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Defense Medical Human Resources System-internet (DMHRSi): A Case Study on

Compliance and Accuracy

Graduate Management Project

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Army-Baylor University Graduate Program in Health and Business Administration

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Abstract

The Defense Medical Human Resources System-internet (DMHRSi) is a web-based, tri-service, human resource management system that was created to standardize human resource management processes and to allow for greater accountability of medical resources throughout the military health system. The system requires the input of complete and accurate time card data to allow for the collection and distribution of human resources information for corporate decision-making on military health care. DeWitt Army Community Hospital has struggled with user compliance in the completion of DMHRSi time cards. Non-compliance has caused delays in processing time card data that is needed by decision makers. The organization also has problems with maintaining the accuracy of time card data within DMHRSi. The study shows that both compliance and the accuracy of data can be improved. The study recommends that leaders increase their involvement in promoting compliance and accuracy, ensure that users have adequate education regarding DMHRSi, and use an organizational change model to improve user compliance and accuracy throughout the organization.

Introduction

The mission of DeWitt Army Community Hospital is “to provide convenient access to quality primary and specialty care, leadership in education, research, and professional development, an integrated approach to Warrior and patient care and a medical force ready to meet any challenges at home or abroad” (DeWitt, 2008).

DeWitt’s vision is to be “a dedicated and inspired health care team recognized nationally as the Culture of Excellence in patient, family and Warrior care” (DeWitt, 2008). DeWitt Army Community Hospital is a 43-bed facility constructed in 1957; it provides comprehensive health care to approximately 90,000 beneficiaries in the National Capital Area (DeWitt, 2008).

The hospital and its outlying clinics make up the DeWitt Health Care Network. The hospital oversees five primary clinics that serve eligible beneficiaries in Northern Virginia, DeWitt Family Health Clinic, Rader, Woodbridge, Fairfax, and Fort A.P. Hill. The Family Health Clinic is located within the hospital. Rader (Fort Myer), Woodbridge, Fairfax, and Fort A.P. Hill clinics are the off-post facilities providing primary care to beneficiaries in the surrounding areas. The Woodbridge and Fairfax clinics are both non-military, contractor operated facilities.

The hospital also houses the second oldest Family Practice Residency in the Army (DeWitt, 2008). The graduates of the program have a 99% pass rate on the board certification exam (DeWitt, 2008). The Residency has a Sports Medicine Fellowship program that is recognized throughout the nation and serves both military and civilian universities in the National Capital Area.

The hospital is part of the military health system (MHS) which strives to provide quality health care for millions of Soldiers and their family members, retirees, and eligible Department of Defense (DoD) employees. To ensure the continuous provision of quality care, the MHS must manage its financial and human resources adequately. Factors such as rising health care costs, defense spending, and congressional mandates have influenced the MHS to become more cost efficient and conservative in the use of resources. Decision-making with regard to expenditure of resources depends on the collection and analysis of financial, workload, and personnel data within the organization. The MHS utilizes information management systems like the Defense Medical Human Resource System-internet (DMHRSi) to gather human resource data from DoD medical and dental facilities and to make decisions affecting health care delivery.

Human resource information systems play an increasingly important role in the success of an organization. These systems allow organizations to participate in information sharing and decision-making (Mayfield, 2003). Information systems improve the effectiveness of decision making by providing stakeholders with enough accurate data to make the best decision for an organization.

Implementing a human resource information system is not easy. Carr (2003) noted that just having electronic information technology did not ensure that organizations would be successful. The successful implementation of an information system requires the consideration of multiple variables beyond just acquiring the technology. Detailed planning and stakeholder buy-in are important in implementing new systems. Organizational culture is a key factor in the adoption of new systems by the users (Lippert & Swiercz, 2005). Employee resistance to change and inadequate training and

support pose barriers to successful implementation (Cheng, Dainty & Moore, 2007). These and other factors must be considered before implementing an effective human resource information system.

The Armed Forces Health Longitudinal Technology Application (AHLTA) was implemented in 2004. It is the electronic health record (EHR) developed to allow authorized DoD providers immediate access to health care data of beneficiaries and to centralize storage. The system maintains comprehensive health information for millions of eligible DoD beneficiaries and is utilized in DoD medical and dental facilities throughout the world. Although the MHS has spent billions of dollars to field and maintain the system over the years, there are many complaints from health care providers. Some complaints focus on the system's slow processing speed. Occasional system downtime slows productivity. The system complicates the care of veterans because it does not interface with the Veteran Administration's system (Karvounis, 2008). Another complaint concerns the inability of AHLTA to adequately assist in "complete and uncompromised medication reconciliation" (Brewin, 2008). Providers perform medication reconciliation to reduce the risk of harmful errors by comparing a patient's medication orders to all of the medications that the patient has been taking. Regardless of the difficulties staff encounter with the system, there is no indication that the MHS will replace something it has invested in so heavily. Adjustments to problems allow the system to be used to provide quality care to beneficiaries.

Defense Medical Human Resources System-internet is a complex human resource information system that has been operational at DeWitt for less than a year. As with

AHLTA, users have complaints with DMHRSi but there are no indications that the MHS will replace the system.

Conditions Which Prompted the Study

In June 2006, the Assistant Secretary of Defense for Health Affairs (ASD-HA) approved the deployment of a human resource information system, DMHRSi, throughout the MHS. The system was activated at DeWitt in March of 2008. As of November 2008, DeWitt and other military treatment facilities (MTF) still struggled with the timely completion of DMHRSi reports and data importation to electronic repositories. Completed DMHRSi reports, along with the MTF's workload and financial reports, allow for the analysis of cost accounting information and the allocation of medical resources to an MTF. Those medical resources include people, money, equipment, and supplies.

A delay in one of any of the three reports prevents the timely transmission of an MTF's financial and operating performance data which are used to determine funding for military health programs and treatment facilities. The major reason for the delay in transmitting reports is the inability of the organization to close out time cards in a timely manner. For a timely close out, 100% of an organization's time cards must be completed and submitted by employees; the time cards must be approved or re-submitted by designated "approvers" in the work center; and they must be sent for validation a week after the end of a specific pay period (DMHRSi, 2007). For months, DeWitt employees have been slow to initiate and/or complete their time cards. This has caused delays in the transmission of financial, personnel, and workload information to a local database (Loretta Vazquez, Chief, Management Analyst, personal communication, November 4, 2008).

The financial report from Standard Army Financial System, the workload report from the Composite Health Care System, and the personnel report from DMHRSi must all be completed in order to import files to the local Expense Assignment System IV (EAS IV) for further processing. The EAS IV is a standard DoD cost accounting information technology system that consists of a cost assignment application and a data repository (MEPRS Manual, 2008). A delay in the completion of one of the reports prevents the files from being combined and transmitted to the central EAS IV repository. Data in the central repository are used to calculate efficiency ratings for services providing care. This rating is used as one of the factors used for decision-making within the MHS. Mined data are then used to determine the allocation of resources for DoD MTFs. Business planning for current and future MHS projects and functions requires the abstraction and analysis of data stored in the central EAS IV repository. The Performance Based Adjustment Model modifies funding for the health care segment of MTF budgets. The actual performance of the MTF is compared to performance benchmarks over the prior 12 months. The Performance Based Adjustment Model uses the data from the central EAS IV repository and other databases (i.e., Medical Mart-M2) to calculate performance payment for MTF efficiency based on Healthcare Effectiveness Data and Information Set (HEDIS) measures. The delay in DMHRSi time card processing prevents transmission of Medical Expense and Performance System (MEPRS) data. Without these data, current personnel expense performance data cannot be transported to the central EAS IV repository. In this situation, analysts use estimated historical data that may not represent the true performance of an MTF. These historical data could make an MTF appear less productive than it actually is. Inadequate

productivity rates reduce the health care budget for an MTF. An increase in the amount of funding that is withheld from the organization continues as the length of the delinquency in processing time cards increases.

Another situation poses a threat to health care operations in MTFs throughout the MHS; this threat concerns the accuracy of the data that are placed into DMHRSi time cards. A study performed at the Office of The Surgeon General (OTSG) in 2008, found that some MTFs inaccurately reported time in DMHRSi (COL Robert Goodman, Clinical Decision Support Division, OTSG, personal communication, January 13, 2008). The study discovered double-reporting of time, over-reporting of time in ambulatory services, and inappropriate recording of time for deployed staff from certain MTFs in the North Atlantic Regional Medical Command (NARMC). The reporting of excessive time in DMHRSi creates an appearance that providers have time that could be used to provide care to patients. The increase in available clinical time without the appropriate increase in workload indicates poor productivity. This error can diminish the actual performance of a work center and the MTF. An MTF that fails to meet Performance Based Adjustment Model goals, based on benchmarked data, will have its budget decreased.

The Defense Medical Human Resource System-internet was implemented at DeWitt in March of 2008. The North Atlantic Regional Medical Command did not give DeWitt a grace period before transitioning to the new system. As of December 2008, DeWitt was 2 months behind in closing out time cards and could not transmit the rest of fiscal year (FY) 2008 financial, workload, and personnel data to the EAS IV repository. Some other MTFs have used DMHRSi for years and still were not compliant. At the beginning of FY 2009, 23 of 35 Army MTFs were not compliant and had not transmitted

July 2008, or earlier, data (Richard Meyer, Management Division, MEDCOM, personal communication, January 7, 2009).

