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**ACHIEVABLE IMPERATIVE – BASELINE HEALTH OF THE  
RESERVE COMPONENT**

**BY**

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USAWC STRATEGY RESEARCH PROJECT

**ACHIEVABLE IMPERATIVE -- BASELINE HEALTH  
OF THE RESERVE COMPONENT**

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## ABSTRACT

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A smaller active duty force and a dramatically increased operational tempo have made the Reserve Components essential to accomplishing the Army's missions. This requires a degree of readiness that depends on high levels of health. Currently, the baseline health status of the Reserve Components is not known, even though these members are being activated at increasing numbers to serve in settings where the environmental impact on health may be significant.

Future decisions regarding force health protection and deployment policies will be based on analysis of scientific data on health and the environment. Capturing baseline health status is important for use prior to, during, and following deployments. Currently baseline health status is collected during the busy preparations for deployment. This has proven highly ineffective and exceptionally expensive. For Operations Noble Eagle and Enduring Freedom, the Army Medical Surveillance Activity received, respectively, 953 and 680 Pre-Deployment Health Assessments from a combined deployed population of 15,000 personnel.

This paper provides justification for maintaining a current baseline health status and describes "The Annual Health Certification and Survey/Health Assessment Longitudinal File" proposed by the Army Reserve to meet statutory requirements.



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## **ACHIEVABLE IMPERATIVE -- A BASELINE HEALTH DATABASE FOR THE RESERVE COMPONENTS**

Knowing is not enough; we must apply  
Willing is not enough; we must do  
--Goethe

In 1998, when Chief of Staff General Dennis A. Reimer reconfigured the Army to place a greater share of operational requirements on the two Reserve Components (Army Reserve and Army National Guard), he set in motion events that are only today coming to fruition.<sup>1</sup> A smaller active duty force and a dramatically increased operational tempo have made the Reserve Components essential elements to accomplishing the missions required of the U.S. Army. The ability to meet this heightened degree of readiness directly depends on maintaining optimal health of each soldier. Consequently the ability to maintain health is based on identifying health status. Unfortunately, the baseline health status of the Reserve Components of the Army is not currently known, even though Reserve Component members are being activated in increasing numbers to serve in settings where the environmental impact on health may be significant.

Health is a critical component to the strength, readiness, and effectiveness of the military's ability to mobilize.<sup>2</sup> Thus accurate documentation of health status is important prior to, during, and following deployment. For instance prior to deployment, baseline health not only defines medical readiness but accurate identification is also necessary for developing health promotion and disease prevention programs to keep the troops healthy. By knowing baseline health during deployment, potential risks can be identified that may impact the health of the force and better preventive health interventions can be initiated. In addition, changes in health occurring during deployment can be documented, ensuring optimal use of surveillance data. Post-deployment, baseline health status is essential to identifying service-connected problems. Acquiring this knowledge allows the use of epidemiological research to determine whether deployment-related exposures are associated with post-deployment health outcomes. Past deployments triggered many unanswered questions regarding the relationship of the environment to health problems and left many unresolved health issues (e.g., Gulf War Syndrome). Ten years after the Gulf War, the Committee on Strategies to Protect the Health of Deployed U.S. Forces concluded that progress has been unacceptable in implementing plans designed to protect the health of deployed U.S. Forces.<sup>3</sup> Their recommendations include maintaining health status for both active-duty and reserve service on an annual basis.

Future decisions regarding force health protection and deployment policies will be based on the analysis of available scientific data on health and the environment. Currently, baseline health status is collected during the preparations for deployment. Thus far, this has proven highly ineffective and exceptionally expensive. Out of the 15,000 Army personnel processed through the medical stations for Operation Noble Eagle (ONE) and Operation Enduring Freedom (OEF), only 953 (ONE) and 680 (OEF) Pre-Deployment Health Assessments (DD Form 2795) were received by the Army Medical Surveillance Activity (AMSA).<sup>4</sup> Typically, the processing medical station replicates an entire physical examination in an attempt to capture accurate health status, but then the information is only documented in the paper medical record of the individual soldier. As a result the physical examination procedure is duplicated needlessly without creating a usable health status database.

Several scientific review panels have stated that the time to collect accurate baseline assessment data is not during the busy preparations for deployment<sup>56</sup>. Recognizing the importance of baseline health information, an initiative has begun to acquire and link health data for the Reserve Components. The Annual Health Certification and Survey/Health Assessment Longitudinal File (AHCS/HALF) has been developed to collect these data. The paper identifies the importance of a baseline health status database for the Reserve Component and describes the current initiative proposed by the Army Reserve to meet statutory requirements.

