

# MILITARY MEDICINE

## ORIGINAL ARTICLES

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## Postdeployment Health Reassessment: A Sustainable Method for Brigade Combat Teams

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**Objective:** The Postdeployment Health Reassessment (PDHRA) was mandated in 2006 and the 3rd Infantry Division was the first unit to perform a large-scale implementation. This article outlines a reproducible model for conducting PDHRA using only existing resources. **Methods:** The PDHRA (DD 2900) screening and referral processes are reviewed and data on positive screens are reported. **Results:** Of the 12,817 soldiers who participated in the mass screening, 1,460 (11.4%) were referred for behavioral health, 815 (6.4%) for primary care, 71 (0.01%) for specialty services, and 9 (0.001%) for emergency services. Consult requests were higher in maneuver brigades than in support units (12.1% versus 8.6% for behavioral health and 6.9% versus 4.4% for primary care referrals). All (1,460, 100%) of the behavioral health consults were completed on-site and the unit incurred no additional financial cost in conducting this process. **Conclusions:** This method for performing a large-scale implementation of the PDHRA provides a flexible, efficient, and cost-effective process that could be implemented at the brigade combat team level without difficulty and in most locations without significant impact on other medical demands.

### Introduction

Postdeployment psychological screening has been growing in importance since Operation Desert Storm and became mandatory in 1997.<sup>1,2</sup> Shortly thereafter, the Army introduced the Postdeployment Health Assessment which screened soldiers for physical and mental health problems upon return from deployment. It was seen as a method for early identification of problems and possibly decreasing the stigma associated with behavioral health care. However, few studies have looked at validating the postdeployment screening instrument against other measures or functional outcome.<sup>3,4</sup> Furthermore, experiences from other samples of returning soldiers indicate that rates of reported deployment-related symptoms can increase with time after returning from deployment.<sup>5-7</sup>

This information led the Assistant Secretary of Defense for Health Affairs to direct an extension of the existing Postdeployment Health Assessment program to include a re-evaluation at 3 to 6 months after return from a combat zone.<sup>8</sup> This new screen, called the Postdeployment Health Reassessment (PDHRA), is a global health screen, but it places specific emphasis on behavioral health issues. It was pilot tested at several locations in late 2005 and was required for Army-wide implementation in 2006.

In January 2006, the 3rd Infantry Division (3ID) returned from Iraq and began planning for the first large-scale implementation of the PDHRA. Several unique challenges included (1) the need to develop a large-scale implementation plan for nearly 15,000 soldiers in a short time period, (2) coordinating with a smaller medical treatment facility that was already performing postdeployment assessment for several large returning reserve units, (3) dealing with ongoing financial restraints at both the 3ID and the local medical treatment facility, and (4) a planned additional deployment of 3ID units during the PDHRA time line. The 3ID determined that the division medical assets would take

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ownership of the PDHRA process and perform the screening at the brigade level using internal assets.

The purpose of this article was to outline division actions to complete the PDHRA process using only existing resources and provide a potential road map to other units with limited resources or limited external support.

## Methods

### Planning

The implementation plan included several key points: (1) all screenings would be conducted by division medical and mental health personnel, the majority of whom had deployed with the soldiers or would do so in future; (2) unit commanders would be prebriefed on the PDHRA as an opportunity for soldier education as well as an assessment; (3) commanders would be provided monthly unit updates to emphasize the importance of the process; (4) PDHRA would be built into brigade combat team (BCT) training schedules to maximize participation and limit time away from other requirements; (5) battlemind training would be included to enhance soldier awareness of the behavioral health problems that may be encountered postdeployment; (6) division mental health consult teams would provide on-site consults to maximize completion, minimize stigma of behavioral health care, and limit time away from training; and (7) screening would require no additional cost or equipment.