The continued problem with compliance delays the transmission of data that could cost DeWitt financial and human resources needed to effectively maintain operations and provide care for its population. The Medicare-Eligible Retiree Health Care Fund accumulates money to pay for health care benefits for eligible DoD beneficiaries. Estimations of future costs for the fund are made on prior year MTF costs and on workload 6 months after the fiscal year ends (Office of the Inspector General, 2007). The calculations require complete, timely, and accurate data. Without these complete, timely, and accurate data, it is estimated that MEDCOM would fail to receive \$100 million of health care funding for its beneficiaries (MAJ (P) Chris Rheney, Chief, Resource Management Division, personal communication, January 28, 2009).

Leaders at DeWitt are focused on becoming 100% compliant, but they must overcome the hurdle of inaccurate data in DMHRSi. Analysts have discovered the input of time for clinical and non-clinical personnel working at DeWitt and other MTFs is often inaccurate (COL Robert Goodman, Clinical Decision Support Division, OTSG, personal communication, January 13, 2009). In some cases, the data have already been transmitted to the EAS IV repository.

Data quality analysis can detect errors in the data once it is in the repository; however, the erroneous data can be used by others before being corrected. This means that corporate level decisions may have been made based upon erroneous data. These inaccurate data can affect the true assessment of workload; distribution of future funding; and personnel research, and readiness, even if an MTF is 100% compliant with time card

completion. Total compliance and accurate data input are extremely important for a system that collects human resource data from all MTFs across the MHS.

Statement of the Problem

The Defense Medical Human Resource System-internet is an information system that requires the accurate completion of time cards by hospital personnel for a specific pay period. All time cards in pay periods that represent a specific month must be approved before submission for further reconciliation and validation by the end of the month. Delays in processing time cards have made DeWitt non-compliant in the timely transmission of MEPRS data. The system had been implemented at the end of March 2008. Almost 10 months later, DeWitt and several other MTFs are still not 100% compliant. System malfunctions are not the cause of the delays. The interaction between hospital employees and the system is the significant factor in the delay of completed reports. Olsen (2003) indicated that erroneous entries are the most common cause of inaccurate data introduced into a system. Analyses of DMHRSi reports indicate users are the major cause of inaccurate data. Inaccurate data can result in financial penalties for the organization and jeopardize the status of medical resources given to the MTF. What can be done to improve the compliance rate in the DMHRSi time card process at DeWitt? Can the accuracy of the data in DMHRSi be improved?

Literature Review

In 1999, the General Accounting Office (GAO), now the Government Accountability Office, generated a report targeting the use of medical resources by the Army, Navy, and Air Force. The Department of Defense spent billions of dollars each year to provide care to eligible beneficiaries but could not determine the cost of wartime

medical readiness. No definitive method existed to determine if the appropriate funds were allocated to the right organizations or services to meet peacetime and wartime medical needs. In the report, GAO recommended that the “Secretary of Defense direct the development and implementation of a comprehensive tri-service medical resource planning and allocation strategy” (GAO, 1999). The goal of such a strategy was to justify medical resources for readiness and peacetime care throughout the entire MHS.

The web-based human resource information system, DMHRSi, is utilized by the three services and other DoD organizations. The system supports the 1999 GAO report in that it standardizes human resource processes throughout the entire MHS. The system allows for the collection and reporting of data used for allocation of DoD medical human resources (DMHRSi, 2007). Up-to-date data are collected and reported to account for resources being utilized by the DoD. The system is a part of a larger information system that the DoD utilizes to gather and analyze data to make decisions affecting the delivery of health care. To best understand the importance of DMHRSi, it is necessary to briefly discuss MEPRS.

MEPRS. This is a DoD cost assignment system that provides financial and operating performance data from all fixed military medical and dental facilities in the MHS. The system was created from the merging of two valuable data systems, the Uniform Chart of Accounts and Uniform Staffing Methodologies. The systems collected MTF expense data and medical manpower requirements, respectively. The purpose of MEPRS is to use uniform performance indicators from various MTFs to derive costs for all DoD medical and dental facilities. It contains a number of systems and subsystems that manage and produce reports for processing and transmission to data repositories

(MEPRS Manual, 2008). The data collected in the system include financial, personnel, and workload information from MTFs (Figure 1). The financial data include both congressional and non-congressional costs. Congressional costs are expenses generated by the DoD health care system in the provision of care to beneficiaries. Non-congressional costs are expenses generated in military facilities by non-government agencies and foundations which benefit the military establishment (e.g., the Henry M. Jackson Foundation). The Army's Standard Army Financial System, the Air Force's Commander's Resource Integration System and the Navy's Standard Accounting and Reporting System – Field Level subsystems manage financial information. Financial information includes data on military and civilian pay, contractors, supplies, equipment, base operations, and depreciation (TRICARE Management Activity, 2008).

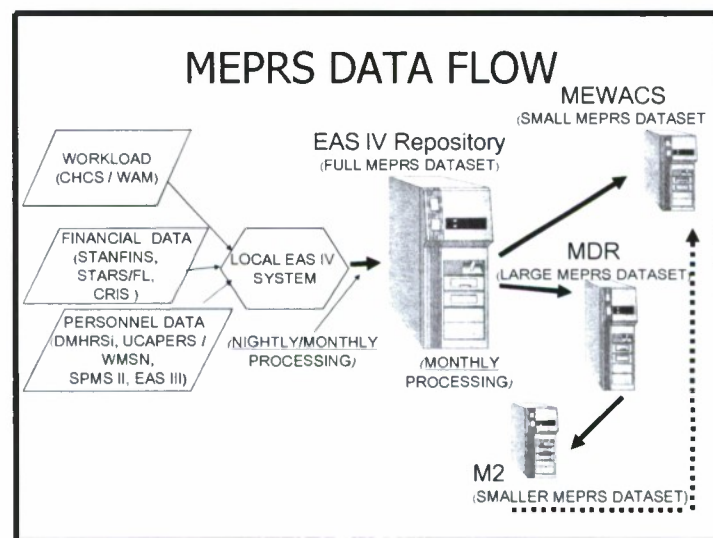


Figure 1. MEPRS Data Flow

Workload data come from the Composite Health Care System to the Workload Assignment Module through updates occurring every 7 days. Workload includes data on direct care, ancillary services, and support services. The care and services are labeled by

specific functional cost codes. The four-position MEPRS codes describe work centers and are used to account for labor costs and workload (Table 1). The first position describes the service that is provided. The second position of the code indicates a summary account for a particular functional category (AA= Inpatient Care, Medical). The third position is a subaccount that describes the work center (AAA= Inpatient Care, Medical, Internal Medicine). The fourth position indicates the location of the services provided. The first three cost codes are standardized across DoD medical and dental facilities. Without functional cost codes, the true costs of a unit/organization's provision of care would not be realized. MEPRS functional cost codes are used in DMHRSi time card templates so providers and non-providers can assign the number of hours worked in a specific work center (MEPRS Manual, 2008). These cost codes allow for the proper allocation of expenses for the appropriate work center, facilities planning, and budgeting.

Table 1. Functional Cost Codes used at DeWitt

MEPRS Service Code	Description	4 Digit Examples
A	Inpatient Care	AAAA-Internal Medicine
B	Ambulatory/Outpatient Care	BAGA-Gastroenterology Clinic
C	Dental Care	CAAC-Dental Clinic
D	Ancillary Services	DFAA-Anesthesia
E	Support Services	EBAA-Command Section
F	Special Programs	FAMA-FP Resident Program
G	Medical Readiness	GDAF-GWOT Deployment

Personnel data in MEPRS include all military, civilian, contractors, and volunteer personnel in clinical and non-clinical positions who work within a MTF. Data concerning Reservists, borrowed personnel, and students are also included. Each full time employee has a minimum of 168 reportable hours per month (21 work days per month times 8 hours) that are classified as available time or non-available time.

“Available time is time spent in support of the health care mission and non-available time is time spent in support of functions not related to the health care mission but which are necessary to meet administrative and military requirements” (MEPRS Manual, 2008).

Within MEPRS, DMHRSi captures available and non-available time for employees.

Available hours are used to calculate a full time equivalent (FTE). An FTE equates to the amount of work a person can perform in a work center per month. An FTE is calculated by dividing the available hours to a work center by reportable hours, usually 168, per month (MEPRS Manual, 2008). So, a provider who spends all of his time (168 hours) working in a clinic for an entire month would be an FTE of 1 ($168/168=1$). A provider who only works 100 hours in a clinic and performs administrative duties with the remaining 68 hours is considered as an FTE of .59 ($100/168=.59$). The amount of clinically available time is important in determining the performance of a work center. Provider performance is based on clinically available time and is used to derive provider relative value units (RVU) for productivity.

The RVU was developed by the Center for Medicaid and Medicare Services to measure the productivity of providers by factoring patient volume against the relative weight of care provided (Mezrich & Nagy, 2007). A work center with increased available clinic time is expected to have an increased level of RVUs. This is an

important concept to understand because placing too much available time in DMHRSi and having low or no RVUs indicates poor productivity. Work centers with poor performance hurt an MTF by decreasing its ability to meet productivity goals determined by the Performance Based Adjustment Model. An MTF's inability to meet those goals results in penalties that decrease health care funding for the entire organization.

Financial, workload, and personnel data sets are gathered, analyzed for anomalies and imported to the local EAS IV for further processing. A lengthy process occurs prior to the transmission of local EAS IV data to the central EAS IV repository. Sites are required to meet TRICARE Management Activity's 45-day suspense for MEPRS data transmission. The data in the central repository are mined, analyzed, and utilized at the corporate level. The data are utilized to determine how to make important decisions on matters such business as planning, operations, and readiness within the MHS.