#### **INCREASED OPERATIONAL TEMPO (OPTEMPO)**

The need for combat-ready troops has been reinforced by the current war on terrorism and the focus on homeland defense. Even before the terrorist events on September 11 2001, troops were being deployed in unprecedented numbers into non-combat environments for peacekeeping, humanitarian assistance, nation building, or training.<sup>7</sup> Army troops are currently deployed to 31 countries and have assumed many roles in homeland security (see figure 1).<sup>8</sup> As of February 13, 2002, some 14,155 Army soldiers were deployed overseas to support Operation Enduring Freedom. While for homeland security, 25,191 Reserve Component members were federally mobilized throughout the U.S. in support of the Global War on Terrorism (GWOT). Another 10,716 were activated for state duty.<sup>9</sup>

The Army has established a goal to have a visible combat presence anywhere in the world within 96 hours, a division on the ground in 120 hours and five divisions in

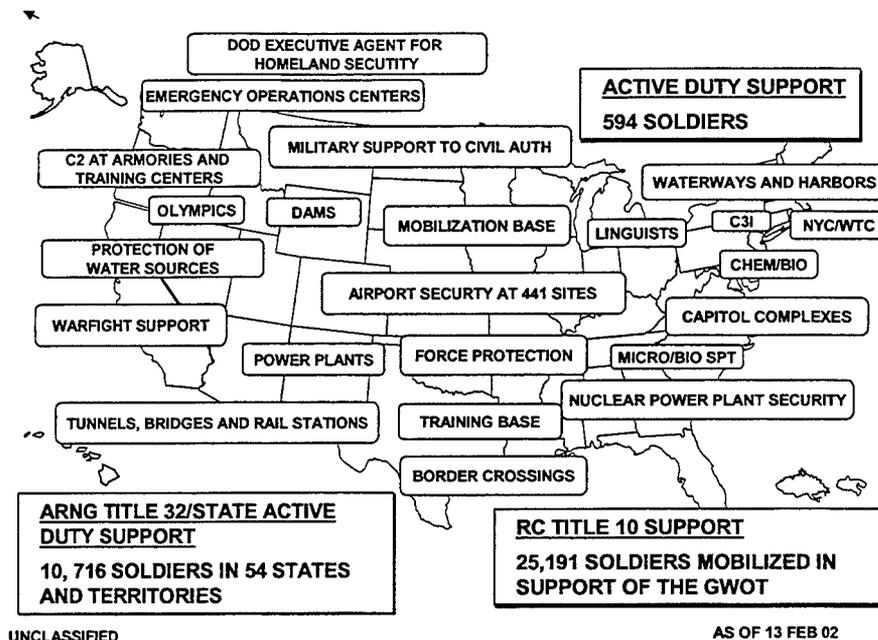


Figure 1 Home Land Security: What the Army is doing...

theater in 30 days, based largely on a rapidly deployable active component.<sup>10</sup> The events of late 2001 and early 2002 accelerated even this aggressive goal, with some Reserve units being mobilized and deployed within days. This degree of operational readiness depends on high levels of health, which means that sufficient troops must be medically fit at all times. Since the future active army is likely to remain small, an increased emphasis is being placed on the medical readiness of the Reserve Components.<sup>11</sup>

### RELIANCE ON THE RESERVE COMPONENTS

Trends point toward more rapid mobilization for peacekeeping and combat missions throughout the world. Successful execution of many of these missions requires Army troops from both the Active and Reserve Components. Thus, the Reserve Components are being integrated into the total force to support nearly all missions. The Reserve Components not only add strength in numbers to existing Active Component units, but also contribute unique units and certain capabilities not found in the Active Component.<sup>12</sup> The Selected Reserve elements of the Army National Guard and Army Reserve comprise 54 percent of the Army force. They provide essential combat, combat support, and combat service support assets. These contributions are particularly important in "high-demand, low-density" units. To illustrate, the Reserve Components provide 82 percent of public affairs assets, 97 percent of civil affairs capabilities, 85 percent of all medical brigades, 81 percent of psychological operations units, 70 percent

of engineering battalions and 66 percent of all military police.<sup>13</sup> Thus, the Reserve Components are very important to the total force. Reliance on and trust in the Reserve Component led to the unprecedented tasking of mission command for the American sector in Bosnia to the 49<sup>th</sup> Division of the Texas Army National Guard in March 2000.

