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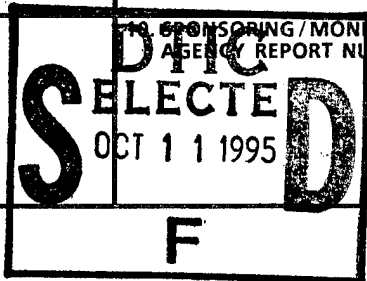
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This study investigates the need for casualty liaison teams at medical facilities to accomplish the mission of patient accounting during operations in view of the fielding of Standard Installation Division Personnel Accounting System (SIDPERS) 3.0 and its interface with the Theater Army Medical Management System-Medical Patient Accounting and Reporting System (TAMMIS-MEDPAR). The functions of the unresourced casualty liaison team provided by the personnel group to medical facilities have been automated and will be fielded in the next 18-24 months. Personnel doctrine advocates relying upon the automated interface and not employing casualty liaison teams when this occurs. This scenario issue is the focus of the study. Historical cases and a future scenario are compared against the various criteria (responsibilities) of the personnel group commander to see if an automated interface alone will suffice for patient accounting. This study promotes both SIDPERS 3.0 and TAMMIS-MEDPAR interface, but identifies areas for improvement before disbanding the casualty liaison team concept.

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THE ACCOUNTING FOR SOLDIERS HOSPITALIZED IN THE  
COMMUNICATIONS ZONE BY CASUALTY LIAISON TEAMS WHEN  
STANDARD INSTALLATION DIVISION PERSONNEL SYSTEM 3.0  
IS FIELDDED.

A thesis presented to the Faculty of the U.S. Army  
Command and General Staff College in partial  
fulfillment of the requirements for the  
degree

MASTER OF MILITARY ART AND SCIENCE

by

PATRICIA MULCAHY, MAJOR, USA  
B.S., State University of New York at Albany, 1980

Fort Leavenworth, Kansas  
1995

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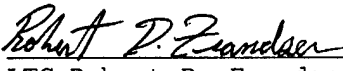
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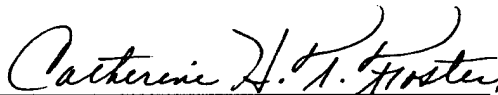
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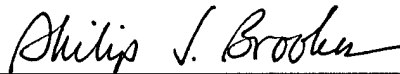
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

## ABSTRACT

THE ACCOUNTING FOR SOLDIERS HOSPITALIZED IN THE COMMUNICATIONS ZONE BY CASUALTY LIAISON TEAMS WHEN STANDARD INSTALLATION DIVISION PERSONNEL SYSTEM 3.0 IS FIELDDED BY MAJ Patricia Mulcahy, USA, 68 pages.

This study investigates the need for casualty liaison teams at medical facilities to accomplish the mission of patient accounting during operations operations in view of the fielding of Standard Installation Divison Personnel Accounting System (SIDPERS) 3.0 and its interface with the Theater Army Medical Management System-Medical Patient Accounting and Reporting System (TAMMIS-MEDPAR). The functions of the unresourced casualty liaison team provided by the personnel group to medical facilities have been automated and will be fielded in the next eighteen to twenty-four months. Personnel doctrine advocates relying upon the automated interface and not employing casualty liaison teams when this occurs.

When soldiers are admitted to level III and IV medical facilities, it becomes the supporting personnel group commander's responsibility to properly account for these patients and to provide accurate and timely casualty information to Department of the Army. This function has been performed by ad hoc teams from the personnel group who work at the medical facility. Personnel doctrine advocates relying upon the automated interface and not employing casualty liaison teams in the future. This issue is the focus of the study.

Historical cases and a future scenario are compared against the various criteria (responsibilities) of the personnel group commander to see if an automated interface alone will suffice for patient accounting. This study promotes all of the advances made in the SIDPERS 3.0 and TAMMIS-MEDPAR interface, but identifies areas for automation improvement before disbanding the casualty liaison team concept.

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First I must thank the soldiers of the 21st Personnel Replacement Battalion in Germany whose hard work and dedication always resulted in mission accomplishment. Their quest for "why?" became my desire to find out "will it work?".

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## CHAPTER 1

### INTRODUCTION

With every operation planned, attempted and executed, the commander must know his or her objective and the assigned resources necessary to accomplish the mission. The resources include time, equipment, and material, but most importantly; people. Because such resources are always constrained and directly impact upon the success of any operation, accounting for these assets: time, material, equipment and soldiers, is important. The personnel community has the responsibility to develop, field and use systems that enable the commander to account for every soldier--in today's Army that equates to some 975,000 active duty, Army Reserve, and National Guard soldiers.

Moreover, the commander must know not only how many soldiers he or she has, but where they are on any given day. Commanders must be able to account for soldiers in the unit, on temporary duty with another unit, away without leave, and those hospitalized. This concept of accurate personnel accountability directly enables the commander to allocate one of the four critical resources, personnel.

With this emphasis on personnel accounting, there is concern that soldiers are accurately tracked, regardless of their location on the battlefield. More specifically, it is the subject of tracking soldiers that become hospitalized as the result of participating in an operation that will be the basis for this study. The paper will take

the reader through an introduction to the research question, literature and current system review, the research itself, conclusions and recommendations.

The purpose of the first chapter is to introduce the thesis through a discussion of the primary and subordinate research questions. Secondly, this chapter will provide some background history, assumptions, definitions, limitations, and delimitations of the thesis. Finally, the chapter will conclude by addressing the significance of the study.

### Research Questions

The primary question of this study is, "Can the personnel group commander account for soldiers hospitalized in the communications zone without a casualty liaison team when SIDPERS 3.0 is fielded?" The research thesis will answer this primary question as well as three subordinate questions. The first subordinate question is, "What specific information does the personnel group commander need?" Second, "What information does SIDPERS 3.0 provide?" And third, "What does the casualty liaison team actually do?"

### Background

Before exploring the specific research questions, the thesis problem statement will be framed in the context of personnel support on the battlefield. Personnel support on the modern battlefield consists of two major areas of concentration: manning (support for commanders and units) and sustaining (support to soldiers).<sup>1</sup> In manning, soldiers assigned to personnel tasks ensure that there is an uninterrupted flow

of replacements to the battlefield and account for each and every soldier. Manning the force encompasses personnel readiness management, casualty management, and replacement management.<sup>2</sup> Personnel readiness describes a state of wartime preparedness, and personnel readiness management is the process for achieving and maintaining that state.<sup>3</sup> In support of the personnel readiness management process is the personnel accounting and strength reporting system (PASR). Personnel accounting is the reporting system for recording by-name data on soldiers when they arrive and depart units and when their status changes, for example, grade changes and duty status changes.<sup>4</sup> The casualty management function involves the recording, reporting, verifying and processing of casualty information from unit level to Headquarters, Department of the Army so that appropriate individuals can be notified and casualty assistance provided to the next of kin.<sup>5</sup> The mission of the replacement management system is the physical reception, accounting, processing, support, reequipping, training, and delivery of military personnel, to include replacements and return to duty personnel.<sup>6</sup> To ensure that these three subfunctions of manning--personnel readiness, casualty, and replacement management--are synchronized, it is critical that each and every soldier on the battlefield is accurately accounted for in the personnel system. Most commanders perform this accounting function adequately while soldiers are physically located within their area of operations. Accounting for soldiers becomes a challenge, though, when an injured soldier is admitted to a treatment facility in the rear area. It is the personnel group commander who is now

responsible for accounting for the soldier and submitting pertinent data to the casualty reporting system.<sup>7</sup>

For this very reason, personnel doctrine calls for a casualty liaison team to be provided by the personnel group at all level III (corps) and level IV (theater) medical treatment facilities.<sup>8</sup> The level III or corps medical treatment facility includes such hospital units as the mobile army surgical hospital (MASH). The MASH provides hospitalization for patients who require far forward surgery and medical treatment to stabilize them for further evacuation. The MASH has a capacity of thirty beds and is usually found within the rear area of the division or the forward edge of the corps. The combat support hospital (CSH) is also a level III treatment facility that has 296 beds and stabilizes patients for further evacuation as well as return to duty those soldiers who fall within the corps evacuation policy. The level IV or theater medical facility is the field hospital. This 504 bed facility provides hospitalization for general classes of patients, as well as reconditioning and rehabilitating services for those patients who can return to duty within the theater evacuation policy. The field hospital will normally be located in the theater rear area or communications zone.<sup>9</sup>

The casualty liaison team actually works in each of these medical facilities and provides the interface needed between the personnel and medical systems. When a soldier is admitted to a level III or IV facility, the casualty liaison team collects from the hospital personnel as much personnel information as possible about the soldier,

and reports it to the supporting personnel service battalion or the next higher organization in the casualty reporting chain.

Currently, the Standard Installation Division Personnel System (SIDPERS) is the Army standard automated soldier personnel information system that operates at division level and provides the commander accurate and timely personnel data.<sup>10</sup> SIDPERS relies on personnel soldiers to report duty status changes at the unit level by submitting transactions which are consolidated and sent to the top of the system at the Department of the Army. Similarly, the Army field medical personnel operate the Theater Army Medical Management Information System (TAMMIS) which supports the information management requirements of field medical units. This system aids the US Army in effectively tracking patients at field medical facilities worldwide.<sup>11</sup> When SIDPERS 3.0 is fielded in the future, there will be an interface between SIDPERS and TAMMIS which will assist in patient accountability. The TAMMIS transaction, which records an admission to a corps support hospital, signals a requirement to generate a SIDPERS transaction. This interface assists the personnel group commander in providing patient accountability within a single unit.<sup>12</sup> When this interface is fielded in the future with SIDPERS 3.0, the personnel group commanders will not need to provide casualty liaison teams. This premise is the central theme of the research paper, that is, "Can the personnel group commander account for soldiers hospitalized in the communications zone without a casualty liaison team when SIDPERS 3.0 is fielded?"

