

Information and Systems Available to Members and Commanders for Tracking IMR Requirements and Compliance

All RCs have databases for collecting and reporting the IMR status of their members. The Army RCs use the Medical Protection System (MEDPROS); the Air Force RCs use the Preventive Health Assessment and Individual Medical Readiness system (PIMR); the Navy and Marine Corps Reserve use the Medical Readiness Reporting System (MRRS). Unit commanders may access reports of all IMR requirements for each individual in their unit.

Information on DLCs is recorded in these data systems. Each service's official documents specify medical conditions that are deployment-limiting. When a member self-reports a DLC (for example, a broken bone or a pregnancy), that DLC will be entered into the data system by the unit clerk. DLCs may also be identified and recorded in these data systems during the annual PHA.

When a reserve member deploys, all medical encounters are recorded in AHLTA (Armed Forces Health Longitudinal Technology Application)—the electronic medical record system used in all military treatment facilities worldwide. According to Air Force Reserve documentation, the Air Force's PIMR has a unidirectional information feed from AHLTA to PIMR (Headquarters, Air Force Reserve Command Surgeon General, 2009). Currently, there is no interface between MEDPROS or MRRS and AHLTA.[1] This lack of interface has led to problems when a member is called to mobilize again in that he or she may go to a mobilization site having an unidentified DLC:

> A major issue identified at both sites is the problem of Reserve Soldiers reporting to the SRP mob site where pre-existing medical conditions are discovered on AHLTA (Armed Forces Health Longitudinal Technology Application) from previous deployments which render the Soldier unfit for deployment resulting in a REFRAD. (Westerband, 2009)

A similar problem can occur after a reserve member has demobilized. During the demobilization window, a reserve member can receive health care at a VA hospital. These hospitals use a medical record system called VistA (Veterans Health Information Systems and Technology Architecture). VistA does not interface with AHLTA, MEDPROS, MRRS, or PIMR. The lack of interoperability was a subject for discussion at the 2010 Military Health System Conference (Holyak, 2010) and of a recent GAO report (GAO, 2011).

This appendix details the medical readiness information available to individual RC members and their commanders.

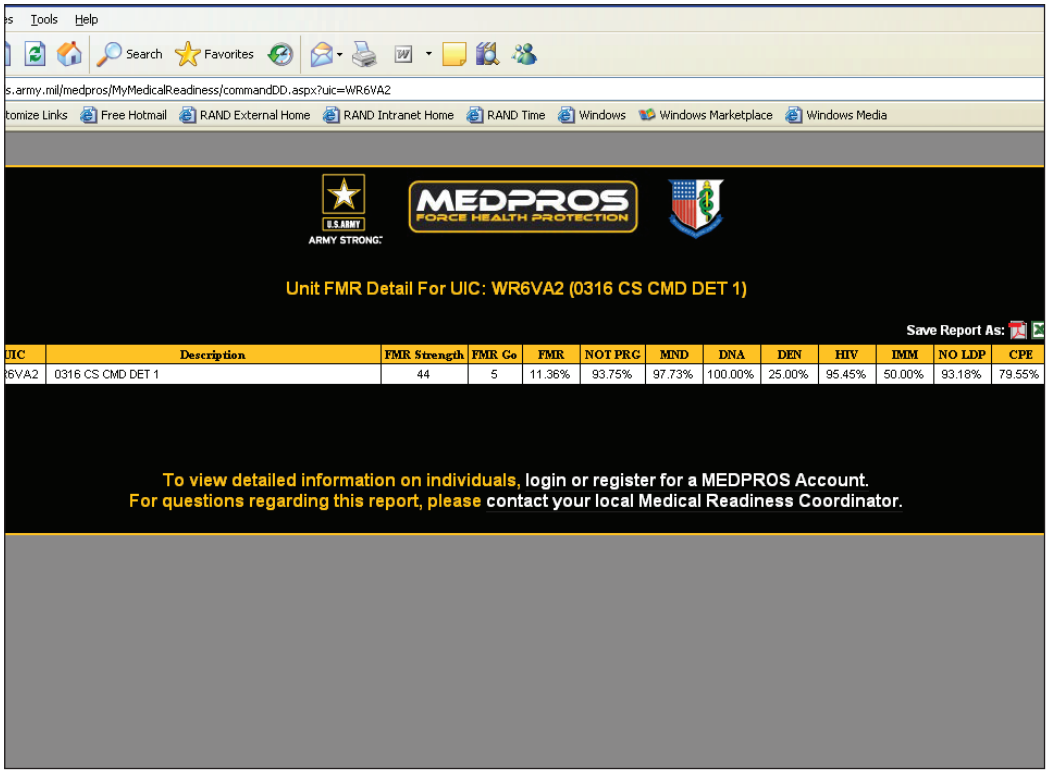
[1] Email correspondence with James Pruett, ASM Research, Inc., and Functional Manager, MEDPROS, June 19, 2008; and Rockswold, 2008.

Army Reserve and National Guard

MEDPROS is the web-based database of record for all Army IMR data elements. MEDPROS is a subcomponent of the "Medical Operational Data System" (MODS).[2] With permission, MEDPROS can be accessed from the Internet. Unit commanders access their unit's IMR statistics through MEDPROS and are responsible for maintaining IMR-ready soldiers. The *MEDPROS Leader's Handbook* is a helpful document that takes commanders step-by-step through the process of obtaining reports for their units from MEDPROS (Medical Operational Data System Support Team, 2007). Figures C.1 and C.2 are MEDPROS screenshots. One can see in these figures that the database provides IMR information to medical personnel and/or the unit command.

Figure C.1, the unit summary information, indicates that 44 soldiers are assigned (FMR Strength) and that five soldiers are fully medically ready (FMR Go). The medical readiness rate is 11.36 percent; 93.75 percent are not pregnant; 93.73 percent are medically nondeployable (MND); all have their DNA samples on file; 25 percent are dentally ready (DEN);

Figure C.1
Screenshot of the MEDPROS Reports—Unit Summary Report



UIC	Description	FMR Strength	FMR Go	FMR	NOT PRG	MND	DNA	DEN	HIV	IMM	NO LDP	CPE
6VA2	0316 CS CMD DET 1	44	5	11.36%	93.75%	97.73%	100.00%	25.00%	95.45%	50.00%	93.18%	79.55%

SOURCE: MEDPROS website, accessed on June 30, 2008.
RAND *MG1105-C.1*

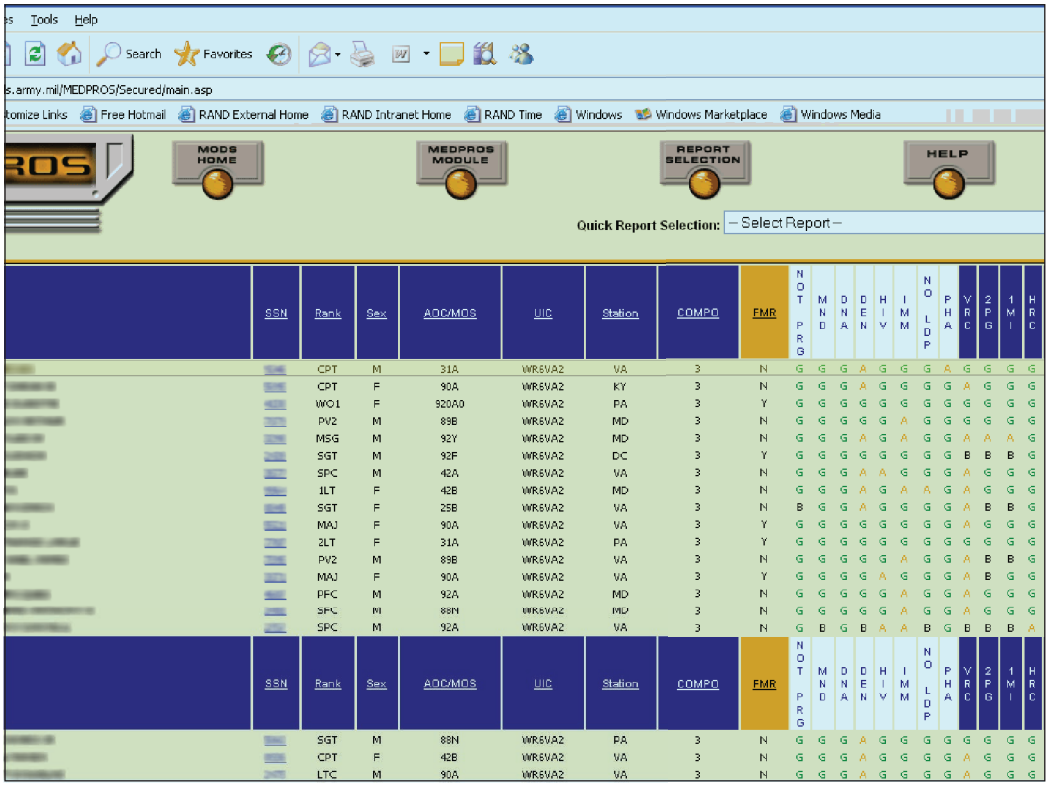
[2] MODS provides the Army Medical Department with an integrated automation system that supports all phases of Human Resource Life-Cycle Management in both peacetime and mobilization. This online system provides commanders, staffs, and functional managers of Army Medical Department organizations with a real-time source of information on the qualifications, training, special pay, and readiness of Army Medical Department personnel. See Medical Operational Data System website, no date.

95.45 percent have current HIV test results on file; 50 percent are current for required immunizations; 93.18 percent have no limited duty profile; and 79.55 percent have a current periodic exam (CPE).

Figure C.2, a detailed unit report, displays details on each person in the unit. Note the column "NO LDP" (limited duty profile); all soldiers but one showed "G," meaning they meet the requirement. One soldier has "B," meaning no information for this requirement is posted in MEDPROS.