The PDHRA screening for the five brigades at Fort Stewart/Hunter Army Airfield would be completed from March to August 2006. Command emphasis would be provided from the Division Commander to lower levels of command and the PDHRA would be emphasized as a forum for soldier preventive education as well as an opportunity for health assessment. Each BCT would assume responsibility for the screening and work with commands to link PDHRA to the training calendar. They would coordinate their own location within the BCT area and utilize only their internal resources to eliminate any additional costs

for facilities or equipment. Individual BCTs could elect to also incorporate medical record screening and immunization updates to optimize the use of time and facilities.

### Screening Process

The 3ID PDHRA process is outlined in Figure 1. Soldiers completed the PDHRA Form (DD 2900) with an Internet-based data entry system within 3 days before arrival at the screening site. On arrival soldiers were briefed and received battlemind training.<sup>9</sup> Battlemind training is an Army-sponsored educational program that includes suggested postdeployment coping skills, awareness of concerning symptoms or patterns of behavior, and suggestions of sources of support or possible mental health treatment for those who need it. The education and training were facilitated by the BCT behavioral health officer or the enlisted behavioral health specialist. If the BCT chose to do so, soldiers then underwent a medical record screening and immunization station to update soldier medical readiness. Soldiers then received a face-to-face interview with a divisional primary care provider in which each of their responses on the DD 2900 were reviewed from the online database.

### Content and Scoring of the PDHRA Instrument and Follow-On Questions

The PDHRA DD 2900 includes a 16-question survey of soldier exposures during deployment and current physical and mental health symptoms at the time of screening. The responses to these questions which relate to the possible need for mental health care, were previously examined in soldiers returning from deployment and compared response patterns against clinician interviews to determine optimal thresholds for determining whether a mental health referral would be beneficial.<sup>3</sup> In most instances, the threshold is based on maximizing sensitivity and specificity. In areas of safety (such as self harm), sensitivity is maximized at the expense of specificity are included in Table I.<sup>8</sup>

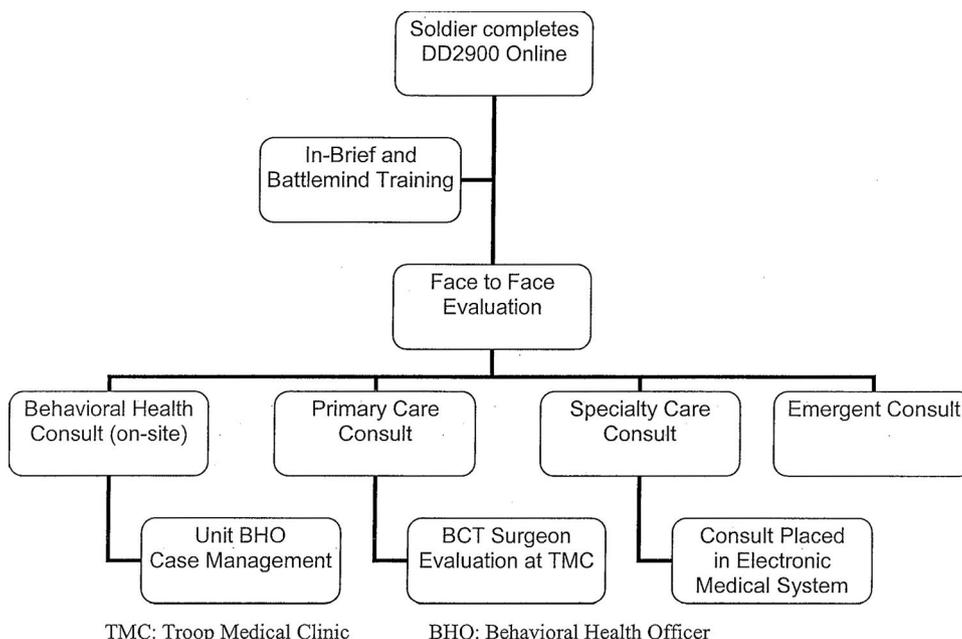


Fig. 1. PDHRA implementation plan. TMC, Troop medical clinic. BHO, Behavioral health officer.