### Assumptions

Some relevant assumptions must be made prior to conducting the research. The first assumption is that the Standard Installation Division Personnel System or SIDPERS will be upgraded to SIDPERS 3.0 throughout the Army in the next twelve to eighteen months. SIDPERS 3.0 will have 400 more data elements than SIDPERS 2.75, which will make it easier for accepting information from other systems, and will transmit data from the top to the bottom of the system (and back) within twenty-four hours.<sup>13</sup>

The second assumption is that the information taken from after action reports and personal interviews is reliable and accurate. Since there has been a reluctance to analyze this problem in depth, reliance on verbal and written accounts of those involved in planning, conducting, or training for a patient accounting mission is imperative.

### Definitions

To ensure a similar basis of understanding, defined are some of the key personnel concepts related to the primary thesis question:

Casualty Liaison Team. A two to five person team from the supporting personnel detachment that co-locates with the patient administration section of a hospital and performs the patient accounting function.

Patient Accounting. The process of collecting, verifying and providing detailed personnel information to the personnel accounting and casualty operations system.

Personnel Accounting. The reporting system for recording by-name data on soldiers and Army civilians when they arrive and depart

units, when their duty status changes and when other personnel information changes on a soldier (ie, grade or duty status).

Patient Tracking System. A data base information support system designed by 1st Personnel Command in US Army Europe to support casualty liaison teams operating at corps and theater hospitals.

Standard Installation Division Personnel System (SIDPERS). The automated system through which commanders and staff elements document changes about a soldier. SIDPERS is the Army's personnel information management system.

Theater Army Medical Management Information System-Medical Patient Accounting and Reporting System (TAMMIS-MEDPAR). The automated system that supports field hospitals at corps and above to support the medical resourcing and personnel reporting systems.

United States Transportation Command (USTRANSCOM) Regulating and Command and Control Evacuation System (TRAC2ES). A decision support system in development by USTRANSCOM that will integrate medical regulation and aeromedical evacuation and improve patient movement practices.

#### Limitations

The greatest limitation to this research is that very little has been written and published in either medical or personnel literature on the topic of patient accounting. Much reliance will be placed upon interviews, after action reviews, and testimony given by those in the field who currently have been or are performing this function.

Another limitation is that the current accounting system has been fielded and tested with between sixty and three hundred

hospitalized soldiers. There have been no tests nor actual missions in which the personnel group commander has had to account for more than three hundred hospitalized soldiers in recent history.

#### Delimitations

The case studies that form the basis of the research have some differences in that two of the three case studies are operations other than war and one is a partial mobilization war. The case studies are taken from two different theaters. Moreover, a fourth future scenario will be introduced during the research phase of the thesis. This scenario is based upon an interface between two systems that has not been fielded to date. Assumptions will be made based upon system descriptions as to how these two systems will in fact interface when they are fielded.

The scope of this thesis does not include soldiers who enter the medical system in a peacetime situation. These soldiers are covered by the hospital administration's system which is designed to support a peacetime commander's information needs to account for diseased non-battle injuries. The thesis will explore the augmentation of this system when soldiers are deployed, become injured and medically evacuated, and are entered into the casualty reporting system. Additionally, it is not the intent of this thesis to address the associated issues of equipping, clothing and transporting soldiers from the various medical treatment facilities back into the fight, nor will the research address the providing of basic morale services for the soldier.

Lastly, this thesis will examine the patient accounting system in USAREUR, which is a dBase information support system, but will not analyze the current state of the software and hardware.

#### Significance of Thesis

This research paper is significant for several reasons. Personnel readiness reports tell the commander where his critical shortages are and the numbers and types of soldiers he has at any given time. Casualty management tracks and reports battlefield casualties. Replacement management sends the right soldier to the right unit at the right time. If the personnel group commander does not have a timely and accurate accounting of hospitalized soldiers, all three critical wartime personnel systems will become inaccurate, unreliable and could result in the corps commander deciding to weight a main effort with one thousand return to duty soldiers when in fact he has only five hundred. Decisions based upon inaccurate information could adversely affect mission accomplishment.

Moreover, the responsibility for accounting for hospitalized soldiers is shared by two distinct disciplines within our Army community, medical and personnel. Because these duties are not clearly enumerated in either discipline and doctrine has not been written, the concepts of patient accounting are not clearly understood by personnel in either field.

And finally, there are reservations in the personnel community that the fielding of SIDPERS 3.0 (the most recently developed edition of SIDPERS) alone, will not solve the mission of patient accounting for the personnel group commander. It has been over three years since the

Army's overwhelming successes in the Persian Gulf. The nation was fortunate that the Army's fight was only four days and that the military took light casualties. We cannot ignore such lessons learned from recent tragedies in which nearly sixty soldiers were injured in one fire fight in Somalia and one hundred and seventy-eight refugees were medically evacuated to United States Army Europe, that accounting for soldiers in the hospital is a complicated, painstaking process.

In addition to the process requiring meticulous attention to detail, the impact upon families back home and thus, our nation, cannot be overlooked. Recent conflicts show that national will is an unmeasurable asset that the military instrument of power depends upon for success. The thousands of casualties taken during the Vietnam War had a tremendously negative effect upon the American people. There is a powerful, indirect relationship between national will and the accurate information on hospitalized soldiers provided to family members that we must recognize and appreciate.<sup>14</sup>

It is important for the personnel community to thoughtfully determine if the personnel group commander can afford not to have a casualty liaison team at every level III and IV facility irrespective of the fielding of SIDPERS 3.0. For these reasons, this research is not only viable, but necessary.

Endnote

<sup>1</sup> US Army, FM 12-6, Personnel Doctrine (Washington, DC: Department of the Army, 1994), I-1.

<sup>2</sup> FM 12-6 (1994), I-4.

<sup>3</sup> FM 12-6 (1994), 1-1.

<sup>4</sup> FM 12-6 (1994), 2-1.

<sup>5</sup> FM 12-6 (1994), 3-1.

<sup>6</sup> FM 12-6 (1994), 4-1.

<sup>7</sup> FM 12-6 (1994), 3-7.

<sup>8</sup> FM 12-6 (1994), 3-3.

<sup>9</sup> US Army, FM 8-10, Health Service Support in a Theater of Operations, (Washington, DC: Department of the Army, 1991), B-1 through B-2.

<sup>10</sup> US Army, DA Pam 600-8-20, SIDPERS Handbook for Commanders, (Washington, DC: Department of the Army, 1986), 1-1.

<sup>11</sup> FM 8-10 (1991), 13-1.

<sup>12</sup> FM 12-6 (1994), 3-3.

<sup>13</sup> Comparison of Current SIDPERS to SIDPERS 3.0, (Department of the Army, Total Army Personnel Command Fact Sheet: November 1994), 18.

<sup>14</sup> Captain Denise Haggerty, comments concerning her knowledge/experiences while serving with 101st Airborne Division during Desert Storm, notes in author's possession, 31 March 1995.

## CHAPTER 2

### LITERATURE REVIEW

This chapter will cover the current state of publications and material to include after action reports, doctrine, and other research material on patient accounting. This discussion will highlight the analysis of soldiers involved in patient accounting missions and allow for some additional comment. The material will be reviewed historically, beginning with the Gulf War and concluding with a USTRANSCOM report from October 1994.

To date, some of the best literature on the topic of patient accountability comes from Desert Shield/Storms after action reports. The Desert Shield/Storm after action reports indicate that the Army accomplished its personnel service support mission, but that all personnel service support units and teams suffered in their ability to accomplish their missions because they lacked adequate automation, communications and transportation support.<sup>1</sup> The report stated that a total Army personnel data base, with personnel units having adequate communications and automation, could improve access to soldier data needed by theater Army, corps, divisions, and personnel service battalions. This data base should be exportable into SIDPERS and allow for personnel transactions to be accomplished in the theater. Furthermore, the report went on to state that for the greatest flexibility, personnel software must be compatible and interface with

other data systems, such as the Army's medical management information system. The absence of a fully functioning automated personnel reporting and management system in Operations Desert Shield/Storm evented accurate personnel accountability and hampered casualty reporting.<sup>2</sup>

One of the most important lessons learned from this operation was with respect to casualty liaison teams. The Army emphasized the importance of timely notificatins of families and keeping families apprised of the patient's status. Because the medical system does not have an automated system to identify the location of a soldier in its treatment facilities, liaison teams were placed in medical treatment facilities as a "safety net." The role these teams played in the casualty reporting process was a success story. Liaison teams alerted personnel service companies upon the arrival of patients. Unfortunately, this system was not foolproof and some soldiers were evacuated to medical locations at which no liaison team was placed. In these cases, reporting the condition and location of soldiers was hindered.<sup>3</sup>

The most consistent critical comment of medical support during Operations Desert Shield/Storm was the inability of the chain of command to obtain current information on their soldiers once they entered medical treatment channels. To account for their soldiers, commanders asked their Inspector Generals to investigate the problem, sent their own liaison officers to the hospitals, and in one instance, provided post cards for their soldiers to inform the commander of their location and condition.<sup>4</sup>

Although personnel service companies positioned liaison teams with the hospitals to ensure that the casualty reporting system was supported, an inaccurate personnel data base and the lack of an interface between TAMMIS and SIDPERS minimized the casualty liaison teams' ability to alleviate the problem. TAMMIS software limitations exacerbated the problem. Patient administrators could not query TAMMIS-MEDPAR files by name, social security number, or unit unless they knew the hospital's registry number and data base of admission. The Soldier Support Center and the Project Manager for TAMMIS conducted a workshop after Desert Shield/Storm to explore the feasibility of a TAMMIS/SIDPERS interface. The most significant outcome from this seminar was that the Department of Defense should develop a tri-service medical management information system to facilitate casualty tracking in the theater of operations.<sup>5</sup>

The personnel accounting lessons learned of the Gulf War have been examined by MAJ James Comish.<sup>6</sup> His thesis concluded that a better and more robust automated personnel system is critical to provide quality personnel services support. More specifically, he noted that an automated interface did not exist between SIDPERS and TAMMIS. He states that this interface would have been beneficial in accounting for soldiers evacuated to hospitals.