Updates to MEDPROS are made by the cognizant medical and dental providers and staff, including contractor personnel (e.g., personnel at LHI).[3] Medical staffs at regional readiness commands (Army Reserve) or the Army National Guard State Surgeon offices, as well as Army National Guard organic medical staffs, use MEDPROS to track IMR and to provide required services to individual soldiers. Additionally, all members can view their personal IMR status via Army Knowledge Online (AKO). Figure C.3 is the screenshot that a unit member sees and can use to monitor his/her individual status. Note that the information shown is for a member who is fully medically ready (green), but whose unit is not (red unit IMR).

Figure C.2
Screenshot of the MEDPROS Report—Detailed Information on Individuals in Unit



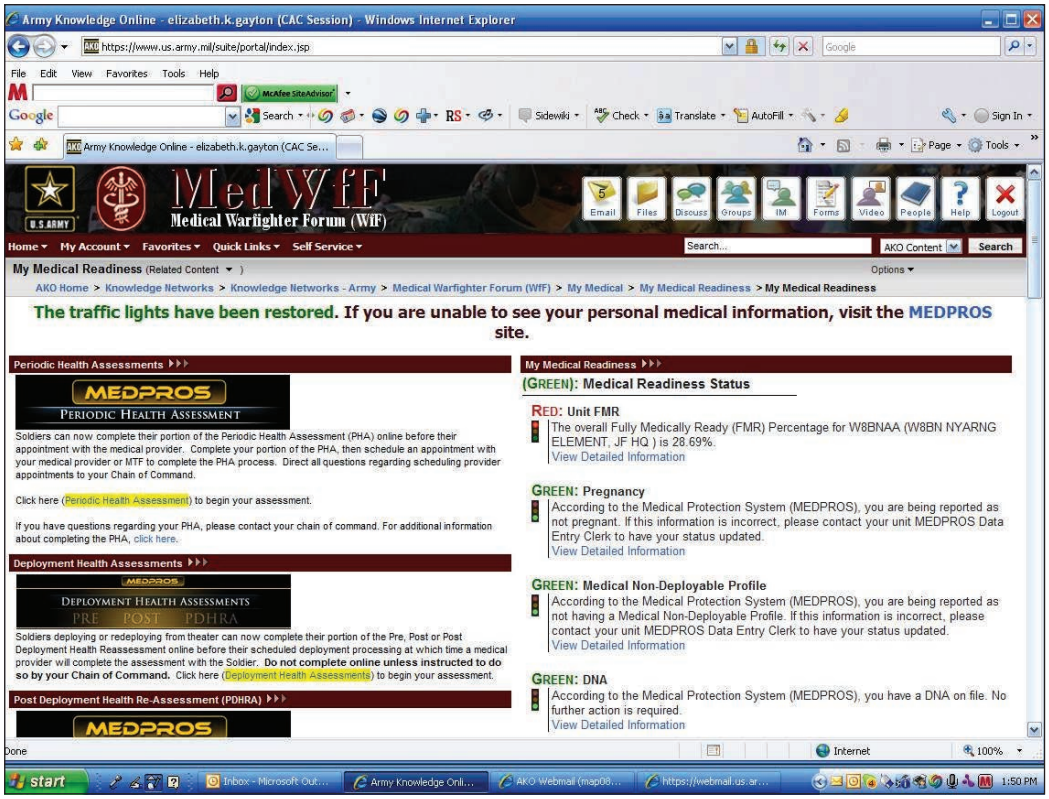
SSN	Rank	Sex	AOC/MOS	UIC	Station	COMPO	FMR	NOT PRG	MND	DNA	DEN	HIV	IMM	NO LDP	PHA	YRC	2PG	1MI	HRC
	CPT	M	31A	WR6VA2	VA	3	N	G	G	G	A	G	G	G	A	G	G	G	G
	CPT	F	90A	WR6VA2	KY	3	N	G	G	G	A	G	G	G	G	A	G	G	G
	WO1	F	920A0	WR6VA2	PA	3	Y	G	G	G	G	G	G	G	G	G	G	G	G
	PV2	M	89B	WR6VA2	MD	3	N	G	G	G	G	G	A	G	G	G	G	G	G
	MSG	M	92Y	WR6VA2	MD	3	N	G	G	G	A	G	A	G	G	A	A	A	G
	SGT	M	92F	WR6VA2	DC	3	Y	G	G	G	G	G	G	G	G	B	B	B	G
	SPC	M	42A	WR6VA2	VA	3	N	G	G	G	A	A	G	G	G	A	G	G	G
	1LT	F	42B	WR6VA2	MD	3	N	G	G	G	A	G	A	A	G	A	G	G	G
	SGT	F	25B	WR6VA2	VA	3	N	B	G	G	A	G	G	G	G	A	B	B	G
	MAJ	F	90A	WR6VA2	VA	3	Y	G	G	G	G	G	G	G	G	A	G	G	G
	2LT	F	31A	WR6VA2	PA	3	Y	G	G	G	G	G	G	G	G	G	G	G	G
	PV2	M	89B	WR6VA2	VA	3	N	G	G	G	G	G	A	G	G	A	B	B	G
	MAJ	F	90A	WR6VA2	VA	3	Y	G	G	G	G	A	G	G	G	A	B	G	G
	PFC	M	92A	WR6VA2	MD	3	N	G	G	G	G	G	A	G	G	A	G	G	G
	SPC	M	88N	WR6VA2	MD	3	N	G	G	G	G	G	A	G	G	A	G	G	G
	SPC	M	92A	WR6VA2	VA	3	N	G	B	G	B	A	A	B	G	B	B	B	A
SSN	Rank	Sex	AOC/MOS	UIC	Station	COMPO	FMR	NOT PRG	MND	DNA	DEN	HIV	IMM	NO LDP	PHA	YRC	2PG	1MI	HRC
	SGT	M	88N	WR6VA2	PA	3	N	G	G	G	A	G	G	G	G	G	G	G	G
	CPT	F	42B	WR6VA2	VA	3	N	G	G	G	A	G	G	G	G	A	G	G	G
	LTC	M	90A	WR6VA2	VA	3	N	G	G	G	A	G	G	G	G	A	G	G	G

SOURCE: MEDPROS website, accessed on June 30, 2008.

RAND *MG1105-C.2*

[3] See Logistics Health Incorporated, 2011.

Figure C.3
Screenshot of Army Knowledge Online's "My Medical Readiness"



SOURCE: Army Knowledge Online, accessed on January 25, 2010.
RAND *MG1105-C.3*

Army Regulations

For all components of the Army, PHA compliance is defined in AR 40-501, Chapter 8, Medical Examinations—Administrative Procedures, and Chapters 9 and 10 for Army Reserve and Army National Guard members, respectively. IMR requirements are in Chapter 11.

Drilling female RC members are required to provide the results of their civilian periodic preventive exams (e.g., Pap test, mammogram) to their unit administrator for documentation of compliance with AR 40-501 and updating of the MEDPROS database.

The Army establishes DLCs based on an assessment of the member's medical profile in accordance with Table 7-2 (Profile Codes), Chapter 9 (Army Reserve), and Chapter 10 (Army National Guard) of AR 40-501.

Air National Guard

Similar to the active Air Force, the Air National Guard uses the PIMR web-based database to electronically record and track compliance with IMR-related activities. As is true for the Army MEDPROS, the PIMR database provides individual service member IMR data tracking and archiving as well as IMR status tracking at all echelons of command. Air National

Guard members do not have access to these reports. A clinic-level front screen of an airman's PIMR data is shown in Figure C.4. Information for all the IMR elements is given, with color codes (green, yellow, red) visually indicating IMR status. Green signifies fully ready, yellow indicates an element that is approaching being overdue, and red means an element is overdue or not ready.

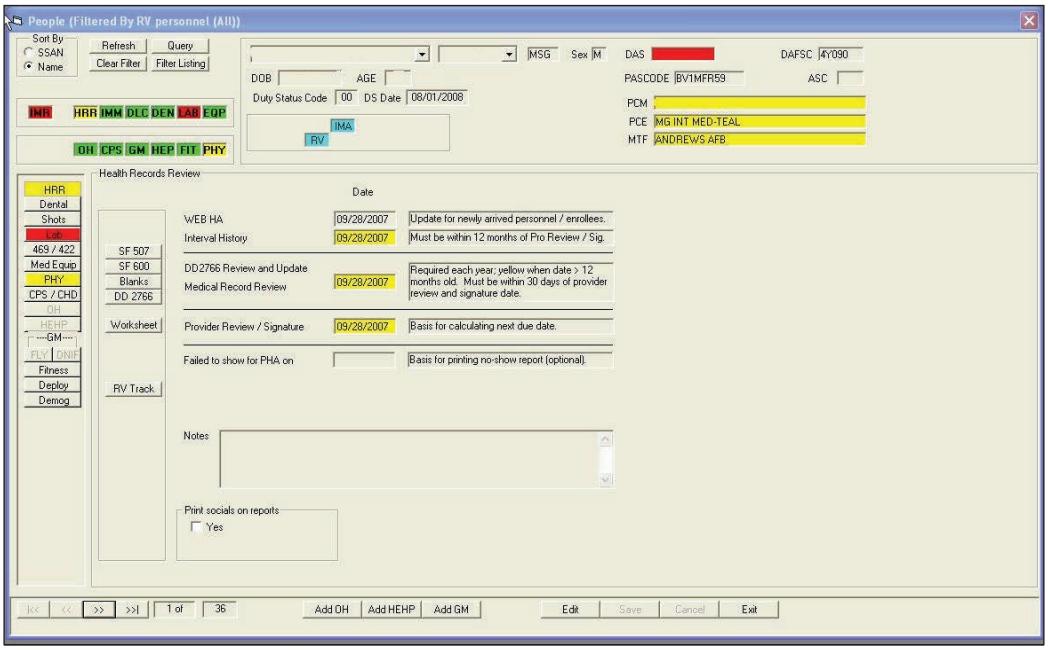
Figure C.5 shows a representative Air National Guard–level PIMR. This type of report would be used at various levels of the chain of command to track IMR-compliance rates and trends of Air Guard units.

