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IMPROVING THE ARMY'S
FIELD MEDICAL TREATMENT CAPABILITY

VOLUME II
Report AR602R1

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April 1987

Will H. Horn
Douglas W. Brown
Albert J. Colaianni
George L. Slyman
Kenneth W. Lindstrom

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LOGISTICS MANAGEMENT INSTITUTE
6400 Goldsboro Road
Bethesda, MD 20817-5886

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DoD's Deployable Medical Systems (DEPMEDS) project is designed to improve the capabilities of the Military Services for treating troops in field hospitals. To plan and manage the Army's part of the DEPMEDS effort, the Secretary of the Army appointed a DEPMEDS Project Manager (PM). Our report presents the PM's Control Plan and is in two volumes. Volume I provides a current assessment of the project's status and identifies critical issues such as the availability of support equipment and planning for follow-on supply support, that affect fielding the first DEPMEDS hospital as well as those following in the early part of the fielding schedule. Volume I also describes the requirements for management of displaced equipment, i.e., a Materiel Transfer Plan, and the actions required of the PM after the first unit receives DEPMEDS equipment. While continuing to field DEPMEDS hospitals, the other actions required of the PM include: • Controlling the replacement of substitute items fielded with the early hospitals. • Integrating the experience from fielding each additional hospital into subsequent fielding plans.					
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19. ABSTRACTS (Continued)

- Raising DEPMEDS-equipped hospital units to authorized levels of DEPMEDS medical and non-medical support equipment.
- Controlling changes to the components of the standardized medical materiel sets and quantities of equipment for the DEPMEDS-equipped units to stabilize readiness condition evaluation standards.

Volume II contains the initial assessment (June 1986) of the DEPMEDS project's status and descriptions of the automated project control support system developed for the PM.

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CHAPTER 1

SUMMARY

This report provides an assessment of the current status of the Army's Deployable Medical Systems (DEPMEDS) project. The assessment is prepared to identify critical issues that need management attention and to determine the feasibility of the current unit fielding schedule. *→ cont'd pg 66 (yellow)*

SYSTEM CONCEPT

The DEPMEDS project is a major initiative within the Department of Defense (DoD) to increase the capabilities of the Military Services to provide adequate medical care to military forces deployed in a theater of operations. DEPMEDS is a modular field health care facility, with each component, or Medical Materiel Set (MMS), and nonmedical support equipment standard across all Services. DEPMEDS hospitals will be relocatable but will use buildings of opportunity when practical. Headquarters, Department of the Army (HQDA), approved the Joint Service Operational Requirement (JSOR) for DA DEPMEDS on 25 October 1984. The Operational and Organizational (O&O) Plan was approved by the Training and Doctrine Command (TRADOC) on 21 June 1985. The JSOR and the O&O Plan describe the concept and need for DA DEPMEDS. The current force structure calls for seven types of Army DEPMEDS hospitals to provide care in the combat and communication zones. The Army's portion of the DoD program includes procurement of 162 hospitals with a First Unit Equipped Date (FUED) of third quarter FY87.

The scope of the DEPMEDS assessment in this report is consistent with Total Package/Unit Materiel Fielding (TP/UMF). Since the objective of the project is to successfully field hospitals, the Integrated Logistics Support (ILS) needed for DA DEPMEDS must apply to both the medical materiel and all nonmedical support equipment reflected in the DA DEPMEDS Tables of Organization and Equipment (TOE).

ASSESSMENT

Although the procurement process for DEPMEDS equipment was started in FY84, a project manager specifically dedicated to fielding Army DEPMEDS-equipped units was not assigned until November 1985. Before that the DEPMEDS project was treated as an equipment acquisition rather than a complex project involving participation of at least ten commands with the mission to field 162 hospital units.

The first DEPMEDS hospital is scheduled to be fielded in third quarter FY87. That schedule is not realistic because of the length of time necessary to develop materiel fielding plans and complete the materiel fielding process. Army Regulation (AR) 700-127 prescribes a 780-day materiel fielding planning process that starts with the delivery of a draft materiel fielding plan to the major command or commands receiving the materiel. The contract solicitation to prepare the materiel fielding plan for medical equipment closed on 21 April 1986. If a contract is awarded expeditiously and without delays, the draft materiel fielding plan will not be available for distribution to the major fielding commands until July 1986. If the materiel fielding process takes 780 days, the first hospital will not be fielded until the fourth quarter FY88.

The procurement of major equipment for the medical and dental sets for the first DEPMEDS hospital also threatens to delay the scheduled fielding date. Only 3 of 30 contracts for major medical items have been awarded. With delivery dates for 27 major equipments unknown, the accuracy of any fielding schedule is uncertain. Based on the status of these procurements and the time necessary to complete the materiel fielding planning process, we believe that the current materiel fielding date is not realistic.