Once a unit evacuates a casualty to a medical unit or when treatment begins, the parent unit S-1 and G-1 personnel channels are no longer able to track the progress or location of their unit member. Telephonic, radio traffic, or personal visitation by commanders, first sergeants and S-1 (battalion personnel officers) are required. There is little hope of successfully obtaining timely, accurate information and data on the patient.<sup>7</sup>

An interface between SIDPERS and the medical information system may work for future conflicts, but both systems must be fully operational. In Operation Desert Shield/Storm, TMMIS was only operational in one theater hospital and therefore, was not fully tested.<sup>8</sup>

In United States Army Europe, the 1st Personnel Group has been conducting research, development and experimentation on patient accounting for the last two years.<sup>9</sup> This research resulted in creating the Personnel Accounting System (PAS). This information system proved critical in supporting the casualty liaison team mission when fifty-six soldiers were wounded in Somalia in October 1993. These soldiers were medically evacuated to Landstuhl Medical Facility in Kaiserslautern, Germany, and accounted for by a casualty liaison team using the PAS.

The personnel accounting system is a dBase system which tracks soldiers who go into and come out of a European contingency theater and provides that information to the Commander-in-Chief via casualty liaison teams managed by the 21st Personnel Replacement Battalion. During the Somalia mission, the liaison team validated that an interface between the medical and personnel accounting system is still needed. Without one, the casualty liaison team relied on the PAS, which required the physical inputting of information obtained from the Patient Administration Division of Landstuhl Medical Facility.

In early 1993, the DOD tasked USTRANSCOM to consolidate the control of medical regulation and aeromedical evacuation under a single command.<sup>10</sup> Using the Joint Services' Corporate Information Methodology (CIM) Business Improvement Process, USTRANSCOM reengineered patient movement business practices and identified a need to track an individual

patient's status and location. The result is a system called TRAC2ES that will give authorized personnel the ability to dial up and obtain a patient's itinerary, actual location, and basic medical information. According to the specifications provided by the Carnegie Group, this command and control system should be used during peace, war and projected contingencies. The TRAC2ES Medical Treatment Facility interface system will provide connectivity to TAMMIS. Three organizations--MITRE Corporation, Carnegie Group and USTRANSCOM-- are also working on details for an intratheater patient movements program.

The only current personnel publication that addresses tracking casualties on the battlefield is included in FM 12-6, Personnel Doctrine, dated 9 September 1994. Unfortunately, this regulation dedicates only two paragraphs to patient accounting. In such an abbreviated discussion, the only conclusions are that personnel groups have the patient accounting mission and that they should probably use casualty liaison teams until an automated SIDPERS/TAMMIS interface is fielded. Moreover, the personnel community does not address the "how to" of patient accounting in any other twelve series regulations.<sup>11</sup>

Reviewing the current literature, the trend seems to attempt to solve the strategic problem at the USTRANSCOM level first, and the corps or operational issues, second. At the theater level, 1st Personnel Command continues to address the operational problems while developing solutions using current computer systems and capabilities. More systems information will become available when SIDPERS 3.0 is fielded, since it will provide the theater level personnel operators with a much more distributive information systems process and feedback loop.

The conclusion of this thesis, will provide a solid base for more extensive regulatory guidelines regarding casualty liaison team employment. Moreover, those personnel writing the doctrine and regulatory guidelines at the department and joint level must take a hard look at the solutions USAREUR developed to see if the conclusions apply across the Army and perhaps the sister services.

## Endnotes

- <sup>1</sup> Operation Desert Storm Lessons Learned, Volume III, (Headquarters, Department of the Army, 1993), III-5D-1.
- <sup>2</sup> Operation Desert Storm Lessons Learned, Volume III, (1993), III-5D-2.
- <sup>3</sup> Operation Desert Storm Lessons Learned, Volume III, (1993), III-5D-15.
- <sup>4</sup> Operation Desert Storm Lessons Learned, Volume III, (1993), III-5F-5.
- <sup>5</sup> Operation Desert Storm Lessons Learned, Volume III, (1993), III-5F-6.
- <sup>6</sup> Personnel Automation Problems During Operation Desert Storm, MAJ James Comish, MMAS Thesis, (Fort Leavenworth, Kansas: Command and General Staff College, 1992).
- <sup>7</sup> CALL, JULLS Number: 62136-06616 (00265).
- <sup>8</sup> US Army, Headquarters, USARCENT, USARCENT After Action Report, Vol 2, Part III (Fort Leavenworth, KS: Department of the Army, August 1991), Tab A.
- <sup>9</sup> After Actions Report, MAJ Paul Aswell, (Hqs, 189th PSC, February 1994), 1.
- <sup>10</sup> TRAC2ES Operational Prototype Implementation Plan, Carnegie Group, Inc, (USTRANSCOM, October 1994), 1.
- <sup>11</sup> FM 12-6, Personnel Doctrine, (Washington, DC: Department of the Army, 1994), 3-1.

## CHAPTER 3

### SYSTEMS DESCRIPTION

Before discussing the research methods and the individual case studies, it is important to describe the mission of patient accounting, the organizations involved and the systems that they use. This description will enable the reader to relate the systems and their parts, directly to the research.

The mission of patient accounting is to identify the available medical facilities; establish a system to capture critical patient information; coordinate sustainment issues for soldiers, such as casual pay and uniforms; transfer personnel accountability from the unit of origin to the personnel group; provide an interface between the personnel and medical systems; provide patient accountability status; provide patient diagnosis and prognosis reports; and provide evacuation reports.<sup>1</sup> The first three responsibilities must be done by actual personnel. The remaining five functions of patient accounting are supported by an automated interface with other Department of Defense (DOD) systems. Some of the information provided to one of these DOD systems, the standard installation division personnel system (SIDPERS) is the same as that provided to the casualty management system, but other data requirements are different. The actual information that is provided is of critical importance and will be discussed in more detail.

The personnel accounting system requires such information as the physical status of a soldier; present for duty, hospitalized, away without leave (AWOL), temporary duty (TDY), or attached to another unit. The casualty management system needs some of the same information (name and current unit of assignment), but to notify the next of kin, the casualty system must know the soldier's current medical diagnosis and prognosis for the future.

The organization that performs the patient accounting mission and provides the above information to the personnel accounting and casualty management systems is the casualty liaison team. This team uses SIDPERS, information from the Patient Administration Section, locally generated rosters and data base systems, and voice communication to track soldiers in the hospital.<sup>2</sup>

In the hospital, the patient administration division (PAD), is responsible for maintaining accountability for all soldiers admitted to the facility. Each hospital may have a different method for accounting for patients, but its PAD is instructed to make information available to the casualty liaison team.<sup>3</sup> The patient administration division in wartime is responsible for inputting basic personnel data to include prognosis and diagnosis reports to the TMMIS-MEDPAR system. The PAD gets its prognosis and diagnosis reports from the attending physicians. This information is inputted when the soldier is first admitted to the facility and then updated daily.

Both SIDPERS and TMMIS-MEDPAR are the automated systems that support the casualty liaison team and PAD as well as provide other users information regarding a hospitalized soldier. It is important to

understand how hospitalized soldiers are accounted for in SIDPERS and second how medical commanders manage patients through the TAMMIS-MEDPAR system. During contingency operations and any phase of mobilization, soldiers become reassignment losses to a unit the day that they are reassigned to a medical-holding detachment or evacuated to a medical treatment facility (MTF).<sup>4</sup> Assignment to a medical-holding detachment or evacuation to an MTF is confirmed through electronic messages, orders, or admission and disposition slips. Once the casualty liaison team is assured of the soldier's status, the medical-holding detachment or replacement company submits a SIDPERS arrival transaction. Although the theater personnel commander must state the policy, units having soldiers evacuated beyond the brigade boundary must also submit a SIDPERS departure transaction.<sup>5</sup>

When a soldier is ready to be discharged from the medical facility and return to duty, the process in SIDPERS is reversed. If the soldier is returned to duty within the theater, the goal is to return the soldier to the original unit. The medical-holding detachment or replacement company returning the soldier to duty submits a SIDPERS departure transaction, and the gaining unit submits an arrival transaction. This is how personnel accountability is maintained on hospitalized soldiers.<sup>6</sup>

The TAMMIS-MEDPAR system was designed to operate in hospitals within the corps and communications zone (COMMZ). Individual patient data and medical information are accumulated to determine the availability of medical resources and to support the personnel and casualty reporting systems.<sup>7</sup>

The TAMMIS-MEDPAR system provides the following automated capabilities regarding admissions, discharge, and patient status. It allows the hospital to quickly collect and maintain demographic information for all patients admitted to a facility. It quickly collects and maintains all discharge data by prompting the user for information specific to the type of discharge being performed. It then allows the PAD to transfer this data to another MTF, if necessary. To manage the patient status in a medical facility, TAMMIS-MEDPAR allows the PAD to update information concerning the patient's condition, acuity (sharpness) level, stability, location within the facility, casualty status (very serious injury or serious injury), and evacuation status.<sup>9</sup>

When SIDPERS 3.0 is fielded, there will be an interface between it and TAMMIS-MEDPAR. The personnel group commander must establish a personnel processing code of a support personnel service battalion at each level III and level IV medical facility. Everytime that a soldier is admitted to a particular facility, the supporting personnel battalion will get a hard copy list of hospitalized soldiers. The Patient Administration Division inputs a social security number on every hospitalized soldier. When the soldier's condition is critical, the best the PAD may be able to do is submit a name or identification, such as "patient A." Specifically, the casualty status of the soldier which is categorized as being either very seriously injured (VSI) or seriously injured (SI) as well as the diagnosis and prognosis information will now be available in a hard copy report provided to the Corps Personnel Management Center.<sup>9</sup> This critical information is required by the casualty management system to be able to make proper casualty

notification to the next of kin of the soldier. Without the SIDPERS 3.0 hard copy report, the VSI/SI information and the prognosis/diagnosis report is obtained by the casualty liaison team and passed to the personnel group by voice communication, electronic mail, or fax.