The Air National Guard executes IMR in accordance with various Air Force and Air National Guard Surgeon General policies (AFI 44-170, paragraph 1.8.3; AFI 10-250, paragraph 1.8.3). If indicated during the annual PHA, a member may be referred to an Air National Guard–credentialed provider for further assessment and/or referred to a civilian provider, at the member's expense, for evaluation (AFI 48-123).

DLCs are recorded on AF Form 469 (AFI 10-203, paragraph 1.4). This form is electronic and linked to the PIMR database, with a hard copy sent to the member's commander and placed in the member's medical record. Until removed, a DLC can disqualify Air National Guard members from worldwide duties, military duties, unit training assemblies, annual tours, and any other active duty (AFI 10-203, paragraph 2.7).

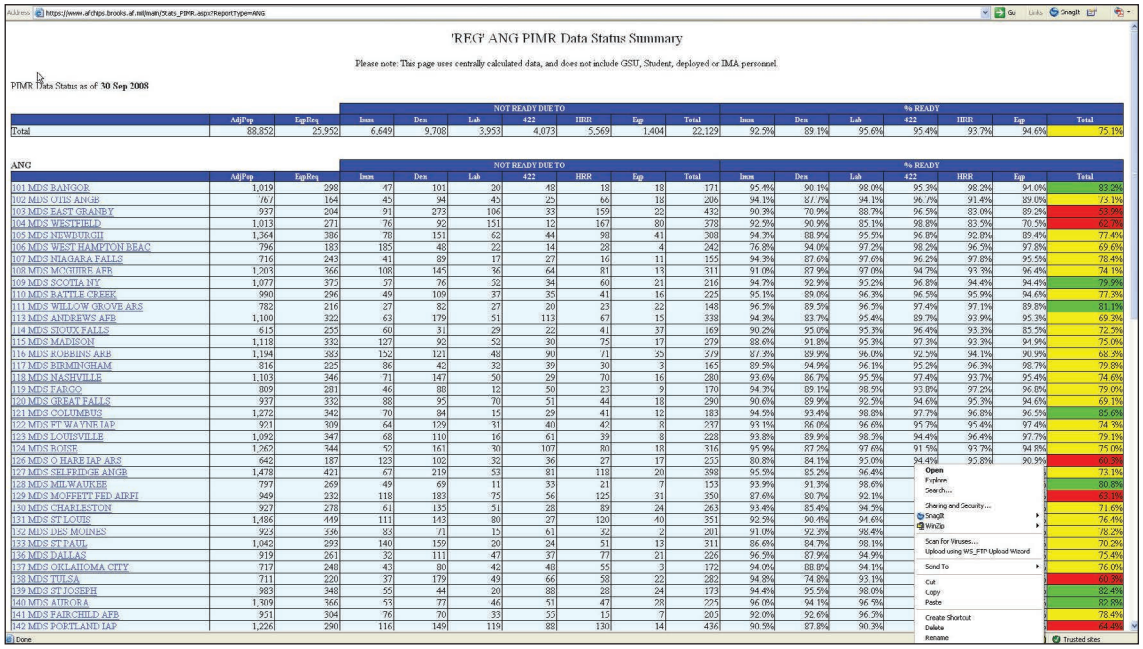
A DLC may only be documented on an AF Form 469 for up to one year. DLCs are reviewed at each medical encounter or, at a minimum, annually during the Reserve Component Periodic Health Assessment (RCPHA). If a provider determines that a member will not be qualified for worldwide duty within a year of having a DLC, the member must be referred for a medical evaluation board (MEB) and possible discharge (AFI 10-203, paragraph 2.10.6).

Figure C.4
Screenshot of Airman's IMR Status, as Seen in Medical Group-Level, PIMR Front Screen



SOURCE: Screenshot provided by Lt Col Hans Ritschard, RAND Research Fellow, on October 6, 2008.
RAND *MG1105-C.4*

Figure C.5
Screenshot of Air National Guard's PIMR Unit Status Report



'REG' ANG PIMR Data Status Summary

Please note: This page uses centrally calculated data, and does not include GSU, Student, deployed or IMA personnel.

PIMR Data Status as of 30 Sep 2008

			NOT READY DUE TO							% READY						
	AdjPop	EqpReq	Imm	Den	Lab	422	HRR	Eqp	Total	Imm	Den	Lab	422	HRR	Eqp	Total
Total	88,852	25,952	6,649	9,708	3,953	4,073	5,569	1,404	22,129	92.5%	89.1%	95.6%	95.4%	93.7%	94.6%	75.1%

ANG			NOT READY DUE TO							% READY						
	AdjPop	EqpReq	Imm	Den	Lab	422	HRR	Eqp	Total	Imm	Den	Lab	422	HRR	Eqp	Total
101 MDS BANGOR	1,019	298	47	101	20	48	18	18	171	95.4%	90.1%	98.0%	95.3%	98.2%	94.0%	83.2%
102 MDS OTIS ANGB	767	164	45	94	45	25	66	18	206	94.1%	87.7%	94.1%	96.7%	91.4%	89.0%	73.1%
103 MDS EAST GRANBY	937	204	91	275	106	33	159	22	432	90.3%	70.9%	88.7%	96.5%	83.0%	89.2%	53.7%
104 MDS WESTFIELD	1,013	271	76	92	151	12	167	80	378	92.5%	90.9%	85.1%	98.8%	83.5%	70.5%	62.7%
105 MDS NEWBURGH	1,364	386	78	151	62	44	98	41	308	94.3%	88.9%	95.5%	96.8%	92.8%	89.4%	77.4%
106 MDS WEST HAMPTON BEAC	796	183	185	48	22	14	28	4	242	76.8%	94.0%	97.2%	98.2%	96.5%	97.8%	69.6%
107 MDS NIAGARA FALLS	716	243	41	89	17	27	16	11	155	94.3%	87.6%	97.6%	96.2%	97.8%	95.5%	78.4%
108 MDS MCGUIRE AFB	1,203	366	108	145	36	64	81	13	311	91.0%	87.9%	97.0%	94.7%	93.3%	96.4%	74.1%
109 MDS SCOTIA NY	1,077	375	37	76	32	34	60	21	216	94.7%	92.9%	95.2%	96.8%	94.4%	94.4%	79.9%
110 MDS BATTLE CREEK	990	296	49	109	37	35	41	16	225	95.1%	89.0%	96.3%	96.5%	95.9%	94.6%	77.3%
111 MDS WILLOW GROVE ARS	782	216	27	82	27	20	23	22	148	96.5%	89.5%	96.5%	97.4%	97.1%	89.8%	81.1%
113 MDS ANDREWS AFB	1,100	322	63	179	51	113	67	15	338	94.3%	83.7%	95.4%	89.7%	93.9%	95.3%	69.3%
114 MDS SIOUX FALLS	615	255	60	31	29	22	41	37	169	90.2%	95.0%	95.3%	96.4%	93.3%	85.5%	72.5%
115 MDS MADISON	1,118	332	127	92	52	30	75	17	279	88.6%	91.8%	95.3%	97.3%	93.3%	94.9%	75.0%
116 MDS ROBBINS ARB	1,194	385	152	121	48	90	71	55	379	87.3%	89.9%	96.0%	92.5%	94.1%	90.9%	68.3%
117 MDS BIRMINGHAM	816	225	86	42	32	39	30	3	165	89.5%	94.9%	96.1%	95.2%	96.3%	98.7%	79.8%
118 MDS NASHVILLE	1,103	346	71	147	50	29	70	16	280	93.6%	86.7%	95.5%	97.4%	93.7%	95.4%	74.6%
119 MDS FARGO	809	281	46	88	12	50	23	9	170	94.3%	89.1%	98.5%	93.8%	97.2%	96.8%	79.0%
120 MDS GREAT FALLS	937	332	88	95	70	51	44	18	290	90.6%	89.9%	92.5%	94.6%	95.3%	94.6%	69.1%
121 MDS COLUMBUS	1,272	342	70	84	15	29	41	12	183	94.5%	93.4%	98.8%	97.7%	96.8%	96.5%	85.6%
122 MDS FT WAYNE IAP	921	309	64	129	51	40	42	8	257	93.1%	86.0%	96.6%	95.7%	95.4%	97.4%	74.9%
123 MDS LOUISVILLE	1,092	347	68	110	16	61	39	8	228	93.8%	89.9%	98.5%	94.4%	96.4%	97.7%	79.1%
124 MDS BOISE	1,267	344	52	161	30	107	80	18	316	95.9%	87.2%	97.6%	91.5%	93.7%	94.8%	75.0%
126 MDS O HARE IAP ARS	642	187	123	102	32	36	27	17	255	80.8%	84.1%	95.0%	94.4%	95.8%	90.9%	60.3%
127 MDS SELFRIDGE ANGB	1,478	421	67	219	53	81	118	20	398	95.5%	85.2%	96.4%				73.1%
128 MDS MILWAUKEE	797	269	49	69	11	33	21	7	133	93.9%	91.3%	98.6%				80.8%
129 MDS MOFFETT FED AIRFI	949	232	118	183	75	56	125	31	350	87.6%	80.7%	92.1%				63.1%
130 MDS CHARLESTON	927	278	61	135	51	28	89	24	263	93.4%	85.4%	94.5%				71.6%
131 MDS ST LOUIS	1,486	449	111	145	80	27	120	40	351	92.5%	90.4%	94.6%				76.4%
132 MDS DES MOINES	923	336	83	71	15	61	32	2	201	91.0%	92.3%	98.4%				78.2%
133 MDS ST PAUL	1,042	293	140	159	20	24	51	13	311	86.6%	84.7%	98.1%				70.2%
136 MDS DALLAS	919	261	32	111	47	37	77	21	226	96.5%	87.9%	94.9%				75.4%
137 MDS OKLAHOMA CITY	717	248	43	80	42	40	55	3	172	94.0%	88.8%	94.1%				76.0%
138 MDS TULSA	711	220	37	179	49	66	58	22	282	94.8%	74.8%	93.1%				60.3%
139 MDS ST JOSEPH	983	348	55	44	20	88	28	24	173	94.4%	95.5%	98.0%				82.4%
140 MDS AURORA	1,309	366	53	77	46	51	47	28	225	96.0%	94.1%	96.5%				82.8%
141 MDS FAIRCHILD AFB	931	304	76	70	33	55	15	7	205	92.0%	92.6%	96.3%				78.4%
142 MDS PORTLAND IAP	1,226	290	116	149	119	88	130	14	436	90.5%	87.8%	90.3%				64.4%