Leadership ensures the Total Force readiness.<sup>14</sup> Since mission readiness is dependent on a healthy force, the Reserve Components must be medically ready to be deployed quickly. Concerns have been raised on the potential impact of Reserve Component health problems on overall military readiness. Readiness has been identified as one of two recurring barriers to the integration of Reserve and Active component identified by the Reserve Forces Policy Board (RFPB), the Chairman of the Joint Chiefs of Staff, and the Assistant Secretary of Defense for Reserve Affairs.<sup>15</sup> Currently medical readiness and, more specifically, baseline health status of Reserve Components of the U. S. Army is not known. Yet, the Reserve Components are being activated in increasing numbers to serve in communities where the environmental impact on health may not be known.

Two major themes evolved from past deployments. The first theme is that medical readiness can be a detrimental issue when activating the Reserve Component. For example, the Desert Shield/Storm experience demonstrated that large numbers of the Reserve soldiers had health issues that restricted their ability to be deployed<sup>16</sup>. This resulted in delays in deployment processing while medical or dental conditions were identified and corrected, or while replacement personnel were located for those with conditions beyond remediation. The second theme is that health concerns surface after troops return home and baseline data are needed to measure health changes. Unresolved health matters have a direct, adverse impact morale and retention.

Tracking the health of the Reserve Component and establishing baselines pose a particular challenge in that these soldiers are in a military status for only 36 days a year. During the remainder of the year, they are civilians who are responsible for maintaining their own health without access to care in the institutional Military Health System (MHS), the source of medical and dental readiness support for the Active Component.<sup>17, 18</sup> The ability to document health status is important so that this part of medical readiness of the Reserve Component is known. Mission success is dependent on maintaining the health of the Total Force.

## ENVIRONMENTAL IMPACT ON HEALTH

Environment and health are inextricably linked. Few question that health-related problems can be caused by exposure to environmental contaminants. According to the Department of Health and Human Services report *Healthy People 2010*, individual behavior and environmental factors are responsible for 70 percent of premature deaths in the United States.<sup>19</sup> Therefore, the fundamental goal must be to protect individuals from unnecessary exposure to environmental hazards preventing needless morbidity and mortality.<sup>20</sup> Specific influences on health are only now beginning to be understood. Identification of precursors that may be the cause of disease or injury could lead to prevention or reduction of various exposures.<sup>21</sup> The questions that need to be answered are:

“Which environmental exposures cause health problems,”

“At what level/amount does the exposure become a problem,” and

“Who is susceptible to the contaminants?”

Establishing a health-tracking network will provide possible links between chronic disease and environmental causes. A report commissioned by Health-Track, a project of the Pew Charitable Trusts, reported that every dollar spent on a program that tracks the linkage of chronic disease to environmental causes would decrease health care spending by \$1.44.<sup>22</sup>

It is difficult to quantify environmental factors<sup>23</sup>. Yet, it is especially important for the military to be able to quantify exposures reliably and to identify individuals who might be susceptible to exposures since the military deploys soldiers into unfamiliar, often inherently risky environments. As troops deploy, threats will be posed to health by environmental hazards. Some can be easily identified and others are more challenging. The goal is to promote high levels of environmental health but when this goal cannot be accomplished then change in health must be recognized.

Past deployments have resulted in concerns over environmental exposures.<sup>24</sup> Numerous instances have been identified where soldiers were subjected to environmental or health risks which had detrimental effects on well-being. With proper surveillance some of these risks could have been avoided. Following the Vietnam War, the uncertain outcome of exposure to herbicides led Congressional to pass Public Law 102-4 (the Agent Orange Act of 1991). This law directed the National Academy of Sciences (NAS) to review the health effects of exposure to Agent Orange and other herbicides used in Vietnam. Similarly following the Persian Gulf War, many questions

regarding exposure, associations, and outcomes existed. Even ten years after Operation Desert Shield/Storm, uncertainty still exists regarding health risks, potential exposures and adverse outcomes in the more than 697,000 troops who were deployed.<sup>25</sup> Nearly 270,000 of these were Reserve Component members.<sup>26</sup> Since the establishment of the Gulf War Illness Registry, jointly operated by DoD and VHA, over 60,000 individuals have registered for evaluation, making it evident that the final toll of a conflict on an individual's health is not known until well after the deployment ends.<sup>27</sup> As a result of the lessons learned from the Gulf War, a complete review of doctrine and policy for force health protection and medical surveillance was carried out. Recommendations were also made for oversight and operational practices. Major lessons learned in this conflict have been applied in subsequent operations and improvements in force health protection have been realized during subsequent deployments. Two major limitations in the clinical and epidemiological studies have been identified: a lack of baseline data and a lack of detailed exposure data. Without baseline data evaluating whether health problems were caused or possibly exacerbated by the wartime experience is difficult.<sup>28</sup> Predeployment health status data and longitudinal health tracking information would have been invaluable in assessing the causes of chronic, unexplained symptoms in Gulf War veterans.<sup>29</sup>