DMHRSi. In 2001, the Resources Information Technology Program Office was tasked by MHS leaders to develop an information system that would allow for the management of human resources for the Army, Navy, and Air Force. It developed DMHRSi, a web-based Oracle™ information system, to standardize human resource management and allow for the up-to-date visibility of MHS personnel, manpower, labor cost assignment, education and training, and readiness (TRICARE Management Activity, 2008).

In 2002, DMHRSi testing began at one site for each of the three services. The sites included Malcolm Grow Medical Center at Andrews Air Force Base, Maryland; Naval Hospital Jacksonville in Jacksonville, Florida; and Winn Army Community Hospital at Fort Stewart, Georgia. Upon the completion of testing, DMHRSi was

gradually deployed across the MHS. The system replaced the previous personnel subsystems (Uniform Charter of Accounts and Personnel Reporting System, Standard Personnel Management System II). It is the source for the population of paragraph and line items in an MTF's Table of Distribution and Allowances which designates the number of personnel required, the number authorized, and the numbers on hand at a military duty station or activity.

The utilization of DMHRSi has numerous benefits that affect organizations across the MHS. The system provides visibility of data to promote effective decision-making in the assignment of medical human resources. Data are centralized and are readily accessible for analysis and use. DMHRSi allows for greater accountability of resources, enables analysis of labor costs, and supports the accuracy of data collection and the reporting of those data. The system increases efficiency in personnel management processes, allows for the tracking of training issues, and accounts for the visibility of readiness data (DMHRSi, 2007).

DMHRSi Implementation and Process. Before the implementation of DMHRSi at a MTF, mandatory training for a designated group of special users occurs. Project managers, monitors, approvers, and timekeeper specialists attend user-specific training sessions on the functions and operation of DMHRSi. Project managers (labor cost analysts) receive a 3-week block of instruction from various contractors on every aspect of DMHRSi. At the end of the instruction, program managers assume responsibility for DMHRSi sustainment and training for the organization. The approvers and specialists receive shorter and more specific training depending on tasks they would perform at the work center. All of the attendees receive instruction manuals and contact numbers to use

if they encounter difficulties with DMHRSi. At the end of the training, DMHRSi officially became active at DeWitt.

Required users have their personnel data updated in an organization's human resource database before DMHRSi access can be granted. This action usually occurs during the inprocessing phase for newcomers to an organization. Evidence of official orders for the military, contracts for contractors, and civilian hiring actions for general schedule personnel allow project managers to create an account and ensure the correct Table of Distribution and Allowances paragraph and line number assignment in the organization. The creation of the account allows for recognition in the Labor Cost Assignment Module. This module specifically accounts for personnel time and expenses within DMHRSi. To access the system, a username and password must be obtained from the facility's Information Management Division or its equivalent. Work center approvers validate time cards for completeness and accuracy before submission for further processing. They provide employees with the basic education necessary for them to log on, create templates, input time, and submit completed time cards.

Before any time can be logged for capture, a template must be created within the DMHRSi time card application (Figure 2). The user's template must include a template name, a project value, a task code, a task name, and the type of time. The template name is generic and has special meaning only for the user. The project value is a seven digit number that is used as a reference for all of the MEPRS data in a particular year. This number changes each fiscal year. The task code consists of a MEPRS functional cost code in an alphanumeric format. The task code reflects the worksite or activity to which an employee is assigned. The system uses MEPRS functional cost codes to track medical

labor expenses for particular work sites. The task name is the abbreviated name of the work site. Examples of types of time are regular straight time, compensatory time, and overtime. The creation of a template populated with all the various areas in which an individual may work makes faster data entry possible. The next input is the actual amount of time, in hours, for each day of the week in a particular period. The user must select the save option on the input screen before the time card can be submitted. Students in graduate medical and graduate dental education programs submit a time card once a month. All other employees must submit a time card once every 2 weeks. Civilian and contract employees' time card inputs must match their time as indicated on other time recording forms or schedules in their work area (DMHRSi, 2007).

Template Name: Master Template		Comments																	
Project	Task	Task Name	Type	Person Type	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
1000257	EBAA_01	DEF COR	REGULAR ST																0
1000257	01_01_MLI	MILITARY LEAV	REGULAR ST																0
1000257	01_02_MLI	MILITARY SICK	REGULAR ST																0
1000257	01_04_MLI	MILITARY OTH	REGULAR ST																0
1000257	FALE_012	CONFULTED	REGULAR ST																0
1000257	FALC_012	NON-MED TRN	REGULAR ST																0
1000257	GBAA_01	READY TO GO	REGULAR ST																0
																			0
																			0
																			0
																			0
Add Another Row					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 2. DMHRSi Template and Time Entry

The pay period begins on a Sunday and ends two weeks later on a Saturday. Employees are responsible for completing and submitting the time card by the close of business on Monday following the end of a pay period, or the following day if Monday is a federal holiday (DMHRSi, 2007). A time card that has been initiated remains in a working status until it is submitted by the user; but it can be edited. Once the time card is

submitted, it is sent electronically to a designated work center “approver.” Once an approver logs on to DMHRSi, a message alerts the individual to review the submitted information (Figure 3). The approver’s job is to validate the hours of work performed by an employee when assigned to his specific work center. The information can be submitted if it is deemed correct or rejected if errors are present. The employee and the approver must collaborate to correct any errors and resubmit the time card by the Tuesday after the end of a pay period. Approvers have up to 7 days to review and take action on a time card before the system rejects it. For civilians, the approved time card remains in a submitted status until the Defense Civilian Payroll System interfaces with DMHRSi. Civilian employees’ time cards are rejected if the hours placed in DMHRSi do not match the hours in the Defense Civilian Payroll System. If a civilian time card is rejected, a notification is sent to the employee and the approver for reconciliation of the error. This error must occur before the time card can be resubmitted and approved successfully (DMHRSi, 2007).

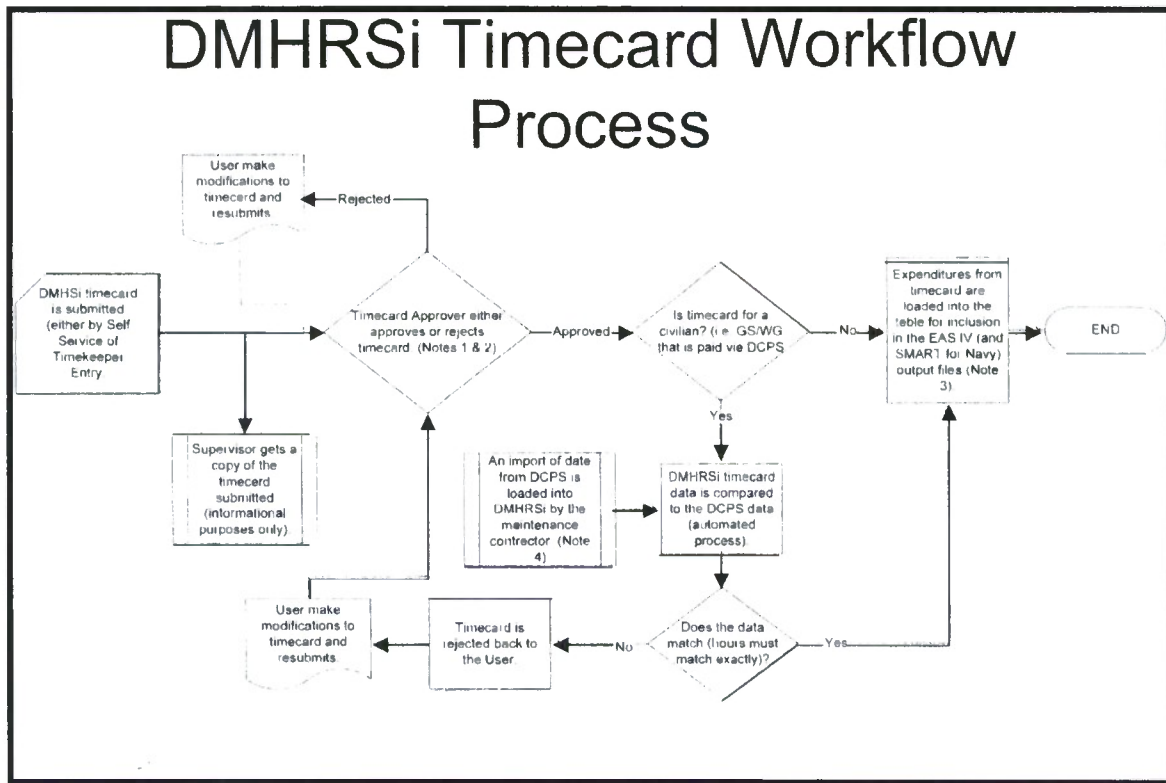


Figure 3. DMHRSi Time Card Workflow

An additional capacity of DMHRSi is that it allows the ability of a specified individual to submit time cards for those unable to submit their own. This timekeeper specialist is responsible for monitoring the input of hours for employees. The specialist can also review time cards placed in the system by employees in a timekeeper group (DMHRSi, 2007). The specialist manages a group by accessing the timekeeper group under the timekeeper menu on DMHRSi. Groups are created in a template slightly different from the self-service employee domain. As with self-service time cards, the correct information must be validated before being submitted (DMHRSi, 2007). All time cards must be completed in DMHRSi by the close of business on the Monday after the last pay period of the month in order to allow for final approval/rejection, submission, uploading, and importing to the local EAS IV repository for further processing.