SOURCE: Screenshot provided by Lt Col Hans Ritschard, RAND Research Fellow, on October 6, 2008.
RAND *MG1105-C.5*

If an Air Force Reserve Component (AFRC) member is returned to duty by the AF Disability Evaluation System (DES) as "fit" but does not meet minimum medical requirements for worldwide duty/deployment, the member may be placed in an Assignment Limitation Code (ALC)-C. The intent of the ALC-C is to ensure that members receive appropriate medical care and to preserve the integrity of overseas missions. Three levels of stratification are available via the ALC-C codes: (1) members with an ALC-C1 code are deployable/assignable to global DoD fixed installations with intrinsic medical treatment facilities (MTFs), since the code represents mild conditions requiring medical follow-up but unlikely to seriously impact the mission if untreated or if treatment is limited to primary care; (2) members with an ALC-C2 code are deployable/assignable to continental U.S. (CONUS) installations with intrinsic fixed MTFs, since the code is for members likely to need specialist medical care within one year; (3) members with an ALC-C3 code, which indicates that they are nondeployable, can only be assigned to specific CONUS installations based on medical need. This ALC-C stratification designates members who should not be deployed or assigned away from specialty medical capability required to manage their unique medical conditions (AFI 41-210, attachment 2).

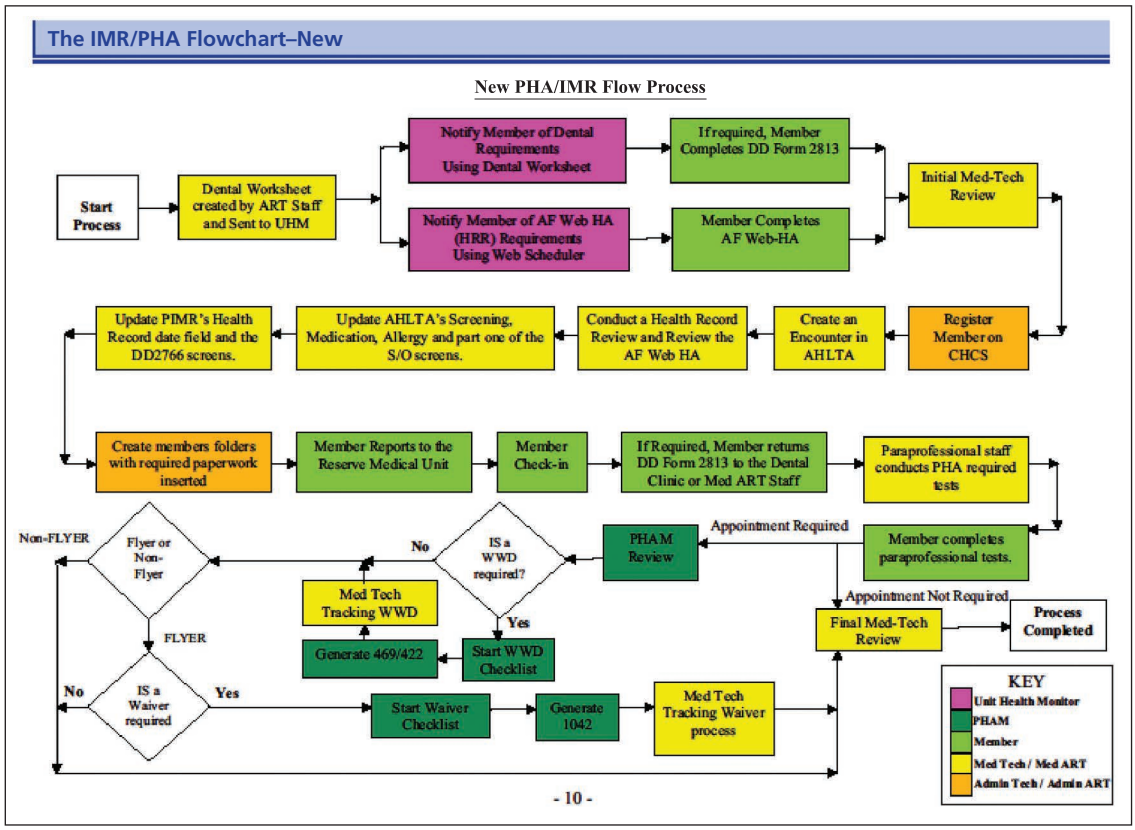
Air Force Reserve

The Air Force Reserve began executing the web-based RCPHA in 2001 as a replacement for the five-year physical exam (Carlton, 2001) and has adopted essentially the same clinical requirements as the active Air Force for PHAs (self-assessment, health and record history, IMR review, and clinical preventive counseling) (Headquarters, Air Force Reserve Command Sur-

geon General, 2009). Figure C.6 is a flow chart of the new Air Force Reserve medical readiness process. If indicated during the annual health assessment, the member may be referred to a privileged provider for further assessment and/or to a civilian provider at the member's expense for evaluation (AFI 48-123).

Air Force Reserve members are evaluated for potential duty limitations at every medical encounter. If it is determined that a member requires a duty limitation or mobility restriction, the AF Form 469 is used. Only specific limitations are entered; diagnoses are not recorded. For duty limitations with no mobility or retraining implications, copies of the form are sent electronically to the member's unit and force health monitor. When a medical condition with or without duty limitations also prevents the member from deploying, the primary care manager checks the Mobility Restriction box on AF Form 469. The form is automatically forwarded to Force Health Management, which assesses the form; determines whether the condition requires a code 31 (illness expected to last between 31 and 365 days), a code 37 (long-term disability requiring MEB), or a code 81 (pregnancy); annotates the form appropriately; and forwards the form to the profile officer, usually the senior flight surgeon. The profile officer validates by electronic signature, and the form is then automatically returned to Force Health Management. It is then forwarded electronically to the member's unit commander for

Figure C.6
Flow Chart of Air Force Reserve's IMR/PHA Process



SOURCE: HQ AFRC/SG, *PHA IMR Guide*, April 2, 2009, Version 2.1, p. 10.

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concurrence/nonconcurrence, and the commander or designated representative issues the form to the member (AFI 10-203, Chapter 3).

In some cases, the COCOM sets medical requirements for a deployment. In that case, the gaining force commander may not accept an individual for deployment even though a commander has placed that individual on deployment status, regardless of medical recommendations. If a member requires a permanent mobility restriction (ALC-C), it has to be approved by the AFRC/SGP (Chief of the Medical Staff, Wing Communications Group/Squadron) for AFRC members. These limitations are displayed on the AF Form 469 permanently at the bottom of the physical limitations/restrictions portion and cannot be overridden by any local AF Form 469 action (AFI 10-203, Chapter 3).

If an Air Force Reserve member refuses required medical/dental appointments or does not comply with medical/dental requests for information, the reserve medical unit notifies the member's commander. This notification indicates in writing that the individual is restricted to participating solely in weekend drills and annual tours at home station and cannot be assigned duty away from home and cannot perform man-days or attend formal schools (Headquarters, Air Force Reserve Command Surgeon General, 2009, p. 121). As in the Air National Guard, examinations and evaluations of AFRC members who develop DLCs while on active duty or from a line of duty determination coordinate with the active duty MTF or TRICARE to obtain follow-up and/or consultations for service-connected issues. AFRC members with non-duty-connected issues are referred to their civilian providers for additional evaluation, with explicit instructions to provide clinical information to the medical unit (AFI 10-203, paragraph 2.7.2).

Navy and Marine Corps Reserves

IMR for the Navy and Marine Corps RCs is provided by reserve Navy medical and dental staffs. The medical policies generally come from the same source (Department of the Navy Bureau of Medicine and Surgery [BUMED]), so we discuss the IMR policies and processes for these two components in parallel.

Both components use the web-based MRRS to track and manage IMR-related activities at the reserve activity level. This application tracks and reports IMR statistics at the unit and higher headquarters levels and is used by unit medical department representatives (MDRs) to execute local medical readiness and physical qualification actions. Figure C.7 is a screenshot of the MRRS front page.

The Navy's instructions for PHA are contained in Secretary of the Navy Instruction (SECNAVINST) 6120.3-1, dated December 1, 2009. The Navy Reserve PHA includes a member self-assessment using a web-based tool called the Fleet Health Risk Assessment (HRA), a health/dental records review and IMR deficiency check and/or update, clinical preventive service counseling and recommendations, fitness program approval, and, if necessary, a "problem-focused examination." Data collected during the PHA are entered into the MRRS by the supporting activity MDR.

The DLC process is described in Bureau of Naval Personnel Instruction (BUPERINST) 1001.39F, "Administrative Procedures for Navy Reservists" (Navy); Marine Corps Order (MCO) P1001R.1J, *Marine Corps Reserve Administrative Management Manual* (Marine Corps); and Navy Medicine (NAVMED) P-117, *Manual of the Medical Department*—Chapter 15, arti-

Figure C.7
Screenshot of Navy and Marine Corps Reserves' Medical Readiness Reporting System

SOURCE: Padgett, 2008.
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cle 15-23, "Retention in the Navy and Marine Corps Reserves," and Chapter 18, article 18-24, "Reservists: Physical Disqualification and Referral to the PEB" (U.S. Navy, 2010). The MDR reviews the annual PHA, dental exam results, and/or all new or materially changed medical conditions. If the MDR and/or a privileged medical/dental provider determine that the member has a physical condition that is likely to prevent him/her from fulfilling the responsibilities of his/her rank and rating, or that interferes with mobilization, the MDR classifies the member as "Temporarily Not Physically Qualified" (TNPQ) (or "Temporarily Not Dentally Qualified" [TNDQ], as appropriate) and updates MRRS accordingly. Figure C.8 is a screenshot of the TNPQ page of MRRS. Note the various toggles indicating status and the free-text field for description of the physical disqualification.