Since deployed military personnel could be exposed to endemic diseases and/or a range of chemical, biological and radiological weapons, greater attention is being paid to threats of non-battle related health problems.<sup>30</sup> One major development resulting from the Gulf War was the implementation of a comprehensive occupational and environmental hazard surveillance effort, the Deployment Environmental Surveillance Program (DESP).<sup>31</sup> The DESP archives environmental surveillance data to allow investigations of any future adverse health outcomes. It is not within the scope of this paper to describe this program, for further information visit web site <http://chppm-www.apgea.army.mil/desp/pages/despinfo.htm>. Another resource available to provide information on global environmental health risks is the Armed Forces Medical Intelligence Center (<https://mic.afmic.detrick.army.mil>). Beginning steps are being made, but there is still a need for environmental surveillance, preventative medicine, clinical, and information technology to be integrated to ensure medically relevant information on environmental and other exposures is included in medical records.<sup>32</sup> Since human health cannot always be protected, a mechanism to measure changes in health is necessary. Changes resulting from exposures are almost impossible to detect

without baseline information.<sup>33</sup> Thus the first step in this process is to develop baseline health databases that can then be used to demonstrate change to health over time. There is current regulatory guidance requiring this issue to be addressed.

### **BASELINE HEALTH STATUS**

In 1998, Force Health Protection (FHP) became the Army's conceptual framework to optimize health readiness and to protect service members from health and environmental hazards.<sup>34</sup> Medical surveillance is a critical component of this comprehensive management strategy. In military settings, medical surveillance is essential to determine the medical readiness of the force, to identify potential health risks during training and operational missions and to establish health promotion programs to maintain the health of the troops. Collection of baseline health status forms the cornerstone of medical surveillance and is required prior to, during and following deployment. Prior to deployment, baseline health information not only helps identify medical readiness but is also needed to develop health promotion programs to assist in maintaining healthy, fit, and operationally effective forces. With this information, individuals can be identified who would benefit from health promotion programs, such as smoking cessation or alcohol use education. Healthy lifestyles are key to physical and mental readiness. Health promotion programs are well established and evaluated in active components. Programs initiate education and incentives to enhance behaviors that lead to better health. Making programs available to the reserve component is also necessary.

Moreover, with the changes in diversity and ethnic population of the Army several other important issues need to be addressed.<sup>35</sup> Over 25 percent of the Reserve Component is over age 40 versus 7 percent of the Active Component. This fact raises many new concerns previously not addressed. Epidemiological studies can help identify the impact of age on readiness and precursors for chronic disease. They can also help determine if there are preventable risks to certain ethnic groups associated with specific military duties, occupational exposures, deployment, or a combination of these factors. As more and more women are mobilized, gender-specific health problems (i.e. reproductive capacity) will need to be addressed to protect the health and well being of service women.<sup>36</sup>

Longitudinal health data is especially valuable during and after deployment because it provides baseline medical and psychological information from before deployment. Optimal use of surveillance data collected during deployment is ensured

because change in baseline health can be documented and examined. During deployment, it also helps identify potential risks and factors that may benefit from preventive health intervention. Post-deployment, the knowledge of health status at time of deployment can help determine service-connected problems. Integrating and analyzing data on health status becomes critical for longitudinal research on the impact of deployment. Overall, baseline health is necessary to identify medical readiness and crucial in facilitating research that addresses many health questions.

### **BASELINE HEALTH STUDIES**

Several studies have been done to determine and analyze baseline health status.<sup>37</sup> Until recently the Reserve Component had not been included. The first joint study to include Reserve Component was the "Health Status of Military Women and Men in the Total Force" or "The Total Force Health Assessment Study" that provided comprehensive broad-based epidemiological data on the health status of women and men in all components of the Total Force. The Total Force Health Assessment examined the health status of military women and men in six general areas: reproductive health, medical history and nutritional status, mental health, lifestyle factors, occupation/environmental risks and stressors, and use of health services. The study also examined the effects of physical health conditions or emotional problems on military work and the impact of military service on health status. Furthermore, factors associated with health care utilization, satisfaction, and access to health services were examined. Analyses provided base line information in five general areas: health status, health care utilization, health behaviors, psychosocial functioning and female health issues. In summary, the study provided baseline epidemiological data on a wide range of health problems, risk factors, and health care needs and practices; classified subgroups who may be at risk of experiencing health problems; compared military and civilian health data. This study had important implications for readiness. Results must be viewed with caution since the return was low 38 percent.<sup>38</sup> Attempts were made to reduce nonresponse bias by post stratifying groups to the DoD population totals within selected demographic and pay grade groupings. Even though only a small percentage of the overall Reserve Component (Army Reserve 1,858 subjects and Army National Guard 2003 respondents)<sup>39</sup> was involved, there were several key findings about health status and health behaviors that raise concerns and point toward the need for a health promotion programs.