Following procurement, the next action required to field a DEPMEDS hospital is the assembly process. The Army must provide the Defense Logistics Agency (DLA) with precise assembly and packing instruction for DEPMEDS assemblages by December 1986. Without resolving these design and packing issues, the project cannot proceed beyond acquisition.

The DEPMEDS project requires a strong single point of contact, dedicated solely to fielding Army DEPMEDS-equipped units and able to integrate the efforts of all responsible commands. We believe that the Army should officially recognize

Summary

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS IN PREVIOUS WORKING NOTES

Volume II contains the working notes we previously published that provided an initial assessment of the Deployable Medical Systems (DEPMEDS) project's status and the automated systems to support project control. Our findings, conclusions and recommendations from the working notes are summarized below.

In our June 1986 assessment of the status of actions required to field the DEPMEDS-equipped hospitals, we found that:

- The schedule for fielding the first hospital in the third quarter of FY87 could not be met if the Army's prescribed 780-day process for materiel fielding planning was applied. Following that process, the first hospital would not be fielded until the fourth quarter of FY88 at the earliest.
- The Defense Logistics Agency's (DLA) procurement actions for medical equipment were behind schedule for fielding the first hospital. Only three of 30 major procurement contracts had been awarded.
- The Army had not provided the DLA with precise equipment installation and materiel packing instructions for DEPMEDS functional assemblies.
- The DEPMEDS project lacked a chartered Project Manager (PM) who was assigned executive authority within the Army for the program, and dedicated solely to fielding DEPMEDS-equipped hospitals.

Although our assessment was not directed toward providing recommendations, we believed the absence of a chartered PM was of sufficient concern to warrant our recommending that:

- The Department of the Army officially recognize DEPMEDS as a major project.
- The Army Surgeon General forward a DEPMEDS Project Manager Charter (we provided one as part of the assessment) to the Secretary of the Army for approval.

Following the assessment of the DEPMEDS project status and identification of the critical issues, we developed a project control plan. In our development of the project control plan, we concluded that:

- The two automated files, the IMF and the SMF, along with the organization for managing and updating them and the procedures for obtaining input, constitute an effective control system for fielding DEPMEDS-equipped hospitals. With the automated system, the PM has the capability to review issues quickly and determine the effect that a delay in completing a task has on the overall project schedule.
- The PM needs a management information procedure to provide the feedback necessary to update the automated files.
- The usefulness of the project control system depends on the PM's recording current issues and information in the IMF, posting actual or target completion dates in the SMF, and continuing to identify key tasks and subtasks for entry into the SMF.

In the working notes related to the project control system, we recommended that:

- The PM manage the IMF by assigning specific issues to each of the PM's staff officers and provide each officer direct access to the file to update information.
- The staff officers be assigned issues grouped into logical relationships and that the SMF Macro Tasks, i.e., the major events, be used as the basis for the groupings.
- The PM establish a formal reporting requirement from the responsible agencies to his office in order to get written input for updating the status of problems and time sensitive tasks.
- The PM appoint a full-time system manager to ensure timely and complete updating of the files, to provide technical expertise on operations, and to maintain consistency and integrity of information recorded in the files.

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PART I

**AN ASSESSMENT OF THE U.S. ARMY'S
DEPLOYABLE MEDICAL SYSTEMS PROJECT**

**Will H. Horn
Douglas W. Brown
Albert J. Colaianne
Kenneth W. Lindstrom
George L. Slyman**

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DEPMEDS as a major project, and that the Army Surgeon General should provide the DEPMEDS project manager with a strong charter that will give him the necessary authority to direct and integrate the actions of all commands participating in the fielding process. How well the fielding process will be accomplished depends on the amount of control the project manager can exercise over the actions and priorities of the supporting commands.

APPROACH

Chapter 2 discusses the management structure for DEPMEDS, including the responsibilities of the Office of the Secretary of Defense (OSD), Defense Medical Standardization Board (DMSB), DA Project Manager (PM), DA Combat Developer, DA Materiel Developers, Major Army Commands (MACOMs) and DLA. Chapter 3 is a functional assessment of Army DEPMEDS. The functional break-out for new system planning described in AR 700-127 for ILS is used to structure the assessment. In Chapter 4, we identify the major DA DEPMEDS issues requiring PM emphasis in the near term. Since we are tasked to identify those areas of greatest concern to the PM at this time, we have concentrated on both real and perceived shortcomings in the program rather than successes. Hence, we do not draw attention to the great amount of progress made by DoD and the Army in the development DEPMEDS to date, nor to those elements of the project in which no problems exist. Chapter 5 is a description of a project manager's control plan needed to manage DEPMEDS.