**TABLE I**  
REFERRAL CRITERIA FOR BEHAVIORAL HEALTH QUESTIONS ON DD 2900<sup>a</sup>

Question	Referral Criteria	Sensitivity	Specificity
Since return from your deployment, have you had serious conflicts with your spouse, family members, close friends, or at work that continue to cause you worry or concern?	All "yes and unsure"	0.68	0.81
Have you ever had any experience that was so frightening, horrible, or upsetting that, IN THE PAST MONTH, you: a. Have had any nightmares about it or thought about it when you did not want to? b. Tried hard not to think about it or went out of your way to avoid situations that remind you of it? c. Were constantly on guard, watchful, or easily startled? d. Felt numb or detached from others, activities, or your surroundings?	Refer if "yes" to 2 or more	0.79	0.78
In the PAST MONTH did you: a. Use alcohol more than you meant to? b. Felt that you wanted to or needed to cut down on your drinking?	Refer if "yes" to both	0.73	0.86
Over the LAST 2 WEEKS, how often have you been bothered by any of the following problems? a. Little interest or pleasure in doing things b. Feeling down, depressed, or hopeless	Refer if "more than one-half the days or nearly every day" to either	0.73	0.86
Answer options were (not at all, few or several days, more than half the days, or nearly every day)			
If you checked off any problems or concerns on this questionnaire, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people? Answer options were (not, somewhat, very, extremely)	Refer if "very or extremely"	N/A	N/A
Would you like to schedule a visit with a health care provider to further discuss your health concerns?	Refer all "yes"	N/A	N/A
Are you currently interested in receiving information or assistance for a stress, emotional, or alcohol concern?	Refer all "yes"	N/A	N/A
Are you currently interested in receiving assistance for a family or relationship concern?	Refer all "yes"	N/A	N/A
Over the PAST MONTH, have you been bothered by thoughts that you would be better off dead or hurting yourself in some way?	Refer all "yes"	N/A	N/A

N/A, not applicable.

<sup>a</sup> Ref. 3.

**Interpersonal Difficulties**

Soldiers were asked, "Since your return from deployment, have you had serious conflicts with your spouse, family members, close friends, or at work that continue to cause you worry or concern?" Responses were "yes," "no," or "unsure." Responses of yes or unsure would generate a mental health referral (established sensitivity, 0.68; specificity, 0.81).

**Post-Traumatic Stress Disorder (PTSD)**

Soldiers were asked four questions about PTSD symptoms using the Primary Care PTSD Screen.<sup>10</sup> Questions involve: (1) nightmares/re-experiencing, (2) avoidance of thoughts or situations that are reminders, (3) vigilance and startle, and (4) feeling numb or detached from others/activities/surroundings. Responses were "yes" or "no." Two positive responses would generate a mental health referral (established sensitivity, 0.79; specificity, 0.78).

**Possible Alcohol Use Problems**

The survey included the two-item conjoint screen for alcohol problems.<sup>11</sup> Soldiers were asked whether during the past month

they "used more alcohol than they meant to" and if they felt the need or want to "cut down on your drinking." Responses were "yes" or "no." Two yes responses generated a mental health referral (established sensitivity, 0.73; specificity, 0.86).

**Depression**

The survey included the two screening questions from the Patient Health Questionnaire 2.<sup>12</sup> The questions addressed "little interest or pleasure in doing things" and "feeling down, depressed, or hopeless" over the past month. Response choices included "not at all," "few or several days," "more than half the days," and "nearly every day." A response of "more than half the days" or "nearly every day" to either question would generate a mental health referral (established sensitivity, 0.73; specificity, 0.86).

**Interest in Receiving Treatment or Counseling**

Four questions asked soldiers whether they had an interest in (1) seeing a health care provider to discuss concerns; (2) receiving information or assistance with stress, emotional, or alcohol concerns; (3) getting assistance for a family or rela-

tionship concern; and (4) having a visit with a chaplain or community support counselor. Response choices were "yes" or "no." A "yes" response to any of the four questions would generate a mental health referral (sensitivity and specificity not established).