The discussion of the mission of the casualty liaison team and its tools provides the background understanding necessary before reviewing the three case studies: OPERATION DESERT SHIELD/STORM, OPERATION PROVIDE HOPE, and OPERATION PROVIDE PROMISE.

### Endnotes

<sup>1</sup> FM 12-6, Personnel Doctrine (Washington, DC: Department of the Army, 1994), 3-3 through 3-9.

<sup>2</sup> After Action Report, MAJ Paul Aswell, (HQs, 189th PSC, Feb 94 2.

<sup>3</sup> FM 8-10, Health Service Support in a Theater of Operations, (Washington, DC: Department of the Army, 1991) 13-5.

<sup>4</sup> AR600-8-6, Personnel Accounting and Strength Reporting, (Washington, DC: Department of the Army, 1991) 13-5.

<sup>5</sup> FM12-6, Personnel Doctrine, (Washington, DC: Department of the Army, 1994) 3-3.

<sup>6</sup> AR600-8-6, Personnel Accounting and Strength Reporting, (Washington, DC: Department of the Army, 1994), 25.

<sup>7</sup> FM 8-10 (1991), 13-5.

<sup>8</sup> FM 8-10 (1991), 13-5.

<sup>9</sup> Telephone conversation with CW4 Ted Clausen, Chief SIDPERS 3.0 Fielding Team, 13 March 1995.

CHAPTER 4  
RESEARCH DESIGN

The research design phase of this thesis introduces the methods and techniques used to shape the research. The overall method is the comparison of three case studies with personnel group patient accounting responsibilities or criteria. These criteria are found in FM 12-6, Personnel Doctrine and relate directly to the responsibilities of the personnel group commander in accounting for patients who are hospitalized.<sup>1</sup> A scenario describing patient accounting using SIDPERS 3.0 when it is fielded will be compared with the same personnel group patient accounting responsibilities (research criteria) as the three case studies.

There will be four phases to this research method: collection, organization, analysis, and interpretation of the data. Each phase builds and shapes the data to allow thoughtful insight. The end results of the research are conclusions that will answer the primary and secondary research questions.

Collection Phase

The collection phase covers the gathering of all information on the three previous case studies in which casualty liaison teams were used to accomplish the patient accounting mission: OPERATION DESERT SHIELD/STORM (Southwest Asia), OPERATION PROVIDE HOPE (Somalia), and

OPERATION PROVIDE PROMISE (Sarajevo). Most of the data will come from after action reports, published material, and personal interviews. First, each of the case studies will be described in detail. This description will include a discussion of the operation, mission for the personnel group, duration of the mission, and makeup of the casualty liaison team. Second, each of the case studies will be compared against the others to distinguish the differences and determine the similarities. The data will be arrayed in a matrix that allows the information to be related back to the basic thesis questions. This will provide the framework to create a scenario of what can be expected in the future, a scenario in which there is a TAMMIS, and SIDPERS 3.0 interface, but no casualty liaison team. At this point in the data collection process, the subordinate question, "What does the casualty liaison team actually do?" will be answered.

Lastly, the collection phase will include a discussion on the current capabilities on SIDPERS 3.0 as compared to the system in the field today, SIDPERS 2.75. This information will come from the SIDPERS 3.0 Fielding Manager at Department of the Army, Total Army Personnel Command. This discussion will also answer the subordinate question, "What does SIDPERS 3.0 provide to the personnel group commander?"

#### Organization Phase

The second phase of the research design is the organization of the data. Most important in this phase is the development of the research criteria upon which the case studies will be compared and contrasted. In FM 12-6, the personnel doctrine clearly articulates the following responsibilities for the commander of the personnel group with

regards to patient accounting. It is these very responsibilities that will become the research criteria for this study. The personnel group commander will:

1. Identify the available medical facilities. This responsibility is normally accomplished by the Operations Officer in the Personnel Group in conjunction with medical planners. This process involves coordinating the personnel service battalions serving particular units with the medical facilities, MASH and CSH, and their support relationships. This information is then normally published in the combat services support plan/order of a given operation.

2. Establish a system to capture critical patient information. This responsibility belongs directly to the personnel group commander and involves him or her deciding whether or not to use casualty liaison teams or SIDPERS 3.0 interface, local automation systems, team composition and determining the information flow.

3. Coordinate sustainment issues for soldiers, such as casual pay and uniforms. This function can only be performed by actual soldiers, from the patient's unit or members of the casualty liaison team, who must directly interface with the hospitalized soldier to determine their personal support needs.

4. Transfer personnel accountability from the unit of origin to the personnel group. This refers to the requirement for the soldier to be released from the strength and accountability of a particular unit to the rolls of a medical regulating detachment or replacement company.

5. Provide an interface between the personnel and medical systems. The medical personnel at the MASH and CSH have important

information regarding soldiers' conditions that must be reported to the soldier's commander as directed by local procedures, as well as the soldier's next of kin, as directed by Army regulation.<sup>2</sup> The interface can be automated or accomplished by liaison personnel, or a combination of both.

6. Provide patient accountability status. The medical personnel at the Patient Administration Division admit and discharge each and every soldier into the medical facility. It is imperative that this information be incorporated with the personnel accounting system for all soldiers to ensure accurate strength and casualty reporting.

7. Provide patient diagnosis and prognosis reports. Soldiers admitted to the hospital during operations are considered casualties and reported to the Department of the Army by the supporting casualty office. The casualty office gets the diagnosis and prognosis information from the personnel group who has received it from the medical facility.<sup>3</sup> With this accurate information on the soldier's current condition and expected diagnosis, notification can be made to the soldier's family.

8. Provide evacuation reports when soldiers are discharged from the medical facility. To facilitate continued accurate strength and casualty reporting, the personnel group must know when a soldier is available for return to duty, and when the soldier is evacuated to another level of medical treatment.<sup>4</sup>

In the conduct of this research, the first three criteria will not be addressed. The first and second responsibilities are accomplished by the personnel group commander him or herself, or by the

operations officer. The third criteria of providing sustainment support does not lend itself to automation or the interface of SIDPERS 3.0 and TAMMIS-MEDPAR. Criteria four through eight lend themselves to an automation interface and in fact form the basis of comparison for the case studies and the future scenario. This phase of data organization will also answer the subordinate research question, "What specific information does the personnel group commander need?"

After the criteria explanation, each criterion will be compared with the case studies and the future scenario. The results of this comparison will be arrayed narratively in a decision matrix. This part of the organization process is critical because it sets the conditions for the analysis phase of the research.

#### Analysis Phase

Following the review of each case against the stated criteria is the analysis phase. Here, the case studies and the future SIDPERS 3.0 scenario will be assigned values based upon the case or scenario's ability to meet the stated criterion. A score of one point will be given to each case study or the future scenario for each criterion it fulfills. The total score will be computed and each case study and the future scenario will be rank ordered with regards to what extent they support the personnel group commander's mission to accurately account for patients.

The second part of this analysis phase is the findings. After organizing and analyzing the data, the synthesis of the research will result in findings based upon the five criteria explored in the case

studies and the future scenario. These findings will be specific in nature and relate directly back to the primary thesis question.

#### Interpretation Phase

The final phase of the research method is the interpretation of the results which leads to broad conclusions. The results will answer the primary research question, "Can the personnel group commander account for soldiers hospitalized without a casualty liaison team with SIDPERS 3.0?" The results will also enable conclusions to be drawn with respect to the need for these teams. The results' interpretation will also validate the information that had been written on this topic, but not previously assessed in such a rigorous, academic manner. These conclusions will also lead to recommendations for future consideration and research.

Endnotes

<sup>1</sup> US Army, FM 12-6, Personnel Doctrine (Washington, DC: Department of the Army, 1994), 3-3 through 3-5.

<sup>2</sup> US Army, AR 600-8-1, Army Casualty Operations and Assistant and Insurance (Washington, DC: Department of the Army, 1994), 8.

<sup>3</sup> AR 600-8-1 (1994), 8-10.

<sup>4</sup> FM12-6 (1994), 3-3 to 3-5.