Appendix A is the original System Coordinator Charter and Appendix B is the proposed Project Manager Charter. Appendix C is the Joint Statement of Operational Requirements (JSOR) approved by the Army in 1984. Appendix D describes the management of DEPMEDS in the other Services. Appendix E is a list of acronyms and abbreviations.

CHAPTER 2

MANAGEMENT STRUCTURE

GENERAL

A fundamental aspect of DEPMEDS development is that it has not followed the typical progression through the ILS Milestone Decision Reviews, e.g., Milestone I – Demonstration and Validation; Milestone II – Full-Scale Development; Milestone III – Production and Deployment. Those reviews that involve the Army System Acquisition Review Council (ASARC) and the Defense System Acquisition Review Council (DSARC) have not occurred because DEPMEDS is primarily made up of commercially designed nondevelopmental items which are standard in the DoD supply system; that is, the introduction of new military medical technology is negligible. The new capabilities represented by DEPMEDS are achieved in the assembly and matching of support and direct mission materiel to a prescribed level of health service support.

OSD/DMSB

The Assistant Secretary of Defense (Health Affairs) [ASD(HA)] has OSD-level authority in the development of DEPMEDS. That authority is exercised mainly through the DMSB, which has clinical and technical oversight of DEPMEDS. The publication of DoD Instruction 6430.1, "DoD Deployable Medical Systems," in June 1982 provided the Military Field Medical Systems Standardization Steering Group (MFMSSSG) with responsibilities for component standardization and the acquisition of deployable medical systems components and medical materiel sets. The MFMSSSG was later merged with the DMMB to form the DMSB.

In June 1984, DoD Instruction 6430.1 was superseded by DoD Directive 6430.2, "DoD Medical Standardization Board," which reiterated the role of the ASD(HA) and DMSB as the approval authorities for the standardization and acquisition of DEPMEDS and established a DEPMEDS Project Coordinator staff within the DMSB to achieve all elements of the assigned mission. Details relative to quad-service

standardization are the responsibility of the Joint Services Deployable Medical Systems Coordinating Group (JSDMSCG) of DMSB.

DA SYSTEMS COORDINATOR

In December 1982, the DA chartered a systems coordinator (SC) for the DEPMEDS Program. The SC was tasked to be the "focal point in the DASG [Department of the Army Surgeon General] for the Deployable Medical System Project (DMSP) and responsible for centralized intensive coordination and facilitation in all events in the Life Cycle System Management and Acquisition of DMSP." The SC charter (see Appendix A) provided DoD oversight and standardization of DEPMEDS but was not intended as a charter to fully implement DEPMEDS.

DA PROJECT MANAGER

In November 1985, the Surgeon General of the Army assigned a single PM for the Army DEPMEDS Project. The PM is responsible for the procurement, fielding and ILS of DA DEPMEDS units. He is assigned to the staff of the Surgeon General of the Army where he recommends approval of the DEPMEDS fielding schedule and monitors all critical project elements. The PM must be delegated full authority for the execution of that part of the Surgeon General's mission related to the integration of DoD DEPMEDS into the Army's force structure. The fielding of DEPMEDS-equipped units will require the coordination of many diverse Army and other DoD organizations. Since the PM staff will consist of the PM and only three assistants, the PM must have the authority to direct the DA Combat and Material Developers to perform system integration functions that, in many cases, have not been previously addressed. This need for a charter is particularly evident when considering the number of critical issues involved with fielding a fully equipped DEPMEDS unit. Many of the issues that must be addressed by the PM fall outside the traditional perspective of the Army's Academy of Health Sciences (AHS), and the U.S. Army Medical Materiel Agency (USAMMA). Appendix B is the proposed charter for the DA DEPMEDS PM and discusses the PM responsibilities and authority in detail.

COMBAT DEVELOPER

The U.S. Army Health Services Command is the Combat Developer, including testing and evaluation, for DA DEPMEDS and has delegated this responsibility to

AHS. AR 700-127, "Integrated Logistics Support (ILS)," assigns the following specific responsibilities to the Combat Developer for new or improved systems:

- Develop the concepts for both operations and support.
- Develop organization and force structures.
- Perform logistic support analyses to establish requirements for manpower, training, logistics support and constraints, and system readiness objectives.
- Identify the necessary training facilities.
- Develop measurable support-related materiel requirements based on the required readiness.
- Conduct comprehensive development and operational tests. Estimate whether design characteristics, manpower, training, logistics concepts, and support resources are adequate.
- Coordinate ILS activities with the materiel developer and other activities.
- Plan and implement ILS with the materiel developer as a member of the ILS management team (ILSMT) and provide input to the ILS Plan (ILSP).
- Modify using and support organizations through the Basis of Issue Plan (BOIF) and Qualitative and Quantitative Personnel Requirements Information (QQPRI) process to accept and sustain the operation and support of DEPMEDS.
- Establish and implement the training programs needed for the operation and support of DEPMEDS. (Note: New equipment training is the responsibility of the materiel developer.)
- Define the transportability and mobility requirements and assess the unit mobility impact during the system development process.
- Establish the support conditions for initial operational capability (IOC) date in coordination with the materiel developer and gaining commands.