### Follow-On Questions

PDHRA face-to-face evaluations were conducted by physicians and physician assistants assigned to the soldier's units. Soldier's responses to the screening form were reviewed, concerns were discussed, and two additional behavioral health questions were asked. The two behavioral health questions include item 9 of the 9-item Patient Health Questionnaire 9 to evaluate for potential suicidal ideations.<sup>13</sup> Soldiers were asked whether in the past month they had thought that they "would be better off dead or hurting yourself in some way." Positive response choices were "very few days," "more than half of the time," or "nearly every day." A similarly structured question was used to evaluate for potential harm to others: "Have you had thoughts or concerns that you might hurt or lose control with someone?" Response choices were "yes," "no," and "unsure." A positive response to either question would be carefully explored by the primary care provider who would make a clinical assessment of whether the soldier was at risk of self-harm or harm to others (sensitivity and specificity not previously established).

### Consults

In addition to the criteria outlined above, providers could refer any soldier they felt should be seen by behavioral health regardless of their responses. All soldiers requiring a behavioral health consult were directed to the on-site behavioral health team consisting of a provider (psychiatrist, psychologist, or social worker) and an enlisted behavioral health specialist. This team completed all of the behavioral health consults on-site and provided soldiers with resource and educational materials. In general, the soldiers were seen first by the enlisted technicians who then staffed the results with the behavioral health officer before releasing the soldier. The officer discussed the evaluation, provided education, and developed a treatment plan before the soldier's departure.

Soldiers requiring behavioral health or primary care follow-up appointments were provided with appointment slips before departure from the PDHRA site. Soldiers with emergent concerns, such as suicidal thoughts, were evaluated by the division psychiatrist immediately. Brigade surgeons tracked all soldiers referred for primary care consults to ensure completion, while the local medical treatment facility tracked all specialty referrals for completion. Brigade behavioral health officers tracked all soldiers who were seen for behavioral health consults to encourage enrollment in ongoing services.

## Results

From April to August 2006, the five 3ID BCTs at Fort Stewart/Hunter Army Airfield completed the PDHRA using only existing brigade and division assets. Additionally, mental health care access standards (wait times for appointments) were maintained at both the troop medical clinic and the division mental health clinic throughout the process.

In all, 12,817 soldiers participated in the screening process. This represents >90% of those who were eligible for the PDHRA. The majority of those who missed the PDHRA were attending training schools, on leave, or on other official travel away from their units. Three of the five brigades chose to incorporate medical record screening, updates, and immunization review into the PDHRA. As a consequence, division medical readiness improved >30% during this process.

All soldiers received the facilitated battlemind training and many anecdotally reported that they found the training beneficial and relevant. All face-to-face interviews were completed by brigade medical providers, many of whom were very familiar with the ongoing medical issues of the soldiers who presented for PDHRA. Typically, the screening sites were staffed with four to five providers and screened 300 to 400 soldiers daily. The average time spent in the face-to-face interview was roughly 8 to 10 minutes.

Figure 2 outlines the consult rates for the PDHRA screening. As expected, the majority of the referrals were for behavioral health matters. The overall percentage of soldiers referred for consults was as follows: 1,460 (11.4%) for behavioral health, 815 (6.4%) for primary care, 71 (0.01%) for other specialty services, and 9 (0.001%) for emergency services. Referrals were higher in maneuver brigades compared to support units (12.1% versus 8.6% for behavioral health and 6.9% versus 4.4% for primary care referrals).