Individuals self-reported role limitations due to physical and emotional reasons.

- 18 percent of the Reserve and 16 percent of the Guard reported high scores on role limitation due to physical reasons.
- 14 percent of the Reserve and 15 percent of the Guard reported high scores due to emotional causes.<sup>40</sup>
- Role limitation was slightly more prevalent for the total Active-Duty personnel (22 percent scored high on physical problems, 18 percent scored high on emotional problems).<sup>41</sup>

The most prevalent cardiovascular conditions were high cholesterol and high blood pressure. Both were more prevalent in the Reserve Component (high cholesterol Guard, 16.8 percent; Reserve, 14.8 percent; Active 13 percent; and high blood pressure Guard, 12.7 percent; Reserve, 12.2 percent; Active 9 percent). The Guard had the highest prevalence of current and heavy smokers (Guard, 32.1 percent; Reserve, 22.9 percent). Males in the Guard were more likely to be current smokers but females in the Reserve were more likely to be current smokers (28.7 percent vs. 21 percent). Add to this number the non-smoking individuals who are exposed to smoke at work (Reserve 22.5 percent and Guard 25.5 percent) and the numbers affected by tobacco are close to half of the members.<sup>42</sup>

Under health behaviors, only about one-third (32.8 percent) of the Total Reserve Component said that diet and food choices were important to one's health while more than half of the Active component (56 percent) recognized this.<sup>43</sup>

Comparisons between males and females indicated that females might not be doing as well as their male counterparts. For instance, fewer females rated their health as excellent (22.8 percent females, 26.6 percent males) and more females described themselves as having low vitality (a measure of energy) (38.4 percent female, 26.6 percent male). More females reported having role limitations due to either physical or emotional problems. More females than males reported more problems with allergies, urinary tract infections and sexually transmitted diseases. Overall, more females reported having one or more medical conditions (80 percent vs. 65 percent) Females also reported more visits to health care providers.<sup>44</sup>

This study points out several health promotion programs that would be useful to the Reserve Component.

#### **CURRENT GUIDANCE, REGULATIONS, AND DIRECTIVES**

- It is DoD policy, under DoD Directive 1332.18, that:

1. All Service members, Active, National Guard and Ready Reserve be physically and mentally fit to carry out their missions.
  2. Medical and personnel information systems be designed, integrated, and utilized compatible with military medical surveillance to maintain, assess and protect the physical and mental status of Service members throughout their Military Service.
- DoD Directive 6490.2 on the subject of Joint Medical Surveillance (Aug 97) establishes policy for routine joint medical surveillance of all military service members during active federal service, especially deployments, and assigns responsibility for medical surveillance for deployments to the Secretary of the Army.
  - DoD Instructions 6490.3 specifies that DoD Directive 6490.2 include the Reserve Components before, during, and after military deployments. It further states “these activities shall be in effect continuously for individual Service member throughout their entire period of military service in a manner consistent across the DoD Active and Reserve Component.”
  - Public Law 105-85, The National Defense Authorization Act for Fiscal Year 1998, included directive language implementing the Theater Medical Information Program (TMIP), which identified the requirement for a system that “assesses the medical condition of members of the armed forces (including members of the Reserve Component) who are deployed outside the U.S.”
  - On the Congressional side, is HR3616 –155 Section 743 of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, which authorized the Secretary of Defense to establish a Center to evaluate longitudinal data on health conditions of members upon return from deployment.<sup>45</sup>
  - The Joint Staff memorandum “Deployment Health Surveillance and Readiness” of 1998 established specific requirements for deployment health surveillance including pre- and post deployment health assessments.
  - All members of the Reserve Component are required by law (10 USC 10206) to submit an annual certification of physical condition. The current procedure prescribed by AR 40-501 is a manual document, DA Form 7349-R, which has no tracking capability.