## CHAPTER 5

### CASE STUDY DESCRIPTION

The heart of the thesis is based upon three case studies of casualty liaison teams performing their wartime mission of patient accounting, as well as a future scenario drawn from the SIDPERS 3.0 and TAMMIS-MEDPAR interface. The cases are from OPERATION DESERT STORM (Southwest Asia), OPERATION PROVIDE HOPE (Somalia), OPERATION PROVIDE PROMISE (Sarajevo) and the future scenario reflects operations in a corps in 1996. Each case and the future scenario will address the patient accounting criteria, that is, did the casualty liaison team: transfer personnel accountability from the unit of origin to the personnel group; provide an interface between the personnel and medical systems; provide patient accountability status; provide diagnosis and prognosis reports; and provide evacuation reports.

#### OPERATION DESERT STORM

During the ground war in Operation Desert Storm, First Lieutenant Denise Haggerty, Assistant, Plans and Operations Officer, G1/AG, 101st Airborne Division (Air Assault), was responsible for coordinating systems to account for soldiers evacuated from the brigade support area to their supporting combat support hospital. To accomplish this mission, the division personnel officer (G1/AG) established three casualty liaison teams led by a noncommissioned officer with one other

soldier that worked at each CSH with the PADs. Their tools consisted of a hard copy division SIDPERs personnel report, a tactical vehicle, a field telephone and admission/disposition reports from the PAD. Above every patient from their unit admitted to the CSH, the casualty liaison team placed a 101st patch to readily identify division soldiers.

When the ground war began on 24 February 1991, the casualty liaison teams were with the CSHs who had moved from Dharan to north of King Khalid Military City in Saudi Arabia. These medical facilities did not move again during the offensive. By the end of four days, the casualty liaison teams had to track almost fifty casualties. During the ground war, the teams used a manual system to keep track of the name, social security number, grade, unit (if known), diagnosis and prognosis on every admitted soldier. This information was collected from the PAD and passed to the division personnel officer (G1/AG) and the 18th Personnel Group as quickly as possible.

According to Captain Haggerty, the G1/AG was able to provide accurate casualty reporting on hospitalized division soldiers to the XVIII Airborne Personnel Group, but only because of the casualty liaison teams physically located at the supporting CSHs. The casualty liaison team also made daily and weekly trips to other medical treatment facilities in the corps area to determine if they had admitted any division soldiers. The teams, however, did not provide evacuation reports to the division G1/AG when a soldier was transported to a higher level of medical treatment. She felt impeded by the lack of automation and communication tools available to support the team's effort and could have used the personnel on the casualty liaison team in her Personnel

Operations Branch during the conflict to handle other casualty and personnel operations issues. Captain Haggerty also felt a reluctance on the part of the Patient Administration Division to provide detailed information and relied upon a medical service corps captain to assist the casualty liaison team in gathering the necessary data.<sup>1</sup>

#### OPERATION PROVIDE HOPE

On 3 October 1994, soldiers from Task Force 160, Special Forces Command, Fort Campbell, Kentucky, and the 10th Mountain Division, Fort Drum, New York, participated in a devastating fire fight with gang warlords in Somalia. Fifty-six of those soldiers were seriously injured and medically evacuated to the Landstuhl Medical Treatment Facility in Germany. Upon notification of the medical evacuation, the 1st Personnel Command dispatched a casualty liaison team from the 189th Personnel Service Company, which was located near Landstuhl in Kaiserslautern. This team included a master sergeant and four soldiers, and co-located with the PAD to begin the personnel accounting process.<sup>2</sup>

It took the team nearly four hours of discussion with the attending physicians, nurses, and the PAD to achieve good personnel accounting and a corresponding diagnosis/prognosis report on each soldier. To assist their efforts, the casualty liaison team used a dBase system known as PAS (personnel accounting system) to log the basic information: name, grade, social security number, assigned unit, diagnosis (VSI/SI), and prognosis (guarded/fair/good). Once the team assembled this information on each patient, entered the data into PAS, and verified the report with the available hospital personnel, the casualty liaison team sent it over electronic mail system to the

Casualty Section, 1st Personnel Command (1st PERSCOM) and to the 21st Personnel Replacement Battalion (21st PRB). In turn, the Casualty Section, 1st PERSCOM provided necessary diagnosis, prognosis, and evacuation reports to the Casualty and Memorial Affairs Operations Center, Department of the Army, Personnel Command (PERSCOM); and the 21st PRB monitored the information for potential return to duty soldiers. The tools available to the 189th casualty liaison team consisted of manual PAD reports, the dBase PAS system, telephones, and an electronic mail capability. The team did not have access to basic SIDPERS reports because the soldiers were assigned to units in the continental United States and, thus, were not on the European personnel data base.

#### OPERATION PROVIDE PROMISE

On 9 February 1994, an artillery barrage devastated the city of Sarajevo. As a result, the Bosnian-Serbian government asked the United States Army, already providing food shipments through Operation Provide Promise, to intervene and assist with the injured civilians. Within hours of the bombing, one hundred and seventy-eight injured Bosnian-Serbian civilians were on three flights to Landstuhl Medical Treatment Facility.

Once again, the 1st PERSCOM activated the 189th PSC casualty liaison team and sent it to a gymnasium near Landstuhl, where the injured civilians were triaged. As the two-month process unfolded, only thirty-six civilians were actually treated within the Landstuhl facility, and all other assistance was rendered at the gym-turned-

refugee-assistance-center. Nevertheless, the casualty liaison team treated all evacuated refugees as patients requiring accountability.

In this case study, it took the same five-person casualty liaison team over two days to get thorough accountability and a corresponding diagnosis/prognosis report on each refugee. The delay was due to a split-based operation and the fact that only two individuals spoke both English and Serbian. The casualty liaison team used the dBase system of PAS to log the basic information which included the name, passport identification number, family associated with, diagnosis, and prognosis. After the first twenty-four hours, the casualty liaison team had a report which was approximately 95 percent accurate and sent this report over electronic mail to the Casualty Section, 1st PERSCOM. This time, the Casualty Section, 1st PERSCOM did not send the information to DA PERSCOM, since there was no need for next-of-kin notification in the United States. However, the German embassy, the Commander-in-Chief, United States Army Europe and all agencies supporting the refugee effort had a need for the report. The information that the casualty liaison team maintained on the refugee situation allowed for strict accountability by both the United States and German governments.<sup>3</sup>

#### Future Scenario

In 1996, SIDPERS 3.0 will be fielded, along with an interface with the medical support system--TAMMIS-MEDPAR. The 3d Infantry Division is given a peacekeeping mission in the former Yugoslavia, and a slice of the supporting personnel group is deployed along with the habitually associated personnel services battalion. Simulate that

twenty soldiers are injured when a bus carrying them through Sarajevo detonates a mine.

Many of these soldiers will be evacuated to the established combat support hospital, which has a Patient Administration Division with TAMMIS-MEDPAR capability. The PAD will enter into the system the soldier's name, social security number, unit, prognosis, and diagnosis. The TAMMIS-MEDPAR system will produce a hard copy report of this information and provide it to the personnel services battalion who has been aligned with this medical facility. Should the PAD personnel be unable to get a social security number or a full name, the information will still be provided to the personnel services battalion, in an incomplete manner. Moreover, the report from TAMMIS-MEDPAR will include all personnel admitted to the hospital; the system does not distinguish between other services or nations.

When a soldier is admitted to this level III facility, and the PAD enters a full name and social security number into the system, TAMMIS-MEDPAR provides that same information to SIDPERS 3.0. The SIDPERS 3.0 system will automatically generate a departure transaction to drop the soldier from the originating unit's strength as well as create an arrival transaction. The hospitalized soldier is now accounted for by the personnel service battalion supporting that medical facility.

Should a soldier be medically evacuated to another hospital, the PAD will enter that information into the TAMMIS-MEDPAR system. Through the systems interface, SIDPERS 3.0 will be able to produce a report that highlights evacuated personnel for use by the personnel group.

Moreover, the soldier will be reassigned to the facility to which he or she has been evacuated, and subsequently dropped from the medical facility (or supporting replacement company) that he or she just left.

These three case studies and the future scenario involving casualty liaison teams and their ability to conduct the patient accounting mission form the basis for the comparison and contrast against the criteria established in Chapter 4, Research Design. Before beginning that analysis in the next chapter, it is important to understand the differences and similarities in the case studies.

For the similarities, the number of days of hostilities resulting in evacuated patients was from one day in OPERATIONS PROVIDE PROMISE AND PROVIDE HOPE to four days in OPERATION DESERT STORM. In all three cases, patients were evacuated to a military corps or theater level medical treatment facility. Lastly, the basis of all three cases is from personal accounts of Army personnel officers that were given the mission of patient accounting during a conflict.

The differences in the cases are as follows: the type of conflict, theater of operation, and time of the event. In the OPERATION DESERT STORM case, the conflict was considered a partial mobilization that supported a major regional conflict in Central Command in February 1991. In the OPERATION PROVIDE HOPE case, the conflict is categorized as operations other than war, occurring in the Central Command but supported by European Command in October 1993. Lastly, in the OPERATION PROVIDE PROMISE, the conflict is also concerned an operations other than war, which took place completely within the European Command theater of operations, in February 1994. Regardless of the similarities and

differences, the responsibilities of the personnel group commander for patient accounting during a conflict remained the same.

### Endnotes

<sup>1</sup> Notes from conversations with CPT Denise Haggerty, (Fort Benjamin Harrison: November 1994).

<sup>2</sup> US Army, Patient Tracking AAR Email (Federal Republic of Germany: USAREUR, October 1993), 1-3.

<sup>3</sup> US Army, 189th PSC Sarajevo Patient Tracking Team Mission (Federal Republic of Germany: USAREUR, February 1994), 1-4.