In the Navy reserve, the member's commanding officer determines whether the member on TNPQ status can drill. If allowed to drill, the member is limited to inactive duty for training (IDT) and correspondence courses. Conditions that do not resolve within 180 days require the MDR and/or medical officer to place the member on a "Medical Retention Review (MRR)" status and to recommend to the cognizant commanding officer that the member's maintenance on drill status either be allowed or denied. The commanding officer can maintain the member on drill status limited to IDT only. In addition, the medical officer and commanding officer prepare and forward a physical qualification for retention for final qualification and/

Figure C.8
Screenshot of Navy and Marine Reserve Temporarily Not Physically Qualified Page from MRRS

SOURCE: Provided by Navy and Marine Corps Reserve Center Los Angeles Medical Department Representative on November 3, 2005.

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or risk classification to the Bureau of Medicine and Bureau of Naval Personnel. Possible final "Physical Risk Classification" determinations include "A" (no restrictions), "B" (deployment limited to areas with supporting medical facilities), "C" (retention of a member with special skills who requires medical support), "4" (more medical information is necessary to make the determination), and "5" (administrative separation of member required).

In the Marine Corps Reserve, members who are on TNPQ may not perform IDT. If the TNPQ is not resolved within six months, the MDR prepares and submits a "Not Physically Qualified" package through the commanding officer to the Bureau of Medicine and Headquarters Marine Corps Personnel for final physical classification.

APPENDIX D

Army First-Term Dental Readiness

Both Army Reserve and Active Recruits Benefit from the First-Term Dental Readiness Initiative

A pilot first-term dental readiness study showed that soldiers can be made dentally fit by the end of AIT (only 17 out of 4,458 soldiers did not achieve dental class 2) (Chaffin et al., 2006).

Table D.1
Results of 2003 Army First-Term Dental Readiness Pilot Study

	Number of AIT Graduates	Number That Were Dental Class 3	Percentage That Were Dental Class 3	Number That Moved from Class 3 to Class 2
Fort Knox	2,259	510	23	508
Active component	1,903	420	22	418
Army Guard	347	89	26	89
Army Reserve	9	1	11	1
Fort Sill	2,199	498	23	483
Active component	1,633	347	21	345
Army Guard	563	150	27	137
Army Reserve	3	1	33	1

SOURCE: Chaffin et al., 2006.

Army Policies and Guidance for Recruit Dental Readiness

Army guidance specifies that all soldiers are to receive dental x-rays and mouth guards during in-processing prior to initiation of training. After completing basic training, soldiers go to AIT, OSUT, or OBC. During this advance training, they receive dental examinations and remedial dental class 3 care.

Currently Army policy is contained in

- Headquarters, Department of the Army, Executive Order (HQDA EXORD) 265-09, *Soldier First Term Dental Readiness*, August 7, 2009
- U.S. Army Dental Command OPORD 10-01, *First Term Dental Readiness*, December 23, 2009
- U.S. Army Medical Command OPORD 09-74, *First Term Dental Readiness*, September 29, 2009.

EXORD 265-09 states that only 71 percent of graduating AIT soldiers are in dental class 1 or 2. It directs coordination among all Army commands to facilitate a goal of 95 percent dentally ready soldiers. Further, all documentation on dental status (exams and x-rays) for RC soldiers is to be sent to the Army Digital Dental Repository.

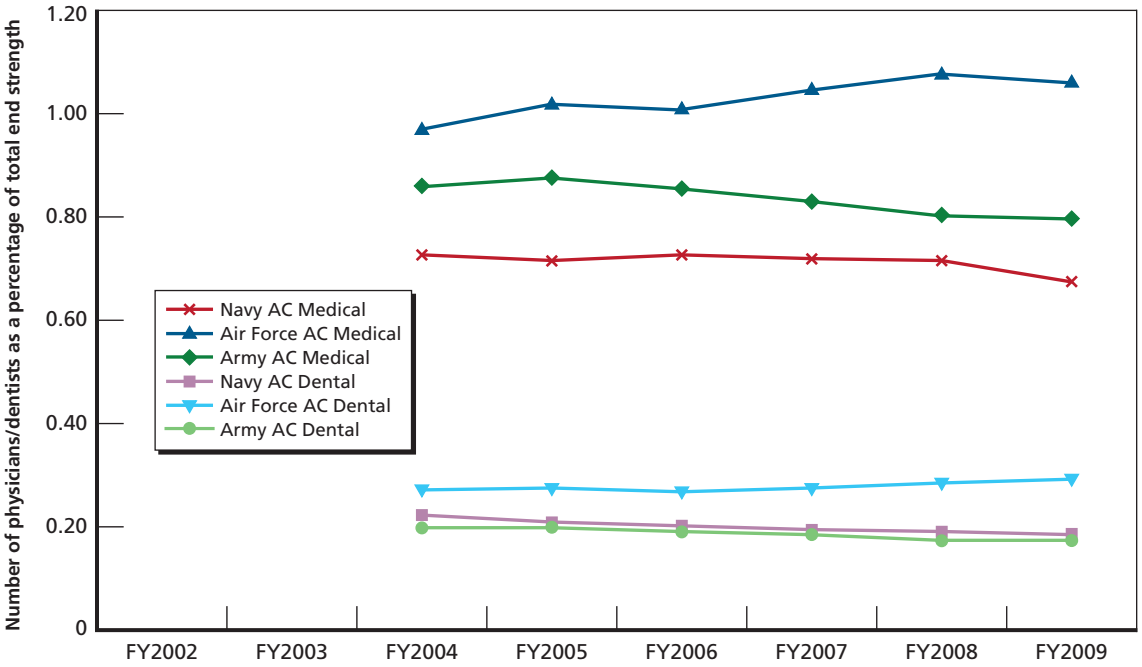
OPORD 10-01 provides the Army Dental Command's specific instructions for accomplishing the first-term dental readiness program.

OPORD 09-74 adds the endorsement of the Army Medical Command for the first-term dental readiness program and details the key tasks for execution of the program.

APPENDIX E

Active Component Statistics

Figure E.1
Number of Active Component Physicians and Dentists as Percentage of Total End Strength, 2002–2009



SOURCES: DMDC, 2008, pp. 2–3; DMDC, 2009a, pp. 21–22.

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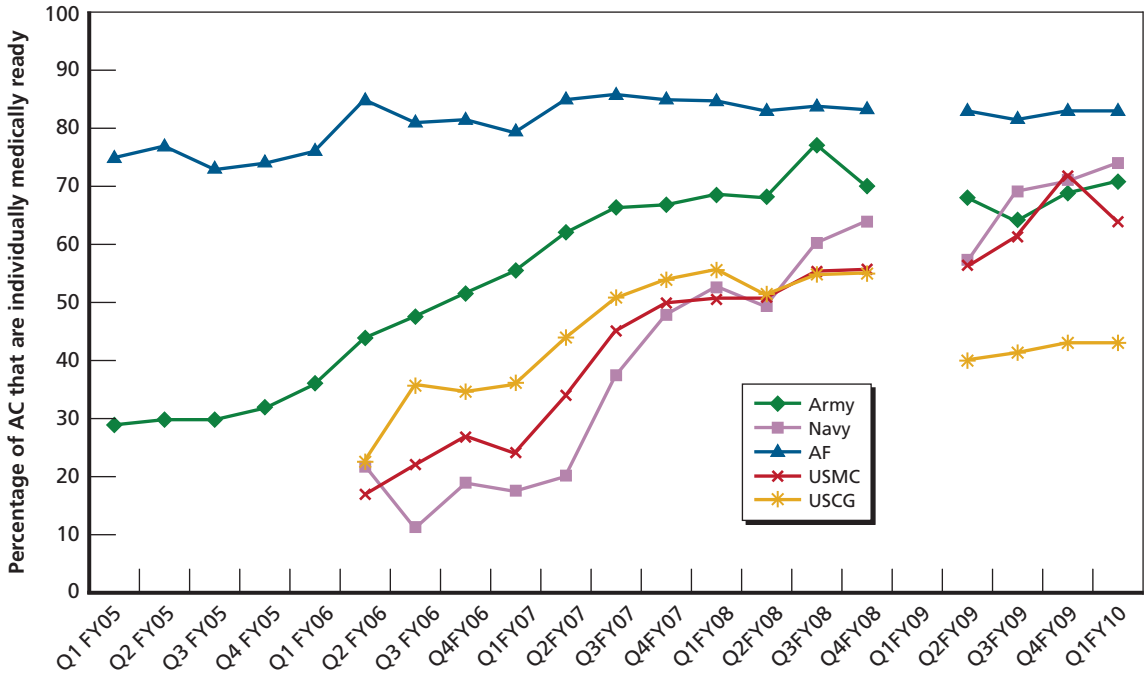
APPENDIX F

Active Component Individual Medical Readiness Rates

Figure F.1
Active Component IMR Rates, FY 2005–2010



NOTE: Data are missing for Q1FY09.

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APPENDIX G

Department of Veterans Affairs Dental Treatment for Demobilizing Reserve Component Members

Reserve members are eligible for one treatment episode of dental care in the VA if

1. They have served at least 180 days on active duty.
2. They apply for treatment within 180 days of discharge (P.L. 110-181).
3. DD Form 214 (Discharge Papers and Veterans Separation Documents) indicates that dental treatment was not completed (line 17).
4. They have been discharged under conditions "other than dishonorable."
5. Treatment is completed within three years after veteran files application (VA Reg. 6123.2).