At the end of the month, all time cards should be closed out so further processing can occur. Personnel time cards cannot be processed for transmission as soon they are closed out; time cards are a portion of a larger MEPRS file that must be sent along with that month's processed financial and workload data. The MEPRS staff must go through lengthy reconciliation and validation processes along with the integration of the workload and financial data for the entire network before a final transmission of MEPRS data can be sent to the Expense Assignment System IV repository. On average, this process can take 30 days or more to complete (DMHRSi, 2007). Because data are cumulative, each month's data must be processed and sent off in chronological order. This means that one month of financial, personnel, and workload data cannot be transmitted until the previous month's data are completed and sent to the local EAS IV repository. Since the beginning of fiscal year 2009, MEPRS personnel at DeWitt have worked a total of 353 hours of overtime in an attempt to close out all time cards for fiscal year 2008, so they could proceed with further processing.

Before DMHRSi, human resource data were managed by the Uniform Chart of Accounts and Personnel Reporting System (Army), Standard Personnel Management System II (Navy) and Expense Assignment System III (Air Force). These systems are service specific and could not readily allow visibility of all human resources assets throughout DoD at one time. The Army's database system, Uniform Chart of Accounts and Personnel Reporting System, collected and reported data on expenses and utilization.

The Uniform Chart of Accounts and Personnel Reporting System used clinical and non-clinical data to assign expenses, allocate correct funds, check productivity, and determine staffing needs. The system managed the data of hospital staff of five different

skill types. Skill types 1 and 2 consist of physicians and physician assistants/nurse practitioners, respectively. Registered nurses are skill type 3 personnel. Medical technicians and licensed practical nurses are considered to be under the skill type 4 category. Skill type 5 employees are administrative personnel.

Skill 1 and 2 staff were responsible for keeping track of their time and where the time was spent on a worksheet for an entire month. At the end of the month, the worksheet was given to an administrator and recorded data were entered into Uniform Chart of Accounts and Personnel Reporting System. Financial data was also entered into the system. Analysts used the information to determine work center expenses and productivity. Staff other skill levels were required to complete weekly worksheets. The system was not created to allow access for all employees as with DMHRSi. One person in each work center was assigned the task of entering data into the system for a weekly closeout (monthly for providers).

As with DMHRSi, the timely and accurate completion of the worksheets and data input into the Uniform Chart of Accounts and Personnel Reporting System was problematic. Staff complained of being too busy to record time on the worksheets, recorded inaccurate numbers of hours worked, and charged time to the wrong services. (Richard Meyer, Management Division, MEDCOM, personal communication, January 6, 2009).

Since DMHRSi was established, the Uniform Chart of Accounts and Personnel Reporting System is no longer used as the major human resource system. It remains in use but only to account for data from the Workload Management System for Nursing, a tool that assesses nursing personnel staffing needs based on patient needs. Currently,

DMHRSi cannot capture acuities or determine staffing requirements for inpatient units. The Uniform Chart of Accounts and Personnel Reporting System will remain active until TRICARE Management Activity establishes another method to capture acuities (Jean Moore, Chief, MEPRS Branch, Brooke Army Medical Center, personal communication, January 28, 2009).

Compliance. Webster defines compliance as “conformity in fulfilling official requirements or the act or process of complying to a desire, demand, proposal, or regimen or to coercion.” Compliance in reference to the DMHRSi time card process is the input and approval of 100% of time cards for employees who worked at DeWitt during a specific pay period (Jeanie McCleary, MEPRS Analyst, MEDCOM, personal communication, December 17, 2008). Many issues affect compliance in the DMHRSi time card process. Missing time cards, rejections, errors, and time cards in working or submitted status all affect the degree of compliance.

Notifications of missing (or null) time cards occur when an employee has been assigned to a work center but no available or unavailable time was captured in DMHRSi for that employee. The problem may be that a user did not attempt to create a time card for a specific pay period, has not received an account in the system or has not been assigned a password to access DMHRSi. This problem is usually the result of an employee not inprocessing thoroughly enough to receive an account in DMHRSi. When new employees are inprocessed through the MEPRS section for DMHRSi, a request for a password is sent to the tier 3 MHS Help Desk Section. This section creates a password and emails it back to the requestor in the Information Management Department. Once received, the Information Management Department requestor is supposed to email the

password to the employee. Under ideal circumstances, the entire process should take 1 to 3 days (Robin Carter, Management Analyst, personal communication, January 5, 2008).

Another problem occurs when an individual is assigned in the system before physically arriving at the duty station. The time between the reporting date and actual arrival for duty results in a missing or null time card. The system uses the earlier date and generates a null file for the individual. Missing reports are also generated by individuals who are not “end dated” or “realigned” within DMHRSi. End dating refers to closing an account of personnel who separate from the military or the government; this also applies to contractors. Realignment refers to assigning an individual to a gaining facility in the MHS. A problem occurs when former employees continue to appear on a work center’s account even after leaving Fort Belvoir. This can happen if the work center does not update the system monitors regarding the employee’s departure.

Reservists’ time cards are occasionally identified as missing in DMHRSi. Reserve personnel belong to an organization with its own parent codes. Reservists inprocess through MEPRS and are added to the MTF’s human resource database. They receive work center codes for applying their labors hours to those codes in DMHRSi. If a reservist does not input time into DMHRSi, the work center approver and/or specialist cannot see the employee’s time card due to his profile in the system. The profile belongs to the reservist’s parent organization. Approvers and specialists can only see missing time cards for employees whose parent code and work center code originate within the DeWitt Health Care Network. Only labor cost analysts can see these employees as having a missing time card. To fix this, the reservists or MEPRS personnel must create and input the time into DMHRSi.

Some rejections are caused by a “system default.” An example of a system default is the time limit for reviewing a submitted time card. This default triggers a rejection if an approver does not review and take action (approval or rejection) on a time card within 7 days from the time it was submitted (DMHRSi, 2007). Submitted time cards with incorrect or unauthorized hours are rejected and sent back to the user for correction. Reconciliation is needed when user hours in DMHRSi and on the payroll account are mismatched. The error must be corrected before the system will allow the time card to be approved. Other rejections are caused by mistakes in applying or not adhering to the MEDCOM rules that are intended to assist organizations in the use of DMHRSi and to ensure consistent practices. Examples of mistakes concerning business rules are military personnel inappropriately reporting leave and borrowed personnel (workers not assigned to Fort Belvoir) with non-available hours. Non-available time (leaves, passes, training) for borrowed personnel are not part of captured data for the non-parent facility. Infractions of business rules may appear as errors in DMHRSi status reports.

A time card that is in working status has been initiated but not completed, saved, and submitted for approval. A time card in submitted status sits in the approver’s queue waiting to be reviewed. As mentioned before, after 7 days in the submitted status a time card is rejected if no further action is taken.

Errors in the DMHRSi process are sometimes indicative of some malfunction in the system that cannot be controlled at the local level. Errors of this type are rare. Other errors can occur when personnel are assigned to the wrong work center or organizational project code. The approver at the work center may not validate hours for someone who is

not physically assigned there. Another problem presents when providers charge time to the wrong service by using that service's code instead the individual's parent service code. This error is an accuracy issue that interferes with the allocation of expenses to the correct department that provides care to a patient.

Accuracy. The Medical Command directive to transmit MEPRS data by January 2009 resulted in a rush for DeWitt to complete all time cards in an extremely short time span. One factor that may become an issue in the rush to complete delinquent time cards is the accuracy of data input. Webster defines accuracy as "conformity to truth or to a standard or model." "Accurate data is [sic] a fundamental requirement of good information systems" (Olsen, 2003). Information systems need accurate data so good decision-making can occur.

Redman (2004) stated that poor data contribute to disasters such as large revenue losses, controversial political campaign results, and errant military strikes. Health care transparency and accountability can be affected by inaccurate data. Smith (2008) cited Blue Cross and Blue Shield's use of inaccurate data as the factor in the assignment of poor rankings for providers. Providers were errantly ranked by patients they did not know, see, or treat. Inaccurate data can negatively affect personnel staffing and can jeopardize operations. A recent article pointed out that Department of Veterans Affairs did not have the proper staffing plans for nurses because medical centers' patient classification systems "used to determine staffing included outdated and inaccurate data" (Ballenstedt, 2008). Studies show that inadequate staffing contributes to medical errors that compromise the health of patients (Agency for Healthcare Research and Quality, 2007).

Knowing the hours worked by health care staff in all specific areas is important to an MTF. This allows for the allocation of costs to the appropriate service areas. The accurate capture of providers' hours and where they perform work is also important. Providers are required to place their available and non-available time into DMHRSi. With the appropriate area (determined by MEPRS functional cost codes), productivity of each provider can be determined by the number of hours he/she provides care, number of patients seen, and the level of care provided. Inaccurate input of available hours can hurt an organization in two ways. First, the input of an increased number of available hours without the appropriate level of workload indicates decreased productivity. The decrease in productivity could result in a decrease in Performance Based Assessment Model funds due to missed performance goals. Second, the input of a lesser number of hours than actually worked disguises the organizations' actual workload and need for resources.

Purpose of the Study

The purpose of this study is to conduct an analysis of the DMHRSi process at DeWitt and to provide explanations for problems delaying the completion of reports. The information collected will be analyzed to see what can increase compliance and prevent the loss of financial and human resources to DeWitt. Another purpose of the study is to determine what factors are important in improving the accuracy of DMHRSi data. The results may assist other MHS organizations in resolving similar problems.