The need for an effective mechanism to meet the multiple statutory and regulatory mandates is clear. Over the last ten years, several scientific review panels have

recommended that the Department of Defense collect greater health surveillance data with a specific recommendation to document health status before hazardous deployments.<sup>46, 47</sup> Currently this information is collected during the busy preparations for deployment making it difficult to obtain accurate medical data. Encouraging changes in DoD policy have been made with emphasis on Force Health Protection, but an integrated computer-based record to improve health surveillance has not yet been fully implemented. Existing or potential environmental threats to human health and the adverse effect on the military cannot be fully addressed until there is a comprehensive baseline health status database. The ability to extend medical surveillance and record keeping to the Reserve Components is greatly needed.<sup>48, 49</sup>

### **CURRENT TRACKING MECHANISMS: INFORMATION SYSTEMS REVIEW**

Goals for improving health preparedness include enhancing government collection of health and exposure data, along with improving linkages among health information systems.<sup>50</sup> Only when this linkage is established can strategies to protect the troops during future deployments be fully implemented. DoD has made considerable efforts in several areas and has launched several medical and health surveillance initiatives in the last several years in response to the directives. A genuine effort is being made, but one serious challenge has been recognized and that was providing the Reserve Component with health surveillance. Beginning steps have been made but fall far short of what is actually needed to document baseline health of the Reserve Component. This section will describe the computer systems in place and their roles. When exploring what has been established to generate data on the health status of the military population, the most significant problem is that data collection has been inconsistent and incomplete. A lack of tools to assess baseline health status has been identified as one of the obstacles to optimizing efficiency within the Military Health System (MHS).<sup>51</sup> No effective medical tracking system currently tracks baseline health.

When the fact that Reserve Component members do not receive any significant degree of medical and dental readiness support from the MHS is factored into this equation, it becomes obvious that a tremendous gap exists in defining baseline health status within the Reserve Components.

Several discrete initiatives have begun that can help address these shortfalls. The Recruit Assessment Program (RAP), Medical Force Protection System (MEDPROS), and Defense Medical Surveillance System (DMSS) each provide a contributory piece of a potential comprehensive solution. When linked to existing and

ongoing studies, these can become building blocks in an effective baseline and population health program. The missing link is an effective and continuous data acquisition mechanism.

#### RECRUIT ASSESSMENT PROGRAM

The Recruit Assessment Program (RAP) is a DoD pilot program currently being tested to collect comprehensive baseline health data on all new recruits, including Reserve and National Guard members. Information on demographic, medical, psychosocial, occupational, and health risk factors is collected on a scannable paper questionnaire. For the first time, DoD will have access to comprehensive baseline health status data.<sup>52</sup> With 250,000 individuals entering the military each year, this program will lay the groundwork for an enormous longitudinal database which can be linked with other DoD, VA, and HHS systems<sup>53</sup>. This creates the foundation, but there is no mechanism to update this information as the soldier continues in his or her career. Unless follow-up and linkages are established, the data will not provide the necessary information needed for overall health of the force over time.

#### MEDICAL FORCE PROTECTION SYSTEM

Medical Force Protection System (MEDPROS) is a module of the Army's Medical Operational Data System (MODS).<sup>54</sup> It was created in 1998 to track administration of the Anthrax Vaccine Immunization Program (AVIP). MEDPROS has since grown into the operational system for tracking all DoD-mandated Individual Medical Readiness (IMR) requirements. These include all 102 CDC-recognized immunizations, HIV status, DNA specimen collection, dental readiness, date of last physical and physical classification, and other health status indicators. MEDPROS provides the capability to view a unit's or individual's medical readiness on these items and to identify shortfalls in readiness status.<sup>55</sup> For the first time, commanders can view their units' readiness on the items that are tracked. MEDPROS does not, however, collect information on baseline health status.

#### DEFENSE MEDICAL SURVEILLANCE SYSTEM

In March 1997, the Assistant Secretary of Defense for Health Affairs (ASD-HA) directed that the Army establish and operate the Defense Medical Surveillance System (DMSS). The DMSS is the corporate executive information system for medical surveillance, developed and operated for all four services by the Army Surveillance Activity (AMSA). The DMSS is a continuously growing relational database that includes data on all active duty personnel in any Service (Army, Navy, Air Force, and Marine

Corps) since 1990. It defines medical surveillance as "the routine and systematic collection, analysis, interpretation, and reporting of population-based data for the purposes of detecting, characterizing, and countering threats to the health, fitness, and well being of populations"<sup>56</sup>.

The DMSS receives and integrates standardized data related to medical events from multiple Service and DoD sources worldwide. Information includes personal characteristics (e.g., rank, military occupation, demographic factors), medical surveillance (e.g., hospitalizations, outpatient visits, reportable diseases, HIV results, health risk appraisals, immunizations, deaths), and military experiences (e.g., deployments, assignments). There are currently more than 200 million rows of data regarding more than 7.0 million service members in the on-line DMSS database. Real-time access is provided to authorized users worldwide (through the Internet) to the Defense Medical Epidemiology Database (DMED) contained within the DMSS. Four main sources of data are available through DMED; population data, in-patient data, ambulatory data and reportable event data<sup>57</sup>.