## CHAPTER 6

### CASE STUDY ANALYSIS

Taking the criteria described previously in Chapter 4 and the data collected in Chapter 5, every criterion will be compared with each case study and the future scenario. As each criterion is examined in detail, a value for the case studies and the future scenario is assigned based upon the situation's ability to fulfill the criterion. After this quantification process, analysis will be made and findings discussed.

Refer to table 1, where each case study and the future scenario has been compared with each criterion. A narrative description is provided in which each criterion or requirement is either fulfilled by a person, an automation link or not at all.

In table 2, the case studies have values with respect to each of the criteria. The fact that the mission is done, regardless if by a person or automation is not germane to this study. The concern is just that the requirement is met. Therefore, the assignment of a value of one is awarded when the requirement is met, regardless if the requirement is met by a person or through automation. A value of zero is assigned if the requirement is not met at all. After all of the criteria have been graded against the case studies, a total score is provided in the last column. In this analysis, the higher value reflects the better system.

Criterion I  
Transfer Accountability

The transfer of personnel accountability from the unit of origin to the personnel group is the first of the research criteria. This transfer relieves the unit commander of accountability of his or her soldiers and passes it to the servicing replacement company or medical regulating detachment, as determined by the personnel group commander. Under the current SIDPERS 2.75 system, transactions are done in batch mode and every transaction is documented by a floppy disc that is consolidated and transported manually to each higher level of command.

In the DESERT STORM case, the transfer of personnel accountability from the assigned unit to either the servicing replacement company or medical regulating detachment was not done in SIDPERS. This was due primarily to the inflexibility of SIDPERS 2.75 to facilitate daily updates of the personnel system because it processed in batch mode. If the casualty liaison team had ensured that soldiers were arrived to the hospital unit, they may not have been dropped from their original unit, and thus, double counting would occur.<sup>1</sup>

In the OPERATION PROVIDE HOPE case, the 189th PSC casualty liaison team did not transfer personnel accountability from the assigned unit in Task Force 160 to the Landstuhl medical regulating detachment for two reasons: first, the 1st PERSCOM data processing unit did not have the capability to process transactions for units outside its personnel processing activity and secondly, there was no system established to ensure that the supporting unit in Somalia would properly submit a departure transaction to drop the soldiers from their unit strength.

The third case study is OPERATION PROVIDE PROMISE which documents the actions of the 189th PSC casualty liaison team in supporting a civilian patient accounting mission. In this example, there was no transfer of personnel accountability since refugees are not contained in the SIDPERS data base.

In the future scenario, the transfer of personnel accountability from the unit of origin to the personnel group will happen through automation. This is one of the enhanced products as a result of the SIDPERS 3.0 and TAMMIS-MEDPAR interface. When the PAD enters a soldier in the TAMMIS-MEDPAR system, that entry causes the SIDPERS 3.0 system to depart the soldier from the unit of origin and reassign him or her to the hospital or replacement company unit identification code (UIC). When fielded, the interface will occur at the Department of the Army and rely completely upon reliable telecommunications connectivity.

Should the telecommunications link between the tactical army combat service support computer system (TACCS) fail, then the transfer of accountability will also fail. There is no alternate mode for the personnel group commander to use, and soldiers should remain on the accounts of their unit of origin, if the theater communications architecture does not support total asset visibility.

Referring to table 2, each of the case studies are assigned a value of zero since no transfer of accounting took place. A value of one has been assigned to the future SIDPERS 3.0 interface scenario, since transfer of accountability is now possible.

This is a notable result. Because of the drawbacks of the current batch-operated SIDPERS system in which duty status information

must flow from the bottom to the top of the system, the personnel group commander could never accurately transfer patients from their unit of assignment to the hospital or supporting replacement detachment. With the SIDPERS 3.0 and TAMMIS-MEDPAR interface, the transfer of proper accountability will occur based upon duty status information that intermediate levels of the system have; specifically, the medical facility who has hospitalized the soldier. Moreover, this transfer of accountability will be able to occur with or without the benefit of a casualty liaison team. With respect to the criterion of transferring accountability, the answer to the question "Can the personnel group commander account for soldiers hospitalized without a casualty liaison team when SIDPERS 3.0 is fielded?" is yes.

Criterion II  
Medical and Personnel Systems Interface

In the OPERATION DESERT STORM case, there was interface between the personnel and medical systems because the casualty liaison team ensured that the team periodically coordinated with the Personnel Administration Division of the medical treatment facilities; the G1/AG, 101st Airborne Division (Air Assault); and the Personnel Management Center at 18th Personnel Group, XVIII Airborne Corps. The casualty liaison team did not have access to any automation support to accomplish this mission.

In the OPERATION PROVIDE HOPE case study, the casualty liaison team was located in Landstuhl Medical Treatment Facility and has access to a locally developed automation tool, the Personnel Accounting System (PAS) and the Defense Systems Network for communications support.

During OPERATION PROVIDE PROMISE, the 189th casualty liaison team provided the same interface between the personnel and medical systems. Again, the team was physically on site at Landstuhl medical treatment facility, providing physical interface on location. The personnel information on the hospitalized civilians contained in the PAS was transmitted and available to 1st PERSCOM, the PAD and the 21st Personnel Replacement Battalion through an electronic mail connection.

In the future scenario, interface between the medical and personnel systems will occur during the SIDPERS 3.0 and TAMMIS-MEDPAR interface. Should communications links fail in either the personnel or medical systems, the interface will be affected and lost.

Referring to table 2, a value of one is assigned to all three cases and the future scenario. All four situations fulfilled the systems interface criterion.

The primary purpose of the medical and personnel systems interface is to ensure that casualty information can flow between the medical facility and the casualty command in theater. Both the personnel command and the medical command have a need for the casualty information at different times. In the OPERATION PROVIDE HOPE and PROMISE case studies, it was helpful to have a local system to support the casualty liaison team's operation so that both the medical and personnel community could have the information on their timetables. In the future scenario, the personnel group will have to establish the interface between the casualty section and the patient administration division of the medical facilities directly, since there will be no casualty liaison team to perform this function. Between the SIDPERS 3.0

and TAMMIS-MEDPAR automated interface and the liaison established between the personnel group and the PAD, with regards to the interface criterion, the personnel group commander can account for soldiers hospitalized in the communications zone without a casualty liaison team when SIDPERS 3.0 is fielded.

Criterion III  
Patient Accountability

In the casualty management system, patient accountability is the most important criterion. In OPERATION DESERT STORM, the casualty liaison team did provide patient accountability status to higher headquarters. The team used a manual system based upon information acquired from the daily admission and disposition reports, and from the attending physicians.

In OPERATIONS PROVIDE HOPE and PROVIDE PROMISE, the 189th casualty liaison team also provided patient accounting status. In these two cases, the team provided the information very close to "real time," since the PAS allowed them to transfer information, and the 1st PERSCOM could get updates via electronic mail whenever needed.

In the future scenario, patient accountability status will be accomplished based upon the PAD's ability to make the necessary inputs to the TAMMIS-MEDPAR system. The hard copy roster produced from TAMMIS-MEDPAR will be provided to the personnel group by the PAD to establish patient accountability. This roster will reflect any incomplete information.

Referring again to table 2, each of the case studies and the future scenario earn a value of one since they all fulfill the criterion of accounting for soldiers that are hospitalized.

The key to patient accountability is that it is done first accurately, and second, quickly. Patient accountability must be established as soon as soldiers enter a hospital facility and reported to the personnel group. In the case studies, this was accomplished by casualty liaison teams that collected the information and contacted the personnel group for the initial casualty reports. In the future scenario, the personnel group will be restricted to a once a day, hard copy report. This may not meet the needs of the personnel group commander to pass casualty information to Department of the Army both effectively (accurately) and efficiently (timely). However, with regards to the criterion of patient accounting though, the personnel group commander can account for soldiers hospitalized in the communications zone without a casualty liaison team when SIDPERS 3.0 is fielded. There is a concern if the accountability can be accomplished accurately and quickly enough. This issue will be explored more thoroughly in the findings portion of this chapter.

#### Criterion IV Diagnosis/Prognosis Report

Diagnosis and prognosis reports must be provided to the personnel group. These updates must be given as they occur, and at the least, on a daily basis. The diagnosis and prognosis reports tell the Department of the Army the medical condition (diagnosis) of a particular soldier, and what his or her expected outcome will be (prognosis). This

sensitive information is then provided to the next of kin to keep families informed.

In OPERATION DESERT STORM, the casualty liaison team was able to provide current diagnosis and prognosis reports because of its physical location at the medical treatment facilities, and its interface with the PAD, attending physicians and G1/AG. All of these reports were passed to higher headquarters using voice communication.

In OPERATIONS PROVIDE HOPE and PROVIDE PROMISE, the casualty liaison team provided diagnosis and prognosis reports through the PAS to 1st PERSCOM by coordinating with the PAD and attending physicians. These reports included diagnosis of the refugees and a prognosis as to their future medical conditions. This information was also provided through electronic mail. Whenever 1st PERSCOM has a need to update their data base, they could access the information automatically through PAS.