One hundred percent of behavioral health consults were completed on-site by the division mental health personnel. Average time spent in consultation with a behavioral health provider was 25 to 30 minutes. The assessments focused on the reported problems that had resulted in the soldier being referred. Soldiers were assessed for safety and educated on all behavioral health resources available to them including division mental health, Military One Source, chaplains, and Army Community Services. Soldiers with confirmed mental health problems were scheduled for follow-up in the division mental health clinic both for individual treatment and for psychoeducational groups jointly run by division mental health providers and military family life consultants. More than 80% of those referred to behavioral health during the screening process were seen for at least one follow-up appointment in the division mental health clinic.

An informal exit survey of 100 soldiers who completed the 3ID PDHRA was conducted to assess perceptions of privacy during the evaluation process. The majority (92, 92%) reported that they did not have concerns about their privacy during the pro-

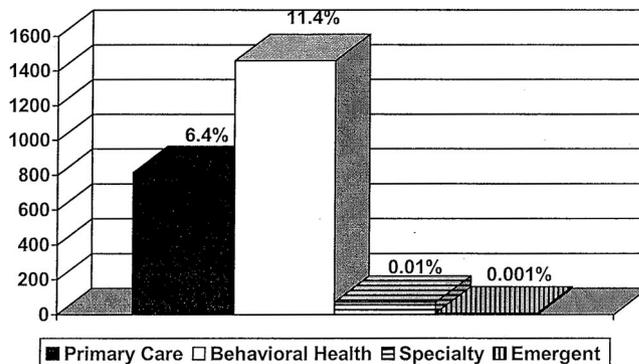


Fig. 2. PDHRA consult rates (N = 12,817).

cess. More than three-quarters (33 of 43, 76.7%) of those who completed the survey and were referred to behavioral health agreed that they did not have privacy concerns. Additionally, several soldiers made comments to the organizers that they preferred to “go see mental health with my unit here as they already know that I have been having problems.”

### Discussion

The outlined model presents a functional method for conducting PDHRA in a timely and economical fashion in deployable units with limited resources. There are several advantages to this approach for physical and mental health screening including (1) command ownership and accountability, (2) cost effectiveness, (3) behavioral health on-site consultation, and (4) co-located medical record and immunization updates.

#### Command Ownership and Accountability

In a report from pilot sites given at the 2006 Force Health Protection Conference, soldier compliance and participation were noted as a problem. Medical personnel reported that as a “medical” screening program, they did not have the support of the local commanders. In contrast, the 3ID process was truly a commander’s program. The commander took ownership and the screening process became a standard element of unit training schedules. The location and required resources were coordinated with the local unit commanders, with local unit providers performing the screening.

Given the current operational tempo of maneuver units, this process has provided significant savings in a unit’s most valuable commodity, training time. Units were scheduled for participation in the PDHRA in company units (200–250 soldiers). A full battalion (750–1,000 soldiers) could complete the education and screening process in a period of 2 to 3 days. Average time spent by any soldier/company at the PDHRA site was <4 hours. With education, screening, medical records updates, immunizations, and behavioral health consults completed on-site, unit commanders received either a soldier who was “medically fit” or one who was already scheduled for treatment while losing less than half a day from training. Commanders received “real-time” reports on rates of medical readiness and completion rates for the postdeployment training in the same fashion they receive feedback on the status of equipment and logistical readiness. Compliance would not have approached 90% had this not been an issue of command interest.

#### Cost Effectiveness

The Army Chief of Staff’s guidance for the PDHRA process was to maximize the use of existing resources and this process embraces that concept. Using internal resources created a greater sense of ownership, but it also meant no additional costs for hiring outside personnel or purchasing new equipment. The process provided flexibility in management of the medical clinics and the PDHRA sites ensuring that neither was overwhelmed and both were maintaining accessible medical care. This flexibility would not have been possible with external personnel. Furthermore, use of local resources not only minimized the cost, but allowed for ongoing team building and relationship building between medical providers and unit command personnel.