In FY00, information from both pre-deployment (DD Forms 2795) and post-deployment survey forms (DD 2796) was documented. The DD 2795 does not capture sufficient numbers of RC members<sup>58</sup>. Several strategies reports recommend discontinuation of the pre- post deployment health questionnaires because they do not provide useful baseline or post deployment health status information since they are administered under compromising circumstances.<sup>59, 60</sup>

From the DMSS database, the Medical Surveillance Monthly Report (MSMR) publishes summaries of notifiable diseases, trends of special surveillance interest (e.g., deployment-related morbidity), and field reports of outbreaks and significant isolated cases.<sup>61</sup> Epidemiological analyses and special reports are also prepared for policy makers, medical planners, health care practitioners, and researchers.

It is proposed to that information from the Annual Health Certification and Survey/ Health Assessment Longitudinal File (AHCS/HALF) be placed on the DMSS. Monthly surveillance reports could then be generated on the data. A field would also be established on MEDPROS so commanders could view the status of their units' baseline health completion rate. This will be discussed further under recommendations.

#### **THE VETERANS HEALTH ADMINISTRATION**

Although not related to the Army per se, the role of the Veterans Health Administration (VHA) in monitoring the health of the Reserve Component force is

essential. Many Reserve Component soldiers receive their medical and dental readiness services from VHA via the Federal Strategic Health Alliance (FEDS\_HEAL), a joint venture of the Army, VHA, and the Division of Federal Occupational Health of the Department of Health and Human Services.<sup>62</sup>

Perhaps most importantly, Reserve Component soldiers who develop health problems subsequently to military service, but are not identified for medical and physical disability processing, eventually become VHA patients. If the new patient can bring medical records that document the development of a condition during military service, the diagnosis and ensuing treatment can proceed. More typically, correlation to casual events or conditions incurred while in the military must be ferreted out or extrapolated. While the "benefit of the doubt" goes to the veteran and care is rendered, accurate identification of the root cause remains elusive.

There is presently no institutionalized information conduit between the MHS, Reserve Component units, and the VHA. The VHA administers a proprietary health assessment survey, the SF-36, to eligible veterans. There is no means to link this back to causal factors during military service. Stated otherwise, there is not insurance of continuity of information and, therefore, care between the two Federal healthcare systems.

## **RECOMMENDATIONS**

There exists a pressing need to capture, in an automated format, baseline health status of the Reserve Component, both as an older cohort and as a integral part of the Total Force. The Army Reserve has proposed a tool that will meet this essential need in the Army and could be expanded to include all the services. The "Annual Health Certification and Survey" (AHCS) has been developed to meet the Reserve Components' statutory requirement<sup>63</sup> for annual certification of health while at the same time generating a longitudinal record, the Health Assessment Longitudinal File (HALF), on each reservist. The HALF would be used by both DoD and VHA to track health trends.<sup>64</sup> The importance of links with existing and developing databases is recognized. The HALF database will be integrated with existing systems and provides the basis for a longitudinal record.

The AHCS was developed using validated questions from several other tools to facilitate the comparison of data across populations. The AHCS questionnaire consists of 11 core questions plus gender specific questions (2 male, 4 female) that will be given every year. In addition, there are five different supplementary modules designed to track

additional wellness indicators -- social issues, diet and physical activity, tobacco and alcohol use, stress, and occupational health. A different module is to be used in conjunction with the core questions each year.

AHCS will be fielded online through Hooah4Health (H4H) ([www.hooah4health.com](http://www.hooah4health.com)), the Army's interactive health promotion web site. A paper copy (mark-sense document) will be available for those without Internet access. In order to maximize confidentiality the individual will provide very minimal identifying information on the AHCS, with the majority of demographic data being drawn from the Total Army Personnel Data Base (TAPDB) via the Medical Force Protection System (MEDPROS). Secure data storage will be provided by the Defense Medical Surveillance System (DMSS) database.

After completing the survey, soldiers will receive immediate feedback delineating overall health status and providing referrals to Hooah4Health modules. A green, amber, or red indicator system will be used to assist unit commanders in tracking individual medical readiness (IMR). When unhealthy behaviors or risk factors are identified, imbedded links to Hooah4Health provide health promotion and risk reduction information. Soldiers identified as having medical problems will be provided feedback and a referral to an appropriate medical person. Commanders will be advised of the individual's red-amber-green status via MEDPROS. This notification validates completion of the statutory annual certificate of medical condition self reporting requirement. A red-amber-green status report, keyed to question numbers, will be available to healthcare providers with role-based access privileges via MEDPROS.