In the future scenario, SIDPERS 3.0 has been fielded and the casualty liaison team is replaced by the product enhancements of SIDPERS 3.0 and TAMMIS-MEDPAR interface. When the PAD inputs the diagnosis and prognosis data, this same information will be produced in a hard copy report that is provided to the personnel group. These updates will have to be coordinated between the PAD and the personnel group since there is no voice or data link established between the two organizations. This is a significant problem, because the casualty management system must have accurate, current information on the diagnosis and prognosis of every reportable soldier to be able to properly notify the next of kin. A hard copy report that is produced only once per day will not meet the

demands of the casualty management system. The personnel group commander is responsible for receiving the casualty information, validating the data with the personnel records in theater, preparing and dispatching the casualty report within twenty-four hours of the time of the incident.<sup>2</sup> If the personnel group receives the reports only once per day from the medical facilities, the personnel group commander will be unable to meet the twenty-four hour from incident requirement to transmit the casualty report to Department of the Army.

Nevertheless, all three case studies and the future scenario can provide diagnosis and prognosis reports and receive a value of one in the matrix at table 2.

There are some of the same concerns with the future scenario meeting the criterion of providing diagnosis and prognosis reports as with the criterion of providing patient accountability. Providing diagnosis and prognosis reports only once per day without a casualty liaison team while fulfilling the primary research question, leaves doubt to the flexibility of the SIDPERS 3.0 interface to support timeliness. This issue will be examined further in the findings.

#### Criterion V Evacuation Reports

There is a requirement to inform the personnel group and Department of the Army when a soldier's status has changed and he or she has been medically evacuated to another facility. This report lets the casualty management system know that a soldier is now being tracked by another personnel group at a higher echelon.

In OPERATION DESERT STORM, the casualty liaison team was not able to consistently provide evacuation reports to the next higher level. This was primarily due to the team's lack of the necessary automation and communication support.<sup>3</sup>

In OPERATIONS PROVIDE HOPE and PROVIDE PROMISE, the 189th PSC casualty liaison team was able to provide evacuation reports through the PAS. This information told 1st PERSCOM the soldiers who departed and to which medical facility. This report was provided the day after the soldier departed from the hospital. There was no direct interface with the casualty liaison team nor the actual next level of evacuation which was either Walter Reed Army Medical Center or the local medical treatment facility at Fort Campbell or Fort Drum.<sup>4</sup>

In the future scenario, SIDPERS 3.0 will reflect TMMIS-MEDPAR information regarding medical evacuations. When the PAD enters into TMMIS-MEDPAR that a soldier has been evacuated to another medical facility, that information will interface with SIDPERS 3.0 at the Department of the Army level. SIDPERS 3.0 will automatically reassign the soldier to the unit identification code (UIC) of the medical facility to which he or she was evacuated, and the personnel group will be able to confirm that patient accountability has been transferred. This is an expanded capability that none of the other three case studies had available during their operations.

Only the casualty liaison team in Operation Desert Storm was unable to provide evacuation reports to the personnel group and received a value of zero in the matrix at table 2. The other two case studies

and the future scenario have the evacuation report capability and received a value of one in the matrix.

Much like the transfer of accountability criterion, the evacuation reports system in SIDPERS 3.0 is truly a capability that the personnel group commander has needed and not had. In the OPERATION PROVIDE HOPE and PROVIDE PROMISE case studies, the personnel group did receive evacuation reports from the casualty liaison team, but with the fielding of SIDPERS 3.0, the assignment to the gaining hospital facility will be reflected in both the medical and personnel automated accounting systems. This is a much more efficient and effective procedure than the combination of what SIDPERS 2.75, the Personnel Accounting System (local data base) and a casualty liaison team can provide to the personnel group commander, today.

#### Interpretation and Findings

All of the case studies and the future scenario have been analyzed and assigned values with respect to their ability to meet the criteria established. Reviewing the results in table 2 using SIDPERS 3.0 and having no casualty liaison team system in the future scenario has the highest value of five. This automated interface system reflects a capability to meet all of the established criteria for the personnel group commander to account for patients hospitalized in level III and level IV facilities. The patient accounting system established using casualty liaison teams and the locally developed PAS system in OPERATIONS PROVIDE HOPE and PROVIDE PROMISE met all but one of the established criteria and received a value of four. In OPERATION DESERT STORM, the use of only a casualty liaison team, with no automation

support, met only three of the five required criteria and received a value of three. In this analysis, a higher value reflects the better system for the personnel group commander. Therefore, the future scenario, which earned the highest value of five and fulfills all five established criteria, is the best system for the personnel commander to use to account for patients in level III and level IV medical facilities.

Looking harder at the comparison between the criteria and each case study and the future scenario, there is a need for more precise comparison and thus more detailed analysis. When SIDPERS 3.0 is fielded, it will clearly provide two capabilities for the personnel group commander that he or she did not have in the past: initial transfer of accountability and provide evacuation reports (which translates to subsequent transfer of accountability to a higher level of medical evacuation). Thus, the finding is that SIDPERS 3.0 fielding can only provide a capability that the personnel group commander did not have previously. Since this cannot be disputed, these two criteria have been analyzed fully and should be set aside. With regards to the SIDPERS 3.0 interface sufficiently meeting the other three criteria, however, there is doubt as to the interface meeting the personnel group commander's need and requires further analysis.

More specifically, while organizing and comparing the data, there is evidence that the personnel group commander will be able to account for hospitalized soldiers with regards to providing medical and personnel community interface, patient accountability, and providing diagnosis and prognosis reports, but not effectively (accurately) and

efficiently (timely). The new and additional definitions to measure these criteria include qualifying timeliness, accuracy, and resources. As with the initial set of criteria, these new qualifiers will be defined and standards of measure established. Next, standards to quantify these new values will be established and associated with the standards of accomplishment in each case study and the future scenario as compared to each criterion. Since the Operation Provide Promise case did in fact provide some interesting data for the initial analysis, it has been shown that casualty reporting is not done on refugees. Therefore, in this additional analysis, the Provide Promise case study will be set aside and not included in the comparison.

#### New Qualifier Description

When further analyzing the ability of each case study and the future scenario to either fulfill or not fulfill each criterion, it was determined that other factors weigh in the ability to meet the criterion completely. These additional factors or qualifiers involve how timely the information is passed to the personnel group from the medical facility, how accurately this information is provided and how many additional personnel resources must be expended. Each of these qualifiers will now be described in greater detail, as well as the value system associated with the new factors.

The information is considered timely if interface can be established within six hours, patient accountability provided to the casualty management system within three to six hours, and diagnosis and prognosis reports provided within another nine to twelve hours. A value of two is assigned if the criterion is met, a value of one is assigned

if the criterion is met adding three to six additional hours, and a value of zero is assigned if the criterion can only be met but exceeding the twelve-hour time allocation.

Accuracy of patient information meets the criteria of providing medical and personnel interface, providing patient accountability, and providing diagnosis and prognosis if the soldier's exact name and social security number can be provided and confirmed. In this case, a value of one is assigned if the system has the capability to confirm the patient's name and social security number. A value of zero is assigned if the name and social security number have no quality control and can be passed erroneously.

Resource efficiency is desired. The personnel community does not have vast resources to apply unlimited soldiers to perform the patient accounting mission. The better system with regard to this value is the one that uses the smallest number of soldiers on the casualty liaison team and maximizes use of their time by not causing duplication of effort (as in the case of the personnel accounting system). A value of two is assigned if no soldiers are required to conduct the patient accounting mission, a value of one if two to three soldiers are used on a casualty liaison team and a value of zero if four or more soldiers are used.

#### Results of Comparison With New Qualifiers and Three of the Five Criterion

Now that a more detailed value system has been applied to the three criteria of providing interface, patient accountability and diagnosis/prognosis, a more precise analysis of the results is possible.

Referring to tables 3 and 4, the DESERT STORM case has interface provided between the medical and personnel community on a daily basis, includes exact name and social security number and uses a two-person casualty liaison team. In the PROVIDE HOPE case, the interface was provided within six hours of the team's arrival and the subsequent arrival of patients, exact name, and social security numbers were obtained, but the team required four soldiers to accomplish the mission. In the future scenario, the interface was provided daily through the SIDPERS 3.0 update and production of the hard copy SIDPERS report. Although this system requires no soldiers, the interface can result in incomplete names and a lack of an accurate social security number. After applying the new value system, the DESERT STORM case receives a value of three, the PROVIDE HOPE case receives a three and the future scenario, receives a two. This indicates that although the future scenario uses automation and no soldiers to fulfill this criterion, the interface may not be accomplished timely nor accurately enough for the personnel group commander's needs.

In the second criterion that was reexamined, provide patient accountability, refer again to the results in tables 3 and 4. In the DESERT STORM case, patient accountability was provided within six to twelve hours of a soldier being admitted to the medical facility, by name and social security number using a two-person team. In the PROVIDE HOPE case, patient accountability was provided within six hours of the admission of the patients, the casualty management system knew the exact name and social security numbers of the soldiers, and this mission was performed by a four-person team. In the future scenario, the patient

accountability is provided once a day with a hard copy report that is produced as a result of the PAD inputs and the SIDPERS 3.0 and TAMMIS-MEDPAR interface. If there is missing data or a lack of knowledge as to the service of the soldier, that incomplete information will be passed without modification. This process is done without any soldiers manning the casualty liaison team, although a courier will have to pick up the hard copy report from the PAD and deliver it to the personnel group.

In assigning the new values, the OPERATION DESERT STORM case receives a value of three, the OPERATION PROVIDE HOPE receives a value of three, and the future scenario receives a value of two. In the future scenario, the finding is that no soldiers are required to fulfill the criteria, but patient accountability may only be provided after eighteen hours of a patient's admission. Moreover, the personnel data may be incomplete, thus not truly meeting the needs of the personnel group commander with regards to patient accounting without a casualty liaison team.