Data Collection

One of the strengths of a case study is the use of data from multiple sources (Yin, 2008). Data were collected from documents (memorandums and reports), direct observations, personal communications, and focused interviews with open-ended

questions. Data from personal communications was obtained from subject matter experts on MEPRS/DMHRSi at DeWitt, other MTFs, MEDCOM and the Clinical Support Division at OTSG. Data that were used in the study were verified by MEPRS personnel and other subject matter experts. The validity of this research project was ensured by consulting with and obtaining verified data from subject matters experts from DeWitt, other MTFs, MEDCOM and OTSG. Reliability was sustained by maintaining a record of data, documents, and personal communications.

Data from DMHRSi contain sensitive information, but safeguards on the system limit information that can be accessed. Data needed for this study required no personally identifying characteristics. The information was attained by personnel who are subject matter experts and compliant with the Health Insurance Portability and Accountability Act training. Information from interviews, questionnaires, and personal communications was used in the study only after permission was obtained from the participants.

Data Analysis Plan

This case study design used the case description as the analytical strategy. The technique used for the strategy focused on explanation building. The intended audience for this study is hospital administrators within DeWitt and other facilities using DMHRSi throughout the MHS. At the conclusion of the study, the author found that the level of involvement of leaders and educational shortcomings contributed to problems related to DMHRSi insufficiencies. The author recommends ways to increase compliance and the accuracy of data recorded in DMHRSi. The information in this study can educate employees and administrators of the importance of timely and accurate input of DMHRSi

data. The study will help improve the DMHRSi process and facilitate good decision-making for a MTF's business planning, funding, and readiness.

Findings and Discussion

After the completion of super-user (labor cost analysts, approvers/specialists) training at the end of March 2008, policy was drafted to give guidance on the functions and use of DMHRSi throughout DeWitt. The policy included a brief overview of the purpose of the system, and it addressed the individual responsibility of all MTF employees in regard to complete, timely, and accurate input of hours in DMHRSi. Leaders were kept informed of the status of the time card processing. The possible withholding of Medical Department Activity funded TDY was used as an incentive for compliance (Medical Department Activity Policy Memorandum, 2008). Employees who needed assistance could seek out DMHRSi trained personnel or access web-based DMHRSi training. A memorandum from the North Atlantic Regional Medical Command also touched some of the same issues mentioned in the Medical Department Activity policy. It went further by stating that a DMHRSi compliance measure would be added to the Balanced Score Card under Resource Strategic Objectives (NARMC Memorandum, 2008). The Balanced Score Card is a strategic management tool that transforms organizational strategy into a balanced set of measurable objectives that are clearly communicated to everyone in an organization and aligned with day-to-day operations (Office of the Assistant Secretary of Health Affairs, n.d.).

Regardless of the initial directives and incentives, non-compliance was a problem from the beginning of implementation. There was no consistent involvement of DeWitt's leaders and no sense of urgency regarding compliance. Individuals who were non-

compliant suffered little or no consequences. Conversations with some staff revealed that the system was initiated without much education of its importance. Initial DMHRSi education for employees consisted of web-based training. Employees received the “how to” training but many had difficulty creating valid time cards. Some super users were able to provide personalized training to employees within their sections; however, this was not a widespread practice throughout the organization. As a result of these factors, initial compliance rates for time card completion in accordance with the policy were less than 40%. Interventions were applied to improve compliance rates. Early interventions included re-training users and approvers/specialists, counseling, threatening to withhold leave and training, and notifying delinquent departments by email to urge immediate compliance. Even with these interventions, low DMHRSi compliance rates for the MTF continued into fiscal year 2009.

Personnel in the Management Analysis Section at DeWitt created DMHRSi time card status reports at various times each month. Reports run after the close of a pay period and end of Defense Civilian Pay System processing allowed analysts to view initial time card compliance for the entire DeWitt Health Care Network. These reports generated the data used to analyze compliance in this study. The reports indicated non-compliance for each pay period throughout the organization. Because of this non-compliance, processing of time cards for one pay period could not occur until those from a previous pay period were closed out. Because of this situation, the organization’s time card processing slowed for months. Individuals continued to receive pay for each pay period but the monthly financial, workload, and personnel data could not be transmitted.

Compliance issues varied depending on the type of employee. Civilian compliance issues dealt with submitting the hours on time and making sure that DMHRSi input matches with Defense Civilian Pay System input. According to DeWitt's MEPRS Chief, problems with mismatched hours occurred due to integrity issues, forgetfulness, or inattentiveness to the amount of sick/annual leave accrued. Active duty employees' compliance issues were more difficult to decipher. Active duty staff may not have had set schedules. Active duty employees are considered salaried and can work more than the standard 80 hours per pay period without additional compensation. Military hours are not matched against a second pay system such as the Defense Civilian Pay System. Military members got paid regardless of how, or if, they use DMHRSi.

Approvers/specialists were questioned their about their own understanding of DMHRSi. Four of the twelve were unsure about the overall importance of DMHRSi to the hospital or the MHS. How can employees understand and use DMHRSi properly when some super-users did not fully understand the purpose of the system?

Before the initial implementation of DMHRSi at DeWitt, approvers/specialists received training by contractors who also instructed MEPRS personnel. The instruction that approvers/specialists received was related to the tasks they performed within the work centers. Upon implementation, two specialists and one approver were assigned to each work center. When any of those personnel were about to leave the work center or organization for good, the MEPRS Section was supposed to be alerted so trained replacements could be assigned immediately. If replacements could not be sent right away, MEPRS personnel offered to help the work center process their time cards. Even with this system, all work centers did not have the same level of commitment in regard to

DMHRSi. As of February 2009, DeWitt had not climbed above a 60% compliance rate in meeting initial policy due dates for time card processing.

Approvers/specialists were questioned about staff reasons for non-compliance. Six out of twelve indicated that most non-compliant employees do not take DMHRSi seriously because of the lack of understanding of the system and the lack of repercussions for non-compliance. A total of 15 employees (military and civilian) were randomly selected and questioned about why DMHRSi was important to their work center and the organization. Only 6 of the 15 questioned could give an answer that indicated they understood its importance. The majority of the other nine expressed that the system focused only on their pay. Some employees commented that even if they did not input their time into DMHRSi they would still get paid.

Personnel in the MEPRS section made time to educate anyone in the hospital that required DMHRSi training. When contacted, MEPRS personnel scheduled a visit to areas that requested assistance. According to the MEPRS chief, not all sections that had ongoing problems with compliance sought assistance. The author observed a few of these visits made within DeWitt. The MEPRS staff provided education on the purpose of the system and provided information on MEDCOM policy. The staff also taught how to log on, navigate the DMHRSi application, and create templates. Only one computer was available for use while most of the staff members looked on and asked questions. MEPRS staff stated this was a frustrating factor when training groups anywhere in the hospital because not all personnel could demonstrate their understanding of the instruction given.

Command Directive. In light of the MEDCOM mandate and continuing delinquencies with regard to time cards, in November 2008 DeWitt's commander directed the that all department chiefs in DeWitt Health Care Network must brief him on all of their employees' delinquent time cards dated before September 30, 2008. The face-to-face sessions were scheduled for December 23, 2008. In an effort to increase compliance, the commander and MEPRS staff provided further education focusing on the importance of DMHRSi.

In a recent study, intensive care nurses increased physicians' adherence to following standard patient treatment protocol. The compliance rates improved from 62% to 99% (Plost & Nelson, 2007). The increase in compliance was due to persistent face-to-face discussion of protocols to physicians at every opportunity. The communication was persistent and intended to educate physicians and created buy-in. The interactions increased dialogue that eventually contributed to increased patient survival rates and decreased unit costs (Plost & Nelson, 2007).

Most sections in the hospital exhibited an increase in compliance in the pay period (December 7 to December 20) immediately after the commander's directive. Figure 4 shows the compliance rates for four of the largest sections immediately before and after the directive. It should be noted that a large number of time cards throughout the organization appeared to be held up in the submitted status during the time card status report from the January 4 to January 17 pay period. Out of 458 employee time cards in submitted status, 440 (96%) of them belonged to civilians. Last year, there was a system problem that delayed the Defense Civilian Payroll System batching for a certain pay period. That caused a delay with civilian time card processing, but this was not

confirmed as a cause in this case (Loretta Vazquez, Chief, Management Analyst, personal communication, March 19, 2009).