If the VA dental service cannot accommodate a recently discharged veteran who meets the requirements in a timely fashion, the veteran will be sent to Fee Basis (private dentist at VA cost) to complete the care.[1]

[1] Email correspondence with James G. Callahan, VA Medical Center–Los Angeles, April 2010. Note that much of the web information is out of date. Legislation in 2008 and 2009 increased benefits for demobilizing RC members.

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SUPPLEMENTARY MATERIAL

Detailed Requirements for Meeting Individual Medical Readiness Requirements Across DoD

The large matrix (Table M.1) on the following pages shows DoD-wide medical and dental readiness requirements and the requirements specific to the Army, Navy, Air Force, Marine Corps, and Coast Guard.

Table M.1
Individual Medical Readiness: Frequency and Threshold Requirements for Meeting IMR Standards

		Army			Air Force				Navy		Marine Corps		Coast Guard
		AC	RC		AC	RC			AC	RC	AC	RC	RC
						Reserves							
Requirement	**DoD-Wide**	**Active Duty**	**Army Reserves**	**Army National Guard**	**Active Duty**	**Unit Reserve**	**IMA[1]**	**Air National Guard**	**Active Duty**	**Reserve**	**Active Duty**	**Reserve**	**Reserve**
Periodic Health Assessment	HA Policy 06-006 (Feb 2006) directs all services to conduct initial and annual PHA. DoDI 6025.19 (Jan 2006): Annual PHA is overdue 3 months after annual month due.	AR 40-501 (Sep 2008) PHA instructions, definitions, and categories found in Chapter 11. A servicemember is considered IMR "current" for up to 3 months after a deployment.			USAF PHAs(AFI44-170 10 DECEMBER 2009) include a member self-assessment, record/history/assessment review by medical professional, periodic height/weight/blood pressure/etc and credentialed provider exams as part of PHA.				SECNAVINST 6120.3 CH-1(Dec 2009) Navy PHAs include a member self-assessment, record/history/assessment review by medical professional, periodic height/weight/blood pressure/etc and credentialed provider exams. Women's exams included in IMR assessment.		Same as Navy		COMDTINST M6150.3 (Dec 2008)
Self-Assessment		Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual Navy Fleet and Marine Corps Health Risk Assessment (HRA) optional	Same as AD	Annual Navy Fleet and Marine Corps Health Risk Assessment (HRA) optional	Same as AD	Annual (HRA)
Review, record/history review and IMR criteria review, and clinical prevention counseling by medical staff		Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annually individualized face-to-face assessment
Med tech basic vital sign assessment		Annual height, weight, PULHES, and potential for deployablility within 6 months, vision, hearing	Annual height, weight, PULHES, and potential for deployablility within 6 months, vision, hearing	Annual height, weight, PULHES, and potential for deployablility within 6 months, vision, hearing	Blood pressure, height, weight annually	Blood pressure, height, weight every three years	Blood pressure, height, weight every three years	Blood pressure, height, weight every three years	Annual, height, weight, BMI, vision	Annual	Annual, height, weight, BMI, vision	Annual	Blood pressure, vision, hearing "finger rub," height, weight, BMI
Required baseline and periodic assessment/ exam by privileged provider (in all cases, members may receive "problem-focused" assesments based on assessed need). Each service has specific requirements for the exams based on age/ gender/rank/rating		CVSP ≥40 (every 5 years), medical exam (GO medical exam every 2 years, specific military training programs/schools), lipids (male≥35, female≥40, every 5 years)	CVSP ≥40 (every 5 years), medical exam (GO medical exam every 2 years, specific military training programs/schools), lipids (male≥35, female≥40, every 5 years)	CVSP ≥40 (every 5 years), medical exam (GO medical exam every 2 years, specific military training programs/schools), lipids (male≥35, female≥40, every 5 years)	Annual	Every 3 years, annual for flyers	Every 3 years, annual for flyers	Every 3 years, annual for flyers	Lipids (male≥35, female≥40, every 5 years), Colorectal Cancer ≥50	see civilian provider	Every 5 years	No PHA implementing guidance yet from MARFORRES (apparently). Unofficially, USMC Reserve units still doing "annual certification" and physical exam every 5 years.	Cholesterol (3 years if high risk, 5 years low risk and (male ≥35 or female ≥45), diabetes (every 3 years if at risk), prostate screening (2 years if male ≥45 and at risk), Colorectal Cancer (annual ≥50)
Women's Exams: breast, pelvic, pap test, chlamydia		Not included in IMR	Not included in IMR	Not included in IMR	Not included in IMR	Not included in IMR	Not included in IMR	Not included in IMR	Annual Paps, chlamydia ≤ 25, breast exam every 3 years until 40 then annually.	Not included in IMR, Mbr provides copy of annual exam	Annual Paps, chlamydia ≤ 25––	Not included in IMR, Mbr provides copy of annual exam	Pap smear (3 years), chlamydia (annually under 25),
Mammogram		Not included in IMR	Not included in IMR	Not included in IMR	Not included in IMR	Not included in IMR	Not included in IMR	Not included in IMR	Ages 40, 42, 44, 46, 48, and 50. After age 50, the study will be repeated annually.	Not included in IMR, Mbr provides copy of exam	Ages 40, 42, 44, 46, 48, and 50. After age 50, the study will be repeated annually.	Not included in IMR, Mbr provides copy of exam	2 years ≥ 40
Deployment-Limiting Condition	DoDI 6025.19: Pass = no DLC (service-specific definitions of DLC). DODI 1332.18, Physical Disability Evaluation, establishes the operational standards in Enclosure 3 and requires standaradization across the services and components.	Exams based on PULHES and assignment numeric code 1–4 to each category. "P" stands for Physical capacity or stamina. "U" for upper extremity. "L" for lower extremity. "H" for hearing and ears. "E" for eyes. "S" for psychiatric. 1 = high level of medical fitness. 2 = some condition that might require some activity limitations. 3 = condition that may require significant limitations. 4 = condition that severely affects ability to conduct military duty. Can have permanent 3s with permanent worldwide limitations through a medical board and/or waiver process. Cannot have permanent 4s. Permanent 3 or a 4 is a DLC. Ref AR 40-501.			Exams based on PULHES and assignment numeric code 1–4 to each category. "P" stands for Physical capacity or stamina. "U" for upper extremity. "L" for lower extremity. "H" for hearing and ears. "E" for eyes. "S" for psychiatric. 1 = high level of medical fitness. 2 = some condition that might require some activity limitations. 3 = condition that may require significant limitations. 4 = condition that severely affects ability to conduct military duty. Can have permanent 3s with permanent worldwide limitations through a medical board and/or waiver process. Cannot have permanent 4s. Permanent 3 or a 4 is a DLC. Ref AFI 48-123.				Navy and Marine Corps determine whether or not a member is "Fit for Worldwide Duty" or "Not Physically Qualified" to conduct duties in member's rank and rating. Physical disqualification can be temporary or permanent with worldwide duty limitations through a medical board and/or waiver process. Permanent and temporary physical disqualifications are DLCs. Ref is MANMED Chapters15 and 18 and NAVMEDINST 1850.4.				Similar to Navy and Marine Corps, a Coast Guard member is considered (not) "Fit for Duty" IAW CG MANMED Chap 3. Temporary up to 6 months.
DLCs generally are medical (physical or mental) or dental conditions that render member non-worldwide qualified to do their military rating and/or rank. They are either temporary (T) or permanent (P). For IMR, any DLC means not FMR ready. – *IMR REQT*	Army and Air Force use "PULHES" profiling system but vary in their definitions of the levels of profile. In general, a profile of 4 means a DLC exists, and in most components a permanent 3 may include a DLC. The Navy and Marine Corps differentiate between "Fit for Worldwide Duty" (no DLC) and "(Temporary) Not Physically (Dentally) Qualified." NPQ/TNPQ/TNDQ have a DLC. Each service has procedures for permanent worldwide limiting profiles (restrictions) and temporary profiles (restrictions), and procedures for medically boarding those with profiles (3/4 or TNPQ/TNDQ/NPQ) to determine suitability for continued service. In all cases, the RC member generally has an affirmative duty to use his personal health/ dental insurance to correct a DLC not received in the line of duty. Pregnancy is a DLC.	DLC is PULHES Profile 3 (with assignment limitations) or any Profile 4. Pregnancy.	DLC is PULHES Profile 3 (with assignment limitations) or any Profile 4. Pregnancy.	DLC is PULHES Profile 3 (with assignment limitations) or any Profile 4. Pregnancy.	DLC is Profile 4 (permanent with ALC-C) Pregnancy	DLC is permanent Profile 3-C (ALC-C) or temporary Profile 4, Pregnancy	DLC is Profile 4 (permanent with ALC-C), Pregnancy	DLC is Profile 4. Pregnancy	NPQ/TNPQ/TNDQ is a DLC. Absent NPQ/TNPQ/TNDQ member is "Fit for Worldwide Duty."	NPQ/TNPQ/TNDQ is a DLC. Absent NPQ/TNPQ/TNDQ member is "Fit for Worldwide Duty."	NPQ/TNPQ/TNDQ is a DLC. Absent NPQ/TNPQ/TNDQ member is "Fit for Worldwide Duty."	NPQ/TNPQ/TNDQ is a DLC. Absent NPQ/TNPQ/TNDQ member is "Fit for Worldwide Duty."	Member is assessed as "Fit for Duty" for his rank/rating or not IAW MANMED Chap 3. Those found "not fit" after six months of injury/illness are referred to an Initial Medical Board IAW COMDTINST M1001.28.

[1] IMA = Individual Mobilization Augmentee.