The last criterion that was reexamined was the providing of diagnosis and prognosis reports. In the DESERT STORM case, this criterion was met in six to twelve hours, using the exact name and social security number by the two-person casualty liaison team. In the PROVIDE HOPE case, diagnosis and prognosis reports were provided to the casualty management system within six hours, with the exact name and social security number and using the four person casualty liaison team. And finally, in the future scenario, the diagnosis and prognosis reports are provided on a daily basis via the hard copy SIDPERS report, sometimes with incomplete data, but using only automation and a courier

to provide the information to the casualty management system. The DESERT STORM case earned a value of three, the PROVIDE HOPE a value of three, and the future scenario, a value of two. This means that although the future scenario needs no casualty liaison team to accomplish this criterion, there is a significant chance that the information will not be provided quickly and accurately enough since the updates are only daily and can be incomplete.

After looking at the total results of these assigned values for each case study and the future scenario receive with regards to each of the three reexamined criteria, the future scenario is not the best system; rather, it is the worst. Moreover, the more indepth look at the criteria and the value of timeliness and accuracy reveals that the future scenario with SIDPERS 3.0 interface and no casualty liaison team does not fulfill the patient accounting needs of the personnel group commander.

### Endnotes

<sup>1</sup> Personnel Automation Problems During Operation Desert Storm, MAJ James Comish, MMAS Thesis, (Fort Leavenworth, Kansas: Command and General Staff College, 1992), 95-96.

<sup>2</sup> US Army, AR 600-8-1, Army Casualty Operations/Assistance/Insurance (Washington, DC: Department of the Army, 1994), 3.

<sup>3</sup> Notes from conversations with CPT Denise Haggerty, (Fort Benjamin Harrison: November 1994).

<sup>4</sup> US Army, 189th PSC Sarajevo Patient Tracking Team Mission (Federal Republic of Germany, USAREUR: February 1994), 1-4.

## CHAPTER 7

### CONCLUSIONS AND RECOMMENDATIONS

By looking at the quantified case study comparison in table 2, indications are that the personnel commander can accomplish the patient accounting mission when there is no casualty liaison team and SIDPERS 3.0 has been fielded. The new automated interface ensures that all criteria or patient accounting responsibilities of the personnel group are met. Moreover, without the SIDPERS 3.0 interface, the personnel group commander cannot provide evacuation reports which document the transfer of the soldier in the personnel accounting system. And most importantly, without SIDPERS 3.0, the personnel group commander cannot transfer accountability for patients properly from their unit of origin to the medical facility or supporting replacement detachment. Thus, the immediate conclusion is that SIDPERS 3.0 interface without a casualty liaison team meets the needs of the personnel commander and is the best system to employ in the future.

Although SIDPERS 3.0 interface is needed to meet the criteria of transferring accountability and providing evacuation reports, there is concern that the new system will barely meet the other three criteria of providing interface, patient accountability and diagnosis/prognosis reports. In the casualty management system, into which the patient accounting system feeds, accurate reporting on a timely basis are the two key factors to mission accomplishment. When the OPERATION DESERT

STORM, OPERATION PROVIDE HOPE, and future scenario underwent some more intense analysis with regards to timeliness, accuracy and resource usage, the future scenario of no casualty liaison team created a serious liability with regards to speed and accuracy for the personnel group commander.

The SIDPERS 3.0 and TAMMIS-MEDPAR interface is a step in the right direction to a better patient accounting system, but it is not exhaustive enough. There needs to be an on-line interface between the personnel group and the medical facility for the personnel group commander to get necessary casualty information in a timely manner. Moreover, there must be an improvement between the incomplete data that the patient administration division may input to TAMMIS-MEDPAR and the output the personnel group receives, which may be a partial name and no social security number. These two improvements will fix the accuracy and timeliness issues which are so important to operating the casualty management system.

Even after these two improvements are made to the SIDPERS 3.0 interface, there must be extensive tests and assessments conducted between medical facilities and the personnel group before the personnel group commander can conclude that he or she does not need the services of a casualty liaison team. When the personnel group commander gets to this point, a decision must also be made as to who will provide the sustainment support such as uniforms and pay assistance to the hospitalized soldiers (which may prove to be a good topic for further research). When these issues are resolved, then the personnel group commander will be ready to rely on automation interface alone to

accomplish the mission of accounting for soldiers hospitalized in a level III or IV facility.

#### Recommendations for Further Research

There are four recommendations for the future, some which lend themselves to further research and others which relate to changes in personnel doctrine. First, there is a definite need in the personnel community to include the specific requirements, processes, and standards for the patient accounting function in personnel regulations. The mission of the casualty liaison team has been covered briefly by doctrine, but I would advocate an expansion of coverage in FM 12-6 as well as inclusion in other related documents, specifically the personnel accounting and casualty management regulations. This expansion should also include a thorough discussion on the sustainment and quality of life issues for the hospitalized soldier, such as, how to get the soldier paid, reequiped, rearmed and how to provide for new uniforms.

The Department of the Army should take some of the value added areas of the Personnel Accounting System and include them in future SIDPERS 3.0 improvements. Specifically, DA should enable the personnel group to be able to easily take SIDPERS 3.0 information, put it in a dBase file and manipulate the data for customized reports for the commander. This is currently possible in the personnel accounting system (PAS) established at 1st PERSCOM.

The personnel services battalion and the patient administration division must be given clear responsibilities for making the linkage between the personnel and medical systems work. This would include adding guidance in the Personnel Actions work centers of our regulations

and to the medical regulations; adding tasks to the mission training plan for a personnel services battalion, a personnel group, mobile army surgical hospital and a combat support hospital; and including this training in the program of instruction for our officers and noncommissioned officers that attend the Adjutant General's Corps formal schools.

Lastly, I would recommend taking the framework with its subsequent modification I have established for this study and applying it to more recent case studies and examining those results. These case studies should include our missions in Rwanda and Haiti. Using more current information and a different set of investigative minds will lend credence (or not) to this study and the recommendations that I have made.

With the fielding of the SIDPERS 3.0 and TAMMIS-MEDPAR interface, casualty liaison teams and thus personnel groups will be able to provide a better service to the commander and the soldier. By making the improvements in the interface as I have recommended, the personnel group commander will be in a position to reevaluate the need for a casualty liaison team and perhaps use these valuable resources to perform other important personnel missions. The results will mean that the commander will receive the soldiers he or she needs to accomplish our country's requirements in meeting our national security objectives.

CASE STUDY COMPARISON

Case/ Criteria	Transfer Pers Acct From Unit of Origin to Pers Grp	Provide Interface Between Pers and Med Systems	Provide Patient Acct Status	Provide Diagnosis Prognosis Report	Provide Evac Reports
DESERT STORM	Not Done	People	People	People	Not Done
PROVIDE HOPE	Not Done	People/ Automation	People/ Automation	People/ Automation	People/ Automation
PROVIDE PROMISE	Not Done	People/ Automation	People/ Automation	People/ Automation	People/ Automation
FUTURE SCENARIO	Automa- tion	Automation	People/ Automation	Automation	Automation

Table 1. CASE STUDY COMPARISON

QUANTIFIED CASE STUDY COMPARISON

Case/ Criteria	Transfer Pers Acct From Unit of Origin to Pers Grp	Provide Interface Between Pers and Med Systems	Provide Patient Acct Status	Provide Diagnosis Prognosis Report	Provide Evac Reports	Total
DESERT STORM	0	1	1	1	0	3
PROVIDE HOPE	0	1	1	1	1	4
PROVIDE PROMISE	0	1	1	1	1	4
FUTURE SCENARIO	1	1	1	1	1	5

Table 2. QUANTIFIED CASE STUDY COMPARISON. Values assigned are either 0 or 1; higher is better for total score.

**CASE STUDY COMPARISON - PHASE II**

<b>Case/Criterion</b>	<b>Provide Interface Between Pers and Med Systems</b>	<b>Provide Patient Acct Status</b>	<b>Provide Diagnosis/ Prognosis Report</b>
<b>DESERT STORM</b>			
Timeliness	Daily	W/In 12 Hours	W/In 12 Hours
Accuracy	Exact Name	Exact Name	Exact Name
Resources	2 Soldiers	2 Soldiers	2 Soldiers
<b>PROVIDE HOPE</b>			
Timeliness	W/In 6 Hours	W/In 6 Hours	W/In 6 Hours
Accuracy	Exact Name	Exact Name	Exact Name
Resources	4 Soldiers	4 Soldiers	4 Soldiers
<b>FUTURE SCENARIO</b>			
Timeliness	Daily	Daily	Daily
Accuracy	Not Exact	Not Exact	Not Exact
Resources	0 Soldiers	0 Soldiers	0 Soldiers

**Table 3. CASE STUDY COMPARISON - PHASE II**

**QUANTIFIED CASE STUDY COMPARISON - PHASE II**

<b>Case/Criteria</b>	<b>Provide Interface Pers and Med Systems</b>	<b>Provide Patient Acct Status</b>	<b>Provide Diagnosis Prognosis Report</b>	<b>Total</b>
<b>DESERT STORM</b>				
Timeliness	0	1	1	
Accuracy	1	1	1	
Resources	1	1	1	
				8
<b>PROVIDE HOPE</b>				
Timeliness	2	2	2	
Accuracy	1	1	1	
Resources	0	0	0	
				9
<b>FUTURE SCENARIO</b>				
Timeliness	0	0	0	
Accuracy	0	0	0	
Resources	2	2	2	
				6

**NOTE:** Values Assigned Are Either 0, 1, 2; Higher is better for total score.

**Table 4. QUANTIFIED CASE STUDY COMPARISON - PHASE II**

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