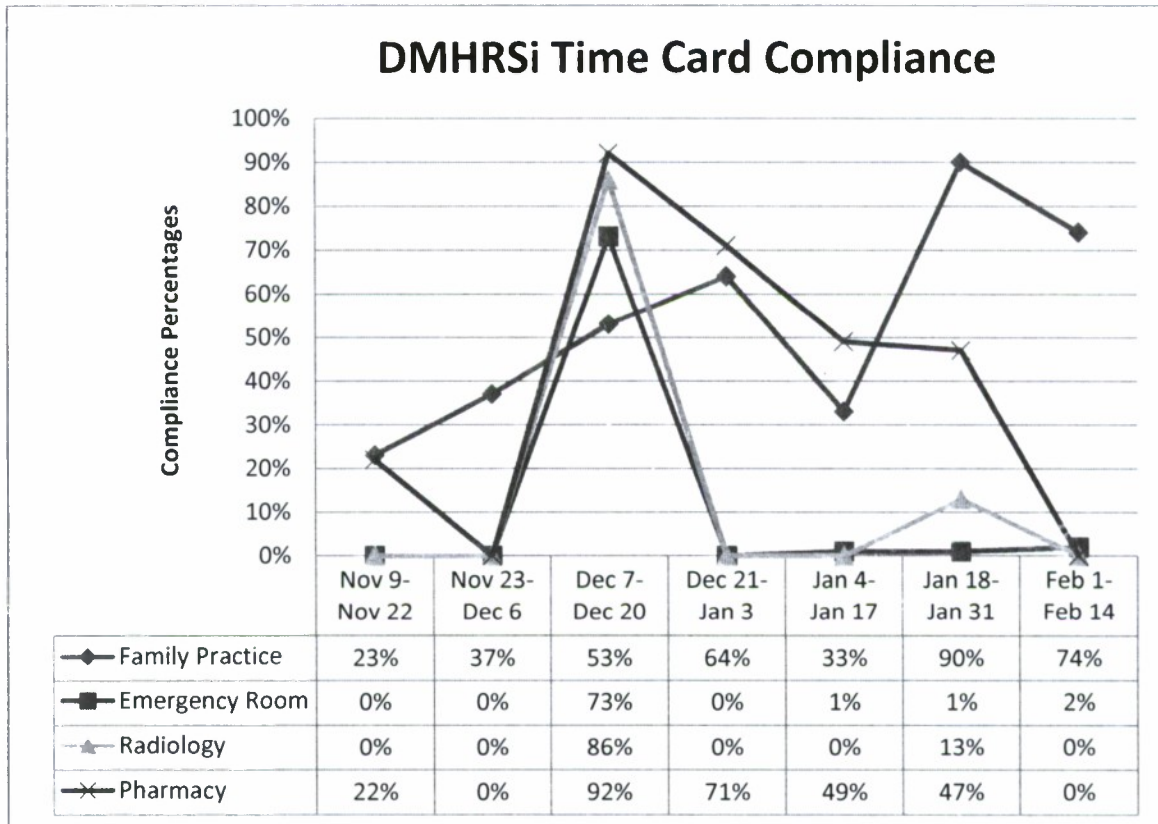


Figure 4. Four Sections' Time Card Compliance over Seven Pay Periods

Success with Compliance. Non-compliance with the timely completion of time cards is still a major issue across the MHS but some facilities have reached and maintained a high level of compliance. The MEPRS chief at Brooke Army Medical Center claimed high compliance rates in the summer/fall of 2008. The method used at the hospital consisted of vigilant command support, use of a computer lab for training, strict MEPRS customer service hours, and overtime for their personnel. Compliance at Dwight David Eisenhower Army Medical Center was usually above 90% (Yolanda Kelly, Chief of MEPRS/Resource Management Division, Dwight David Eisenhower

Army Medical Center, personal communication, January 8, 2009). The facility used a computer application to track compliance on a daily basis and notify the Command, department leaders, and employees of compliance. Martin Army Community Hospital used the same application and the concept of “getting the right information to the right people at the right time” to maintain a compliance rate greater than 95% (Don Odom, Manpower and Management Branch, Martin Army Community Hospital, personal communication, January 9, 2009). Rader Clinic at Fort Myer is also an example of a facility that maintained a high compliance rate. Rader is staffed with military members, civilians, and contractors; and its compliance rate is consistently greater than 90%. The model Rader Clinic uses successfully consists of command emphasis, clear command goals, taking the massive data pulls sent out and personalizing them to each department, routine rounds by the experts to offer one on one support, and ensuring approvers have the support and time needed to make it happen (LTC Damon Baine, Commander, Rader Clinic, personal communication, November 25, 2009). All of the interventions mentioned have a common theme, the involvement of leaders.

A Model for Change. Kotter (2007) stated that change for businesses “is both absolutely essential and incredibly difficult.” The business environment is constantly changing and organizations must adapt or risk failure. Nearly a year after DMHRSi’s deployment, the organization continued to struggle with the change to the more comprehensive human resource information system. Non-compliance and the input of inaccurate data into DMHRSi delay the transmission of financial, workload, and personnel data. Changes in practice must occur so that the true measure of expenses, workload, and personnel data can be used to make the best business decisions.

A characteristic of a successful business is the ability to manage change regardless of the challenges. Cohen (2005) stated that successful change in most situations can occur with the application of a flexible, eight step tool (Figure 5). The tool was adapted from an original instrument created by John Kotter, a Harvard professor, in 1996. General internet searches on the process resulted in multiple examples of the tool's use in business curricula in universities, organizational change-processes, and several books. Organizations such as Kaiser Permanente, Black & Decker, and MasterCard have used the eight step method to successfully change mind-sets and increase competitive advantage (Manage Smarter, 2008).

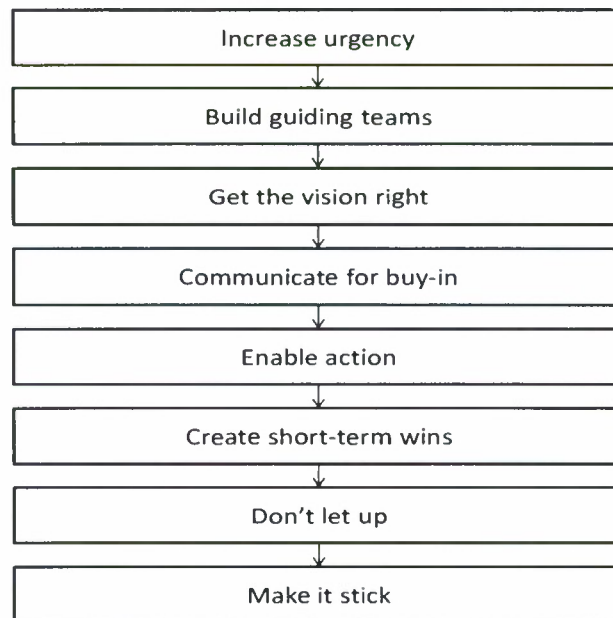


Figure 5. Eight Step Process to Successful Change

The tool consists of eight stages that allows for a systematic approach to creating change. The tool can be utilized by groups or organizations to create major change. The first three stages allow for the creation of a climate of change, the middle stages focus on

engaging and enabling the target audience, and the last two stages are for implementation and sustaining change (Cohen, 2005). Each step must be completed in sequence to ensure effectiveness.

1. *Increase urgency.* This step is the most important of all. The sense of urgency can motivate individuals to commit more effort to some purpose. Leaders must get personnel to see that a significant change is critical so crises can be averted or great opportunities can be realized. “If complacency, false urgency and skepticism become commonplace, real change will not occur” (Kotter, 2008).
2. *Build guiding teams.* Change cannot be made by one individual. Gathering the right people increases the support, energy, speed, and sense of urgency needed to succeed. The team must have the right information, the influence and power to implement change.
3. *Get the vision right.* Creating a clear, inspiring vision helps to guide others in the right direction.
4. *Communicate for buy-in.* Communication of information must be clear and reach all stakeholders. Effective communication facilitates support and cooperation in getting things done.
5. *Enable action.* Barriers must be overcome for change to occur. Removing barriers diminishes frustration that stymies progress.
6. *Create short term goals.* Set up quick wins and reward the staff to encourage progress.
7. *Don't let up.* Continue to persevere even with initial successes. Continue to monitor progress to ensure a continuing forward drive.
8. *Make it stick:* Recognize the desired behaviors and communicate they are always expected.

This tool was used by the Family Practice Section in an attempt increase DMHRSi compliance. The Family Practice Section at DeWitt was one of the many services that had continuing difficulties with compliance. Use of the tool began in December 2008. Each step of the tool was adapted to the needs of the clinic. The sense of urgency was influenced by the possible loss of large sums patient care funding and the

commander's new directive. The chief of the section was also instrumental in facilitating a sense of urgency to improve compliance. The guiding team consisted of the Family Practice Administrator, MEPRS personnel, and the author. A vision was selected to try to inspire the employees of the section. The vision, "to attain and maintain the highest DMHRSi compliance rate at DeWitt," was introduced to the staff. To encourage buy-in, the administrator provided frequent communication on the importance of compliance. An educational briefing on DMHRSi was also provided to the staff (Appendix A). Barriers were removed by providing information on due dates for submission of time cards. The deadline for submission was the Friday before the end of the pay period. On the following Monday, the administrator would go into DMHRSi to locate anyone who was non-compliant. He contacted the individuals to encourage the completion and submission of the time cards. If that failed, the section chief was alerted by the administrator. Other problems that users had were handled promptly by the administrator or MEPRS personnel, if needed. The short term goal was to have employee time cards submitted by the Friday before the end of the pay period. The administrator praised the staff but persevered by continuing his efforts even as compliance started to increase. It should be noted that the administrator was on TDY when compliance dropped during the February 1 to February 14 pay period (Figure 4). To make compliance an ongoing practice, the chief and the administrator planned to place it in performance evaluation objectives. Compliance would also be a requirement for the approval of leave and for training opportunities.

The Family Practice Section's compliance went from 37% before the directive and use of the model to 93% in the February 15 to February 28 pay period. Other large

sections (ER, Radiology and Pharmacy) and smaller ones did not have such a structured approach. Some sections were reactive and only responded when personnel in their areas showed up on a delinquency list emailed by Resource Management Division after submission deadlines had passed. Some approvers/specialists walked around and verbally reminded staff to complete their time cards. This was usually done without the addition of incentives or consequences. In other sections, super users took the responsibility of logging time in DMHRSi out of the employees' hands and completed the time cards on their own. Throughout the organization, there was no standard method to improve compliance.