Table M.1—continued

		Army			Air Force				Navy		Marine Corps		Coast Guard
		AC	RC		AC	RC			AC	RC	AC	RC	RC
						Reserves							
Requirement	DoD-Wide	Active Duty	Army Reserves	Army National Guard	Active Duty	Unit Reserve	IMA[1]	Air National Guard	Active Duty	Reserve	Active Duty	Reserve	Reserve
Dental	All Services execute IAW HA Policy 02-211 as incorporated into DODI 6025.19.												
Classses 1 and 2 are worldwide deployable – *IMR REQT*; classes 3 and 4 are not	Dental Class 1: current exam and no Tx or eval; Dental Class 2: current exam and requires non-urgent Tx or Eval, not likely to result in emergency; Dental Class 3: requires urgent or emergent dental Tx; Dental Class 4: require annual exam or have unknown dental status (as per DoDI 6025.19: overdue 3 months following annual due date)	Annual	Annual	Annual	Annual	Annual (Annual exam, may be provided by civilian provider; military dental officer must examine at least once every 3 years.)	Annual	Annual (Annual exam, may be provided by civilian provider; military dental officer must examine at least once every 3 years. All Tx done by civilian provider.)	Annual	Annual (Annual exam, may be provided by civilian provider; military dental officer must examine at least once every 3 years. All Tx done by civilian provider. Documented in MRRS.)	Annual	Annual (Annual exam, may be provided by civilian provider; military dental officer must examine at least once every 3 years. All Tx done by civilian provider. Documented in MRRS.)	Annual (can be provided by Dental Officers of the Uniformed services or contract/civilian provders)
Immunizations	"Current" for all Total Force/All Services vaccines: hepatitis A, tetanus-diophtheria, MMR, IPV, hepatitis B (if seris began) and influenza. Vaccines overdue 30 days after scheduled due date (per DoDI 6025.19, Jan 2006)												
Routine adult vaccinations (per ACIP)	DoDD 6205.02E (Sep 2006): DoD policy to follow CDC/ACIP recommendations unless "military reason to do otherwise.	Immunization policy standardized in one document with four numbers (Sep 2006) AR 40-562, BUMEDINST 6230.15A, AFJI 48–110, CG COMDTINST M6230.4F			Immunization policy standardized in one document with four numbers (Sep 2006) AR 40-562, BUMEDINST 6230.15A, AFJI 48–110, CG COMDTINST M6230.4F				Immunization policy standardized in one document with four numbers (Sep 2006) AR 40-562, BUMEDINST 6230.15A, AFJI 48–110, CG COMDTINST M6230.4F				
Tetanus/diphtheria (Td) / Td-pertussis (Tdap) – *IMR REQT*	AR 40-562 (Sep 2006): "Administer booster doses of Td or Tdap to all personel every 10 years." Accessions: preferably Tdap. Individuals lacking reliable vaccination history should receive primary series. Assume primary series unless reasons to suspect otherwise, e.g., "childhood spent in developing country, childhood immunizations not administered." AFJI 48-110: Primary series (0.5ml IM at 0, 4–8wks, 6–12 mos) for all recruits lacking reliable vaccination history (as defined by ACIP); otherwise, booster upon entry and periodically as per ACIP guidelines. (ACIP: Adolescents and adults 19–64y, one-time booster with Tdap when due, then Td booster every 10 years for all adults)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)	Recruits, then booster every 10 years (preferably with pertussis vax)
Measles/mumps/ rubella – *IMR REQT*	AR 40-562 (Sep 2006): MMR for all susceptible basic trainees and accessions. For those born after 1957, ensure 2 lifetime doses of MMR or positive serologic results. Assume childhood dose of MMR "unless ... reason to suspect otherwise (for example, childhood spent in a developing country, childhood immunizations not administered)." AFJI 48-110: Measles and rubella: MMR or single virus vax for all recruits; serologic testing and selective immunization acceptable if cost-effective. Mumps: 1 dose MMR unless documented disease or prior live virus vax. (ACIP: Recommended for all susceptible adults 19–49, and for >=50y with specific risk factor; 1 dose of MMR, 0.5ml subcutan, or monovalent vaccines M and R for all adults, plus 2nd dose of MMR [focus on measles] for international travel; ACIP cautions against MMR [rubella] for women pregnant currently or within 4 weeks of vax.)	All personnel, including accessions (for all 3 antigens M, M, R)	All personnel, including accessions (for all 3 antigens M, M, R)	All personnel, including accessions (for all 3 antigens M, M, R)	High-risk occupational groups and as directed by Surgeon General	All personnel, including accessions (for all 3 antigens M, M, R)	All personnel, including accessions (for all 3 antigens M, M, R)	All personnel, including accessions (for all 3 antigens M, M, R)	High-risk occupational groups and as directed by Surgeon General	All personnel, including accessions (for all 3 antigens M, M, R)	High-risk occupational groups and as directed by Surgeon General	All personnel, including accessions (for all 3 antigens M, M, R)	All personnel, including accessions (for all 3 antigens M, M, R)
Varicella	AR 40-562 (Sep 2006): For all susceptible basic trainees and accessions, first dose withing 2 weeks, second dose within 4–8 wks. Serologic screening preferable; otherwise counted as susceptible without definitive history of disease, vax or documented seropositive. (ACIP: Recommended for all susceptible adults 19–49, and for all with other risk factor for >=50y; ACIP specifically recommends for military personnel)	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed	Accessions, occupational risk, and as directed

[1] IMA = Individual Mobilization Augmentee.

Table M.1—continued

		Army			Air Force				Navy		Marine Corps		Coast Guard
		AC	RC		AC	RC			AC	RC	AC	RC	RC
						Reserves							
Requirement	DoD-Wide	Active Duty	Army Reserves	Army National Guard	Active Duty	Unit Reserve	IMA[1]	Air National Guard	Active Duty	Reserve	Active Duty	Reserve	Reserve
Hepatitis A – *IMR REQT*	AR 40-562 (Sep 2006): For all military personnel plus occupational risk. Hep A or combined Hep A/B vax product. AFJI 48-110: Specifies ACIP guidance (presumably for dosage schedule). (ACIP: Recommended for all adults >=19y if risk factor present; Havrix [GSK] >=19y: 2 doses of 1.0ml IM at 0 and 6–12m, for 2–18y, 0.5ml; Vaqta [Merck] >=19y: 2 doses of 1.0ml at 0 and 6–18m, for 1–18y: 0.5ml.) If Hep A/B combined: Twinrix [Merck] >=18y: 3 doses of 1.0ml at 0, 1, 6 months)	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions
Hepatitis B – *IMR REQT* (if begun)	AR 40-562 (Sep 2006): "Unless already immune" [serologic screening not specified]: upon entry, occupational or personal high risk, and/or AOR-specific. (ACIP: Recommended for all adults >=19y if risk factor present; Engerix-B [GSK] : >=20y: 3 doses of 1.0ml at 0, 1, 6mos; 0–19y 0.5ml at 0, 1–2, 4 mos; Recombivax HB [Merck]: >=20y: 3 doses of 1.0ml at 0, 1, 6mos; 0–19y: 0.5ml at 0, 1–2, 4 mos; Twinrix = only vax licensed for >=18y, 3 doses of 1.0ml at 0, 1, 6 mos)	Accessions, occupational risk, AOR-specific, and as directed	Accessions, occupational risk, AOR-specific, and as directed	Accessions, occupational risk, AOR-specific, and as directed	Accessions, occupational risk, AOR-specific, and as directed	Accessions, occupational risk, AOR-specific, and as directed	Accessions, occupational risk, AOR-specific, and as directed	Accessions, occupational risk, AOR-specific, and as directed	Accessions, occupational risk, AOR-specific, and as directed	Accessions, occupational risk, AOR-specific, and as directed	Accessions, occupational risk, AOR-specific, and as directed	Accessions, occupational risk, AOR-specific, and as directed	All peresonnel, including accessions
Influenza (seasonal) – *IMR REQT*	AR 40-562 (Sep 2006): Annual for active duty and Selected Reserve. AFJI 48-110: All AD and Reserves: soon after entry on duty and annually unless given identical vaccine composition within preceding 3 mos. DoDI 6025.19: Vaccine available in October, and overdue if not given by January. (ACIP: Recommended for all adults >=50y and for adults 19–49y if risk factor present; Inactivated vax 0.5ml IM for all ages >6mos; live attenuated vax, FluMist, for healthy 5–49y)	Recruits, then 1 annual dose	Recruits, then if on active duty >30d during influenza season: 1 annual dose	Recruits, then if on active duty >30d during influenza season: 1 annual dose	Recruits, then: 1 annual dose	Recruits, then: 1 annual dose	Recruits, then: 1 annual dose	Recruits, then: 1 annual dose	Recruits, then: 1 annual dose	Recruits, then: 1 annual dose	Recruits, then: 1 annual dose	Recruits, then: 1 annual dose	Recruits, then 1 annual dose
Meningococcus	AR 40-562 (Sep 2006): for basic trainees, other accessions; AOR-specific including alert personnel; asplenic persons. AFJI 48-110: Quadrivalent with A,C,Y, W-135 polysaccharide antigens (MPSV-4), 1 dose for all recruits, then as per Service prev med authorities for additional dose if indicated. Note: New meningococcal conjugate vaccine, MCV-4, licensed in 2005. AR 40-562 (as Sep 2006) provides blanket reference to ACIP recommendations, including new vaccine products such as this. (ACIP: Recommended for all adults >=19y if risk factor present; MCV-4 for 11–55y, but MPSV-4 acceptable; MPSV-4 for >55y. MPSV-4: one dose of 0.5ml, subcut; MCV-4: one dose of 0.5ml, IM	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed	All recruits, otherwise AOR-specific or as directed
Non-routine adult vaccinations (ACIP)													
Adenovirus types 4 and 7	AR 40-562 (Sep 2006): When FDA-licensed vaccines available, for all military basic trainees upon arrival. (ACIP: No recommendations. Vaccine is not commercially available; sole market=military)	Recruits	Recruits	Recruits	Recruits	Recruits	Recruits	Recruits	Recruits	Recruits	Recruits	Recruits	Not specified in AR 40-562.
Poliovirus (IPV) – *IMR REQT*	AR 40-562 (Sep 2006): Single booster IPV for all recruits. Personnel without complete primary series should complete series with IPV. Assume completed primary series unless reason to suspect otherwise (see above under Td and MMR). DoDI 6025.19 (Jan 2006): IPV. AFJI 48-110 (May 2004): Trivalent OPV, 1 dose (unless documented prior adult booster) for all enlisted accessions, officer, ROTC, Reserve components on initial active duty; IPV is alternative to OPV for selected individuals as clinically indicated. (ACIP: Since 2000, US routinely uses only inactivated polio vaccine, IPV; the only U.S. uses for OPV since 2000 = outbreak control and 2 indications for children, none for adults.)	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions	All personnel, including accessions

[1] IMA = Individual Mobilization Augmentee.