#### Behavioral Health On-Site Consultation

Both the pre- and postdeployment screening programs have been criticized in recent years for identifying behavioral health issues that were never addressed by a behavioral health specialist.<sup>14</sup> By placing the resources on-site, it ensured that all soldiers who required evaluation were seen immediately. This limited the potential for a soldier “being lost to follow-up.” Furthermore, it ensured that all soldiers with ongoing behavioral health issues received safety screening before being released from the PDHRA site. Other units have adopted a policy that all soldiers will be evaluated by behavioral health providers regardless of their responses. That approach seems to ignore the use of a screening approach to assign soldiers to high- or low-risk groups and requires either extensive outside resources or dilutes the amount of provider time available to soldiers who endorse potential mental health problems or desire further mental health assistance. It is unclear at this time which method is the more effective in capturing the soldiers who require services. For a unit with limited resources, the 3ID process is clearly a more cost-effective method.

The behavioral health evaluation focused on evaluating for safety and educating soldiers about resources available in contrast to performing complete formal intakes on the first evaluation. By focusing on education first, the process assisted soldiers in understanding whether their symptoms or behaviors should be areas of concern possibly requiring future treatment. The educational program provided encouragement to seek help through any of the several available service delivery systems. This educational approach likely played a significant role in the large number of soldiers who were willing to seek follow-up care. Further studies are indicated to determine how many of these soldiers remain engaged in care, receive pharmacologic treatment, and remain on duty.

This design could be effective for other units in the military which have assigned medical and behavioral health assets, whether they were located at a facility with a large medical center or with only a medical clinic. One of the 3ID brigades is located at a different installation within the state. At the time PDHRA was required, the brigade medical providers were short staffed in terms of primary care providers. The brigade surgeon contacted the local medical facility and performed PDHRA using providers from that facility. Similarly, the combat aviation brigade is located at a separate installation and has no internal behavioral health assets. They were able to conduct the PDHRA using a combination of behavioral health personnel from within the division and personnel from their local medical clinic. This type of flexibility makes the program easily adaptable to almost all locations.

#### Challenges and Future Considerations

Although successful in its first application, several challenges must be addressed in future applications of the 3ID model. They include (1) education and assessment of soldiers who missed the mass screening, (2) maintaining privacy, (3) consultation rates, and (4) conversion from mass to maintenance screening.

There were multiple reasons for soldiers not participating in the process, including temporary duty away from home station, leave, and attending military schooling. Soldiers who did not participate in the mass screening were tracked by the BCT

surgeons and the plan was to capture these individuals during subsequent periodic screenings. However, some of these soldiers completed their PDHRA surveys online before the screening dates, but then did not attend the mass screening process for a variety of reasons. In several instances, these soldiers endorsed behavioral health problems. In response, the division instituted a review of the online PDHRA database to identify those soldiers who had entered data on the DD 2900s, but had not completed the interview process. The soldier's unit was then contacted and the soldier was evaluated on a case-by-case basis by either the brigade or division surgeon.

A valid concern of conducting the behavioral health care assessment on-site is a potential loss of privacy. Even though the brigade surgeon and behavioral health officer were mindful to locate the behavioral health services in an area out of visibility from the ongoing screening, it was possible to observe which soldiers were being directed to that area. Concerns over the possible loss of privacy could have affected soldier responses on their DD 2900. Since the majority of soldiers completed the surveys before arrival at the site, this problem was minimized. Although privacy did not appear to be an issue for most soldiers who completed the exit survey and anecdotal data, some did believe that their privacy was not maintained. It is recommended that in future iterations of the PDHRA process that planners give consideration to maximizing privacy.

The primary care consult rate varied significantly among BCTs. It is unclear whether this was the result of true differences in health status or simply the desire of some primary care providers to quickly resolve even minor health problems immediately upon return from theater.