There are many immediate benefits of this system. The system provides:

- single, recurring instrument with continuous data acquisition.
- continuity across systems (DoD-VHA).
- immediate online feedback to soldiers.
- health promotion/prevention/monitoring focus.
- annual health certificate based on actual, automated information gathering.
- color indicators to Healthcare Providers.
- identification of soldiers with unhealthy behavior and referrals to specific information within H4H modules.
- enhanced pre-mobilization assessment capabilities.

Future benefits provide are:

- Elimination of duplicate tools, to include:
  - DA 7349-R Initial Medical Review – Annual Medical Certificate

- DD 2697 – Report of Medical Assessment
- HEAR 2.1
- DD 2795 – Pre-Deployment Health Assessment
- DD 2796 – Post –Deployment Health Assessment
- Population-Based Health Management Tool
- Integration with RAP and VHA
- Trends of health indicators in both older and younger cohorts
- Database available for investigators to test emerging hypotheses
- Collaboration with civilian databases

An increasing number of Reserve Component members are receiving medical and dental readiness services via the partnership among the Army, the VA and the Division of Federal Occupational Health (FOH) of the DHHS, known as the Federal Strategic Health Alliance (FEDS\_HEAL). Since the establishment of FEDS\_HEAL, these systems have been providing both physical and dental examinations, immunizations, and limited dental treatment to meet deployment standards. Reserve Component members who gain veteran status will eventually rely on VHA for care. Using a tool that shares information with these systems fosters a seamless longitudinal record from recruitment to death.<sup>65</sup>

Some may question the use of the Internet to obtain this information. The web has become an integral part of today's world. It is available to everyone at local libraries. This is not the only initiative to ask for annual Internet access. The Army Reserve currently asks members to report civilian skills, not necessarily relating to their military specialty, via the on line Civilian Acquired Skills Data Base (CASDB) (<http://www.citizen-soldier-skills.com>). Beginning soon, all Navy Reservists will be required to fill out a questionnaire annually on Naval Reserve Skills Online (NRSO) to update their civilian skills (<http://www.usnrskillsonline.com>). Web sites have also been developed to help Guard and Reserve families deal with deployments.<sup>66</sup>

## **CONCLUSION**

Establishing long-term health surveillance data has important scientific value. It allows for identifying, assessing and mitigating potential impacts on health from the environment. In addition this initiative addresses regulatory requirements, especially the need to conduct population-based epidemiological studies that can compare pre- versus post-deployment health status and support actions to develop health promotion and disease prevention programs.<sup>67</sup> These data also support a broader population health

application consistent with the government's Healthy People 2010 initiative and the Public Health Data Standards Consortium (PHDSC), a coalition of organizations committed to collaboration of local, state, federal and private sector agencies and organizations to the promotion of data standards for public health and health services.<sup>68</sup>

The HALF database will allow for randomized sampling to test hypotheses relevant environmental exposure and health issues. Currently health has been a missing element in environmental policies.<sup>69</sup> Therefore, this information on baseline health will be useful for formulation of health and environmental policies. Most importantly, the policies that evolve from the application of this information will serve as both a force multiplier, allowing a smaller military to successfully defend the nation, and as a force protector, keeping the men and women who serve in uniform healthier throughout their careers and well into their status as veterans. This is a moral obligation owed to them.<sup>70</sup>

Word Count = 5919



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## **GLOSSARY**

AHCS – Annual Health Certification  
AMSA - Army Medical Surveillance Activity  
AR – Army Regulation  
ASD-HA – Assistant Secretary of Defense for Health Affairs  
CASDB – Civilian Acquired Skills Data Base  
DESP – Deployment Environmental Surveillance Program  
DMED – Defense Medical Epidemiology Database  
DMSS – Defense Medical Surveillance System  
DoD – Department of the Army  
FEDS\_HEAL – Federal Strategic Health Alliance  
FHP – Force Health Protection  
FOH – Federal Occupational Health  
GWOT – Global War On Terrorism  
H4H - Hooah 4 Health  
HALF – Health Assessment Longitudinal  
IMR – Individual Medical Readiness  
MEDPROS – Medical Force Protection System  
MHS – Military Health System  
MODS – Medical Operational Data System  
MSMR – Medical Surveillance Monthly Report  
NAS – National Academy of Sciences  
NRSO – Naval Reserve Skills Online  
OEF – Operation Enduring Freedom  
ONF - Operation Noble Eagle  
PHDSC – Public Health Data Standards Consortium  
RAP – Recruitment Assessment Program  
RFPB – Reserve Forces Policy Board  
TAPDB – Total Army Personnel Data Base  
VHA – Veterans Health Administration



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