Findings Regarding Accuracy. Analysis of data quality reports at DeWitt indicated evidence of inaccurate logging of provider-hours in DMHRSi. Olsen (2003) stated that mistakes in data entry are the most common source of data inaccuracy in a system. One example of inaccurate data entry occurred when providers worked in two different areas but only reported hours for one. Conversations with administrators and approvers/specialists indicated that other hospital staff also input inaccurate hours into DMHRSi. The most common excuses for inaccurate input of time in DMHRSi were 1) rushing to complete time cards by due dates, 2) lacking knowledge of the proper task codes for an area or service, 3) being inattentive, and 4) misinterpreting the hours written down on schedules and other forms. Another obvious source for introducing inaccurate data was the completion of time cards that should have been closed out months ago. How accurate can a time card be if it is completed months after initial input should have been done?

The lack of accuracy negatively impacts an organization's ability to accurately evaluate costs, to determine productivity and effectiveness, and to make correct decisions (Olsen, 2003). In the previously mentioned OTSG study, time cards of deployed military staff deployed from the North American Regional Medical Command listed under the Army Medical Department Resource Tasking System were analyzed. Time cards for the months that were reported at the time (mostly April and May) were used to compare data on deployed staff in the Army Medical Resource Tracking System to data in DMHRSi. The results showed inaccuracies such as B codes (ambulatory/outpatient services) time attributed to personnel who were deployed. Personnel in deployed status were supposed to be listed under G (Global War on Terror readiness, deployment) MEPRS codes. Services listed under the B codes come out of the MTF's budget, although services under the F and G codes do not count against the organization's patient care funding.

Another incident of inaccuracy was discovered during the study. At DeWitt, double reporting of providers' time in two separate clinics was found. Such overestimations of clinic time and lack of corresponding patient visits result in an appearance of diminished productivity and inefficiency. A decrease in productivity when compared to the previous year's benchmarks results in financial penalties that decrease budgets of the work center and entire organization.

A study at OTSG showed that the accuracy of DMHRSi data could be measured (COL Robert Goodman, Clinical Decision Support Division, OTSG, personal communication, January 13, 2008). To test the method used in the study, data were obtained on active duty soldiers at DeWitt who were on temporary duty (TDY) for training in August and September of 2008. Personnel in Business Operations ran a report

that listed all of DeWitt personnel who went on TDY during the specified time. The list was manually scrubbed and all personnel other than active duty Soldiers were excluded. The names of the personnel on the list were matched to their time cards obtained from DMHRSi. All personnel who were TDY should have had that time allocated to one of three MEPRS codes; FALB (continuing health education), FALC (non-health related training) or GBAA (readiness training). For August, only 11 of 22 soldiers used the proper codes. For September, only 20 of 34 soldiers used the appropriate codes. The accuracy rate for DMHRSi data input was 50% and 55%, respectively. The implications of this error are problematic in that improperly used work center functional cost codes and military codes mask true performance and productivity.

The discovery of the inaccuracies in August and September were only for educational purposes since both months were closed out. An effort was made to find errors in a month that was still open so an actual cost savings in work centers could be realized.

At the time of this study, January 2009 time cards were still in an open status. January TDY data and time cards for 15 active duty members were analyzed for accuracy. Of the 15 subjects, only 6 accurately recorded their TDY time to the proper task codes. Of the remaining 9 subjects, 4 recorded their time to the wrong task codes and 5 were non-compliant (had no time recorded). Only 40% of the active duty had accurately recorded their TDY time in DMHRSi.

The time cards of the four active duty members (1 Colonel, 2 Sergeants and 1 Specialist) with inaccurate recordings had to be researched by a MEPRS analyst to confirm the errors. Before research could begin, four lengthy processes had to be

completed within MEPRS. The process utilized to reverse the TDY errors took hours of research over several days. Upon confirmation of the mistakes, each active duty member's time card errors were corrected through a reversal process that took approximately 3 hours. It should be noted that these errors could have been detected by approvers/specialists in the work center before submission of the time cards. Instead, one MEPRS staff member and the author spent several hours to research and fix time card errors caused by four individuals.

The EAS IV Summary View report was used to identify salary information and calculate the costs each individual allocated to the wrong task code. This report contains all of DeWitt's employees' available and non-available hours, the salary of each, and the code for the work center where each worked in a particular month. A total cost of \$9,704.86 was errantly allocated to improper task codes. A total of \$9,472.30 should have been allocated to the code GBAA (readiness training). The remaining \$232.56 should have been charged to the support code FEBA (patient movement). The correction of the errors shifted the costs from work centers to funds that were not counted against the patient care budget. This was important because this type of error makes an organization appear inefficient. Inefficient organizations in the MHS lose health care funding.

Before DoD employees can go on TDY, they must access an online system, the Defense Travel System, to apply for training. It should be noted that not all training opportunities are captured in the Defense Travel System. Some of these uncaptured opportunities include local off-post training; computer-based education; critical, patient-based training (i.e. basic life support and advanced cardiac life support); mandatory

annual competency training, providing and attending hospital inservice training; and basic Soldier training. The author witnessed employees' failure to record the training that they participated in. Obviously, a larger cost shift could be realized throughout the organization if the recording of training opportunities were monitored for accuracy. Another area where monitoring would be beneficial would be the input of providers' available time in the work centers. Inaccurate input of providers' available time in DMHRSi can result in the loss of Performance Based Assessment Model funds due to a perceived drop in productivity. As with TDY data, the accuracy of providers' time input can be monitored and corrected by work center approvers/specialists before time card submission.

Conclusion

The Defense Medical Human Resources System-internet is an information system that standardizes management of human resources within the MHS. The data within the system are utilized to make business decisions on the delivery of health care. To facilitate good decision-making, MTFs need to capture and transmit complete, timely, and accurate data. DeWitt has struggled with gathering such data because not all users comply with DMHRSi policy and practice. The inaccuracy of data within DMHRSi is also a problem that affects decision-making on health care and resources.

This study showed that compliance can be improved with the active involvement of leaders. Without this involvement, real change may not occur within the organization. To change the organization, a leader must create a sense of urgency and be the initiator of change. Education is also important factor in effecting change; it helps to increase user buy-in and compliance.

The results of this study also showed that the accuracy of data within DMHRSi can be improved. Methods are available within MEPRS and DMHRSi to correct inaccurate data. The method used in this study required hours of research by a MEPRS analyst to correct the inaccuracies caused by a few users. The lengthy procedure occurred at end-of-month processing and resulted in changing incorrectly allocated TDY hours and re-calculating expenditures. Adequate support of users and proper monitoring of data by approvers/specialists should improve the quality of data in DMHRSi before MEPRS analysts are required to manage financial and human resources systems that require time and close attention. Approvers/specialists are the first line monitors of the quality of data.

Secretary of Defense Robert Gates was recently quoted as saying “health care is eating the Department alive” (DefenseLink News, 2009). He meant that the cost of health care is increasing and absorbing a larger portion of the DoD budget than in years past. The leaders of the MHS must decrease the growing strain on the DoD budget by utilizing information systems in their efforts to deliver more cost-effective care to its beneficiaries. Complete, timely, and accurate data are needed from these systems to facilitate decisions that result in cost-effective practices. The MHS’s human resource system, DMHRSi, is a tool that captures and reports personnel data that are used along with financial and workload data to develop these practices. Maintaining compliance with DMHRSi policy and the ensuring the accurate input of data in the system will make it a more effective tool.

Recommendations

As a result of this study, three recommendations are presented to improve the current situation at DeWitt. The recommendations focus on the involvement of leaders, DMHRSi training for staff, and an organizational plan for change.

First, the continuing involvement of leaders in promoting compliance and accuracy must remain a high priority. It took a directive from the commander to get the organization moving in the right direction. He will continue monthly briefings until all sections reach and maintain the compliance levels mandated by MEDCOM; however, the briefings alone cannot sustain the increase in compliance. Department and section leaders must be actively involved, so subordinates will realize how important this is. Leaders should develop an effective method to monitor user compliance and the accuracy of data in DMHRSi that does not rely solely on MEPRS analysts.

A suggested method for monitoring user compliance and the accuracy of data in DMHRSi should focus on the daily tracking of users' interface with the system. Section approvers/specialists should create a daily spreadsheet that contains all the scheduled available and non-available time for employees assigned to their work center. All users in the work center should be required input their available and non-available time into DMHRSi for each day they are at the hospital. Leave and TDY can be logged in DMHRSi before the actual start date. Approvers/specialists should access DMHRSi daily (or before the end of the week) to verify user compliance for time card input and the accuracy of data with information on their spreadsheet. A weekly status report should be delivered to the section and department chiefs to keep them updated. This practice should increase the level of compliance since every user must record time every day they

are at the duty station. Accuracy should also improve because the user records his/her available or non-available time and where that time was spent on that same day; thus preventing inaccurate recall of information days or weeks later.

The second recommendation is to find a way to enhance the training of all users of DMHRSi. The MEPRS Section is mandated by the DoD to provide sustainment training to personnel in DeWitt Health Care Network's outlying clinics and to staff within DeWitt. Every work center should be required to have training on MEPRS/DMHRSi at least annually. One problem that was touched on in the study was the lack of sufficient computers in work centers for the training provided by MEPRS personnel. There is a computer lab at DeWitt that is designated for Composite Health Care System and Armed Forces Health Longitudinal Technology Application training. The lab can only seat up to 10 individuals at one time. The MEPRS analysts provide work center training for up to 20 individuals. An additional problem with using the lab is that Composite Health Care System training scheduling has priority over other training. The MEPRS Section's philosophy is to attempt to provide immediate training whenever there is a request from an individual. Groups must be scheduled; however, attempts to schedule DMHRSi training in the lab may conflict with Composite Health Care System training. The DMHRSi training should occur, without competition from other training, in a newly created lab within DeWitt where personnel can directly interact with the system during instruction.