Behavioral health consult rates were lower than expected. Based on previous data of mental health problems following deployment, we anticipated a 15 to 20% behavioral health referral rate in contrast to the 11% observed referral rate.<sup>5</sup> This lower rate may be a consequence of the nature of the units screened. Previous studies focused primarily on combat/maneuver units. The 3ID support units had lower rates than the maneuver units, which contributed to the reduced overall referral rate. However, the referral rate even for the maneuver units was still less than expected. A second possible explanation for lower referral rates may be a consequence of the soldier combat experiences. This PDHRA assessment was conducted following the second wartime deployment for many of the soldiers. It is possible that soldiers who had experienced mental health difficulties during or after their first deployment had already left active service, with the remainder self selected for mental health resilience. A number of soldiers were also mentally preparing themselves for an upcoming future deployment at the time of the assessment. Those soldiers may therefore be prone to minimizing their report of effects of the previous deployments in an effort to cope with the upcoming stressors.

The instruments used for screening had previously established sensitivity rates between roughly 70 and 80%; therefore, it is possible that soldiers with problems were not identified using the instruments. In addition, the expected referral rates were based on previous studies using anonymous surveys. In contrast, soldiers undergoing the PDHRA were aware that positive answers would result in a referral and they may therefore have underreported their symptoms because of concerns about

receiving mental health treatment.<sup>5</sup> Hopefully, as a consequence of the education provided in conjunction with the screening, these soldiers with ongoing problems will at some point refer themselves for care despite their negative responses to the screening questions.

To ensure identification of physical or mental health problems among soldiers leaving active service upon return from deployment, we recommend that PDHRA or similar screening be completed before separation if this is to occur before the 90-day postdeployment screening cycle. This would help to ensure that not only are they screened, but that they receive the valuable educational information about expected reactions and resources available to them. For soldiers who undergo a permanent change of duty station before completing their PDHRA, we recommend that the gaining unit complete the PDHRA so that any identified issues can be followed up with the soldier's new installation health care facilities.

Now that the 3ID mass screening is completed, each new soldier's record is reviewed upon arrival to the division to see whether they require PDHRA training and screening. If they have not received it, it is completed as part of in-processing. Additionally, each BCT now has 1 or 2 days designated each month during which they conduct the PDHRA for soldiers within the BCT who have not received it. This process requires no additional personnel or equipment, but it does require diligent monitoring by the BCT health care providers.

## Conclusions

The 3ID model for performing a large-scale implementation of the PDHRA provides a flexible, efficient, and cost-effective process that can be implemented at the BCT level without difficulty and in most locations without significant impact on other medical demands. Given the current operation tempo, this process can provide significant savings in a unit's most valuable commodity, training time. Although the division has shifted to a sustainment phase at this time, it retains the flexibility to rapidly adapt for another large group screening.

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## Guest Editorial (continued from page i)

is calculated to be 21.1%. Clearly, casualties in the present war are less likely to die before reaching a medical treatment facility than in the Vietnam War. Why? It can't be better medical care in a medical treatment facility but it could and probably is at least partially due to better battlefield first aid. The military has made enormous efforts to improve battlefield first aid training and equipment and it is likely that at least some of the decrease in the number KIA reflect this effort. A second explanation involves battlefield lethality. The explosive devices used by terrorists have a fearsome reputation and therein lays a paradox. If the weapons are more lethal the proportion of those injured that are KIA should increase. The fact that the proportion is actually less clearly point to the excellent protection afforded by the military's wide use of individual body armor. Historical data indicate that penetrating missile wounds of the trunk (not including multiple sites of lethal injury) were responsible for about one-third of combat deaths (4). Defeating even one-half of such threats might well be expected to decrease mortality by four or more percentage point below historical levels and therefore accord with the observed percent KIA.

Thus the wide spread belief that mortality has been reduced in the present war compared to historical norms appears to be well founded. However, until more data are made available, it will remain difficult to conclusively separate the effect of medical care on mortality from battlefield factors such as weapons lethality. In conclusion it needs to be emphasized that the foregoing discussion applies only to questions of **mortality**. There can be no doubt that improvements in medical care have markedly reduced the **morbidity** of combat injuries.

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\* The KIA category given by the defense link web site appears to include DOW as well as KIA.