Table M.1—continued

		Army			Air Force				Navy		Marine Corps		Coast Guard
		AC	RC		AC	RC			AC	RC	AC	RC	RC
						Reserves							
Requirement	DoD-Wide	Active Duty	Army Reserves	Army National Guard	Active Duty	Unit Reserve	IMA[1]	Air National Guard	Active Duty	Reserve	Active Duty	Reserve	Reserve
Pneumococcus	AR 40-562 (Sep 2006): Basic trainees/ accessions: only if warranted based on disesase incidence; otherwise, only for high risk as specified by ACIP. Persons without spleens to receive second dose after 5 years. (ACIP: for relatively severe medical indications, 1 dose plus revax after 5 years)	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?	(Not specified in AR 40-562) AOR-specific or as med. indicated?
Rabies	AR 40-562 (Sep 2006): Pre-exposure series to special operations personnel, plus booster q2 years or when low-antibody indications. Post-exposure series: vaccine and rabies immune globulin (RIG) coord with appropriate med authorities and following ACIP recommendations. (ACIP: 4 licensed vaccines, 3 for intramuscular [IM] and 1 for intradermal [ID] administration, plus rabies immune globulin (RIG). Pre-exp vax: 3 doses of 1.0ml of IM vax or 0.1ml of ID vax at 0, 7, and 21 or 28d; blood test every 6 mos, single booster vax if antibody level below threshold; post-exp vax schedule varies based on previous primary vax or not, and always includes RIG.)	High-risk occupational groups and as directed	High-risk occupational groups and as directed	High-risk occupational groups and as directed	High-risk occupational groups and as directed	High-risk occupational groups and as directed	High-risk occupational groups and as directed	High-risk occupational groups and as directed	High-risk occupational groups and as directed	High-risk occupational groups and as directed	High-risk occupational groups and as directed	High-risk occupational groups and as directed	High-risk occupational groups and as directed
Cholera	AR 40-562 (Sep 2006): Military indication. When FDA-licensed vax available, AOR-specific. No longer required for entry into any country. (CDC notes current vaccine is of little value; World Health Organization notes that since 1992, no country requires vax for entry.)	AOR-specific	AOR-specific	AOR-specific	AOR-specific	AOR-specific	AOR-specific	AOR-specific	AOR-specific	AOR-specific	AOR-specific	AOR-specific	AOR-specific
Anthrax	AR 40-562 (Sep 2006): Military indication. (ACIP, 2000: Anthrax vaccine adsorbed, AVA: 6 doses subcut at 0, 2 and 4 wks, 6, 12 and 18mos, annual booster)	As directed	As directed	As directed	As directed	As directed	As directed	As directed	As directed	As directed	As directed	As directed	As directed
Smallpox	AR 40-562 (Sep 2006): Military indication. (ACIP: Dryvax, administer with bifurcated needle, puncture skin 3x for primary, 15x for revax)	As directed	As directed	As directed	As directed	As directed	As directed	As directed	As directed	As directed	As directed	As directed	As directed
Plague	AR 40-562 (Sep 2006): When available FDA-licensed product, for specified populations IAW DoD policy, e.g., personnel likely to be assigned to endemic or other risk areas. (ACIP: 1996 recommendation outdated; currently, no vax product licensed for U.S. use)	High-risk occupational groups plus AOR-specific	High-risk occupational groups plus AOR-specific	High-risk occupational groups plus AOR-specific	High-risk occupational groups	High-risk occupational groups	High-risk occupational groups	High-risk occupational groups	High-risk occupational groups	High-risk occupational groups	High-risk occupational groups	High-risk occupational groups	High-risk occupational groups
Typhoid	AR 40-562 (Sep 2006): Alert personnel and AOR-specific. Air Force: Only for units specically identified by MAJCOM surgeon. Either oral or IM vax, using ACIP dosing schedule. Practical consideration: injectable vax renders fully immunized with single dose. (ACIP: oral [live attenuated] – 4 doses q 2 days, booster q 5 years; injectable [killed] – 1 dose, booster q 2 y)	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed
Yellow fever	AR 40-562 (Sep 2006): Generally, AOR-specific. USMC: all personnel. CG: all accessions. Alert personnel AOR-specific, except: (a) USAF: only units specifically identified by MAJCOM surgeon, (b) Navy: all personnel assigned to Marine Op Forces and AOR-specific. (ACIP: revax q 10 y [though immunity likely persists 20–25y])	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	All, including accessions	All, including accessions	Accessions, AOR-specific and as directed
Japanese encephalitis	AR 40-562 (Sep 2006): AOR-specific (areas in rural Asia), including alert personnel. Boosters q3y if still eligible to deploy to at-risk areas. Alert personnel: USAF – only units specifically identified by MAJCOM. (ACIP: 3 doses of 1.0ml subcutan. At 0,7,30d [last dose can be at 14d if time constraints]; possible booster/s after 2y)	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed	AOR-specific and as directed
Tuberculosis Skin Test (TST)	Service-specific requirements per AR 40-562	DA PAM 40–11 (July 2005) Initial, then risk-based, separation	Initial, then risk-based, separation	Initial, then risk-based, separation	AFI48-105 (Mar 2005) Initial, then risk-based	Annual	Initial, then risk-based	Initial, then risk-based	BUMEDINST 6224.8 Initial, at risk annual, otherwise every 3 years (at risk includes all shipboard, deployable, and health care)	Initial, at risk annual, otherwise every 3 years	Initial, at risk annual, otherwise every 3 years	Initial, at risk annual, otherwise every 3 years	COMDTINST M6150.3 (Dec 2008) Initial

[1] IMA = Individual Mobilization Augmentee.

Table M.1—continued

		Army			Air Force				Navy		Marine Corps		Coast Guard
		AC	RC		AC	RC			AC	RC	AC	RC	RC
						Reserves							
Requirement	DoD-Wide	Active Duty	Army Reserves	Army National Guard	Active Duty	Unit Reserve	IMA[1]	Air National Guard	Active Duty	Reserve	Active Duty	Reserve	Reserve
Readiness Labs	DODI 6025.19 requires DNA on file and HIV within 24 months. Services may require additional tests (eg, G6PD, sicle cell).												
HIV – *IMR REQT*	Every 2 years	Every 2 years	Every 2 years	Every 2 years	Every 2 years	Every 2 years	Every 2 years	Every 2 years	Every 2 years	Every 2 years	Every 2 years	Every 2 years	Every 2 years
DNA – *IMR REQT*	One time, on file, DoDI 6025.19 (Jan 2006)	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file
ABO/Rh (blood type)	Service-specific	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file
Sickle cell screen (Hgb-S)	Service-specific	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file
G6PD screen	Service-specific	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file	One time, on file
Medical Equipment	DODI 6025.19 requires one pair of gas mask inserts for those needing visual correction. Services may require additional items.												
Gas mask corrective lens inserts *IMR REQT*	Core requirement: 1 pair, if needed (DoDI 6025.19, Jan 2006)	1 pr if needed	1 pr if needed	1 pr if needed	1 set; issue with new prescription	1 set; issue with new prescription	1 set; issue with new prescription	1 set; issue with new prescription	One set	One set	One set	One set	One set (if deploying OCONUS)
Eye glasses		Vision Class 1 or 2 and if req'd, 2 pairs + inserts	Vision Class 1 or 2 and if req'd, soldier required to have 2 pair, not funded for drilling RC by NG6H	Vision Class 1 or 2 and if req'd, soldier required to have 2 pair, not funded for drilling RC by NG6H					Two pair, Ballistic Protection Optical Inserts, medical warning tags	Two pairs		Document current prescription	2 pairs
Hearing Aid		Device + 6 mos. batteries	Device + 6 months. Batteries; mbr funds unless mobilized	Device + 6 months. Batteries; mbr funds unless mobilized									
Predeployment													
Predeployment PHA	Current		Within 30 days of deploymnet		Within 30d of deployment	Within 30d of deployment	Within 30 days of deployment	Within 30 days of deployment	Within 30 days of deployment	Within 30 days of deployment	Within 30 days of deployment	Within 30 days of deployment	
Presecribed meds and prescriptions before deployment	Not part of IMR. RAND assumes service-specific requirements.	180 days supply when deployed			120 days supply or length of deployment	Cannot issue; ind gets from civ insurance or from AD MTF once on AD orders	Cannot issue; ind gets from civ insurance or from AD MTF once on AD orders	Cannot issue; ind gets from civ insurance or from AD MTF once on AD orders		2 week supply when reporting to Navy mobilization processing site (NMPS); 90 day supply after leaving NMPS.			
Pregnancy test for females	Service-specific	Within 1 month of overseas assignment	At mobilization Processing Station	Within 1 month of overseas assignment	Not pregnant before deployment	Not pregnant before deployment	Not pregnant before deployment	Not pregnant before deployment	"Liberal pregnancy testing is encouraged"	"Liberal pregnancy testing is encouraged"	"Liberal pregnancy testing is encouraged"	"Liberal pregnancy testing is encouraged"	
Predeployment serum sample	Service-specific				Within 12 months	Within 12 months	Within 12 months	Within 12 months	Within 12 months	Within 12 months	Within 12 months	Within 12 months	

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