The last recommendation is to develop an organizational plan for increasing compliance with DMHRSi policy. Currently, sections within the hospital use different methods in their effort to achieve compliance. The military health care organizations

with high degrees of compliance all had an overall organizational plan. The 8-step method for change has been used successfully by small and large organizations in this country and abroad. The leaders of the organization could use this or some other organizational change model (i.e., Lewin Change Management Model or McKinsey 7-S Model) to standardize and simplify progress towards compliance and to increase the accuracy of data in DMHRSi (Cellars, 2007).

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List of Acronyms

AHLTA	Armed Forces Health Longitudinal Technology Application
ASD(HA)	Assistant Secretary of Defense (Health Affairs)
DMHRSi	Defense Medical Human Resources System-internet
DoD	Department of Defense
EAS IV	Expense Assignment System version IV
EHR	Electronic Health Record
FTE	Full Time Equivalent
GAO	Government Accountability Office
HEDIS	Healthcare Effectiveness Data and Information Set
MEDCOM	Medical Command
MEPRS	Medical Expense and Performance Reporting System
MHS	Military Health System
MTF	Military Treatment Facility
NARMC	North Atlantic Regional Medical Command
OTSG	Office of the Surgeon General
RVU	Relative Value Unit
TDY	Temporary Duty
TMA	TRICARE Management Activity

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Appendix A

DMHR*Si* Educational Briefing for the Family Practice Section

The Defense Medical Human Resources System - *internet* (DMHR*Si*)

By

MAJ Morris E. Wilder

Agenda

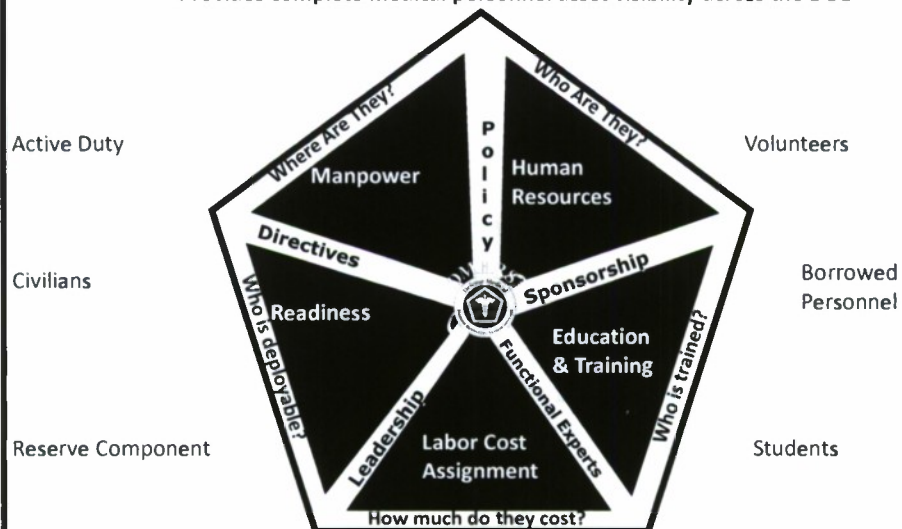
- Purpose of DMHR*Si*
- Why DMHR*Si*?
- Benefits of DMHR*Si*
- Concept of Operations
- Policy
- Time Reporting Period
- Assistance with Problems

Purpose

- Essentially, to provide a system to support the objective of managing the business of military health care. DMHRSi enables efficient management of day-to-day utilization of human capital across the MHS through a central repository that standardizes business management processes and improves the accuracy and consistency of data.

Why DMHRSi?

Provides complete medical personnel asset visibility across the DOD



****DMHRSi shows decision makers what human resources an organization has, what it is doing, and what number of resources are needed to perform the mission efficiently****

Benefits of DMHRSi

- Increases access to manpower, personnel, labor costs assignment, education and training, and personnel readiness information
- Delivers a functionally integrated, web-based human resource management system to our Tri-Service (Army, Air Force, Navy) customers
- Simplifies and standardizes the management of military human resources, education and training
- Provides accurate, relevant, real-time readiness information for use in planning for contingencies

Concept of Operations

- Replaces three service legacy systems
 - Army: Uniform Chart of Accounts Personnel Utilization System (UCAPERS)
 - Navy: Standard Personnel Management System II (SPMS II)
 - Air Force: Personnel Subsystem of the DoD Expense Assignment System (EAS III)
- Deployment to all Defense Health Program (DHP) funded activities
 - All Hospitals, Medical Clinics, Dental Facilities, Veterinary Activities and HQ Components
 - Over 600 sites worldwide
- DMHRSi Users
 - All active duty, reserve, civil service, contractor, and volunteers
 - Super Users (analyst, approvers, timekeeper specialists) and Self Service Users

Policy

- Documentation of time generally is an individual responsibility of the employee
- It is expected that all employees will document time using the DMHRSi self-service time card
- In cases where a designated individual has been authorized to enter time for employees, that individual assumes responsibility for the **accuracy** and **timeliness** of the submission

Policy

- Time cards **must be created, completed and submitted on a bi-weekly basis**
- Time cards **must be submitted prior to** departure for vacation, leave, or TDY if the individual will be away from work area when submission is due
- Time cards **must reflect all** hours worked, overtime, training, etc... in the area **where it was performed** (use proper task code)
- Time cards **must reflect** hours taken for leave, vacation, and disability time

Time Reporting Period

- Starts at the beginning of the pay period (on **Sunday**) and ends 2 weeks later (on a **Saturday**)
- Employees must complete and submit time cards by the **Monday following the end of the pay period** (Tuesday if Monday is a federal holiday)
- All hours must be recorded **accurately** and **against** the appropriate project, task and time type as defined by the appropriate supervisor or timekeeper
- Approvers must review and approve or reject the time cards by the Tuesday following the end of the pay period. Rejected time cards should be corrected immediately and then approved to meet due date
- Timecards not reviewed by approver (or timekeeper specialist, if performing the task) within 7 days are automatically rejected by the system

Problems with DMHRSi

- Notify your approver/timekeeper specialist immediately for any problems
- Approvers/timekeeper specialists can obtain assistance from the staff in the MEPRS office
 - Ms Vazquez at 805-9318
 - Ms Carter at 805-9319
 - Ms Mackall at 805-9320

Remember...

- DMHRSi shows decision makers what we have, what we are doing, and what we need to perform our jobs more efficiently...so, timeliness and accuracy count

Questions

www.Tricare.mil/conference/2006

Labor Cost Assignment (LCA) Timekeeping Student Manual (2007)

Appendix B

Compliance Values from Initial Bi-weekly Time Card Status Reports (after Defense

Civilian Pay System interacted with DMHRSi)

Family Practice Section

Pay Period Dates	# of Approved Time Cards	# of Employees
09Nov08-22Nov08	21	89
23Nov08-06Dec08	35	93
07Dec08-20Dec08	49	92
21Dec08-03Jan09	59	91
04Jan09-17Jan09	31	93
18Jan09-31Jan09	81	90
01Feb09-14Feb09	69	93

Pharmacy

Pay Period Dates	# of Approved Time Cards	# of Employees
09Nov08-22Nov08	12	54
23Nov08-06Dec08	0	54
07Dec08-20Dec08	48	52
21Dec08-03Jan09	37	51
04Jan09-17Jan09	25	51
18Jan09-31Jan09	24	51
01Feb09-14Feb09	0	51

Radiology

Pay Period Dates	# of Approved Time Cards	# of Employees
09Nov08-22Nov08	1	46
23Nov08-06Dec08	0	46
07Dec08-20Dec08	40	43
21Dec08-03Jan09	0	45
04Jan09-17Jan09	0	45
18Jan09-31Jan09	6	45
01Feb09-14Feb09	0	45

Emergency Room

Pay Period Dates	# of Approved Time Cards	# of Employees
09Nov08-22Nov08	1	119
23Nov08-06Dec08	1	121
07Dec08-20Dec08	92	126
21Dec08-03Jan09	0	128
04Jan09-17Jan09	2	132
18Jan09-31Jan09	2	133
01Feb09-14Feb09	4	134

DeWitt

Pay Period Dates	# of Approved Time Cards	# of Employees
09Nov08-22Nov08	135	1229
23Nov08-06Dec08	366	1305
07Dec08-20Dec08	722	1229
21Dec08-03Jan09	459	1213
04Jan09-17Jan09	296	1209
18Jan09-31Jan09	632	1218
01Feb09-14Feb09	703	1228

Appendix C

Determination of Cost of Inaccurate Time Allocation to FCCs (from EAS IV Summary

[View Report](#))

Formula use (per Chief MEPRS Analyst at DeWitt):

1. Available salary / Available hours (hrs) = Hourly rate
2. Hourly rate x number of hrs errantly allocated to wrong functional cost code =
dollar amount that should have been allocated to the correct code

Calculation results:

Colonel

1. $\$4,877.30 / 83\text{hrs} = \$58.76/\text{hr}$
2. $\$58.76 \times 44\text{hrs} = \$2,585.44$

SGT#1

1. $\$3,139.56 / 96\text{hrs} = \$32.70/\text{hr}$
2. $\$32.70 \times 80\text{hrs} = \$2,616.00$

SGT#2

1. $\$5,232.60 / 180\text{hrs} = \$29.07/\text{hr}$
2. $\$29.07 \times 8\text{hrs} = \232.56

SPC

1. $\$4,271.02 / 198\text{hrs} = \$21.57/\text{hr}$
2. $\$21.57 \times 198\text{hrs} = \$4,270.86$