DASG has addressed the major elements of the DEPMEDS configuration and support in Army Modernization Information Memorandum (AMIM) S796 and has developed TOEs for the seven types of hospitals. While the above responsibilities are assigned to the Combat Developer, they have not all been actively addressed to date. These issues are discussed in greater detail throughout this study.

MATERIEL DEVELOPER

DA DEPMEDS includes medical equipment under the cognizance of The Surgeon General (TSG) and other nonmedical equipment under the cognizance of the Army Materiel Command (AMC). For medical equipment, USAMMA serves de facto as Materiel Developer for DEPMEDS. AMC materiel development responsibilities are shared primarily by the U.S. Army Tank and Automotive Command (TACOM) and the Troop Support Command (TROSCOM).

U.S. Army Medical Materiel Agency (USAMMA)

In accordance with AR 70-17, the Materiel Developer for medical and dental equipment in DEPMEDS is responsible for:

- Serving as ILS manager.
- Preparing and maintaining the ILS Plan. Coordinating ILS planning with the Combat Developer and all other appropriate organizations.
- Preparing and coordinating interservice support agreements if necessary.
- Coordinating Host Nation Support in the development of logistics support plans.
- Determining the FUED in coordination with the Combat Developer and gaining commands.
- Performing Logistic Support Analysis (LSA) and assisting the Combat Developer with LSA tasks.
- Controlling the release of Army DEPMEDS funds for medical materiel sets and components.
- Requisitioning all DA DEPMEDS major medical end items and medical/dental materiel sets from the Defense Personnel Support Center (DPSC).
- Monitoring the status of DPSC DEPMEDS procurement and assembly.
- Developing the maintenance plan, new equipment training requirements, and materiel fielding plan.

Army Materiel Command (AMC)

AMC shares the responsibilities of Materiel Developer with USAMMA and is responsible for the nonmedical materiel that will be fielded as components of

DEPMEDS hospitals. Major nonmedical materiel includes items such as mobile power generators, International Standards Organization (ISO) shelters, air conditioning units, tents, and trucks. The responsibility for fielding this equipment is subdivided primarily between TROSCOM and TACOM. TROSCOM and TACOM procure the end item, provide spare parts support, establish interservice support agreements where necessary, provide technical documentation, and accomplish the other ILS support elements that are the responsibility of the Materiel Developer. TROSCOM and TACOM provide new equipment training and develop materiel fielding plans for equipment that has not previously been fielded in the hospital units. The Command Materiel Release Program described in AMC Regulation 700-34 can greatly simplify the process of tracking the completion of ILS requirements at TROSCOM and TACOM. It provides an independent, periodic review of all ILS elements. Equipment selected for management under the materiel release program cannot be fielded until all ILS requirements are met or a specific waiver is granted. The materiel release program will greatly assist the PM in assuring that the major items managed by TROSCOM and TACOM will have all ILS elements completed prior to fielding. USAMMA does not have a materiel release plan for medical materiel that is comparable to that of AMC for nonmedical materiel.

LOGISTICIAN

The Logistician functions as a "watchdog" over the planning and execution of ILS for a new materiel system. USAMMA has been designated as the DEPMEDS Logistician and as such is responsible for:

- Establishing procedures to assess ILS program management.
- Reviewing and assisting in preparation of requirements documents, ILS plans, contract and solicitation documents, and LSA documentation.
- Assessing the effectiveness of the ILS program for TSG, the PM, the Combat Developer, and the Materiel Developer.

Normally, a command other than the Materiel Developer is assigned the responsibility for ILS surveillance. The designation of USAMMA as both the Materiel Developer and the Logistician creates a possible conflict of interest; it places added responsibility on the PM to ensure that USAMMA is open in reporting ILS deficiencies under its area of responsibility as the Materiel Developer.

GAINING MAJOR COMMANDS

The materiel fielding plan prepared by the Materiel Developer is the primary planning document used by the gaining major command to plan for receipt of the DEPMEDS. In response to the draft materiel fielding plan, the gaining major command prepares a materiel support plan that identifies the support requirements for fielding DA DEPMEDS hospitals that are peculiar to its theater of operations. The draft materiel fielding plan is modified on the basis of the materiel support plan and a materiel fielding agreement is negotiated between the Materiel Developer and the gaining major command.

DEFENSE LOGISTICS AGENCY

DLA is responsible for procuring all DEPMEDS components and assembling them into functional medical sets. DLA's policy on DEPMEDS is formulated by its Readiness Support Office, and a DPSC project officer coordinates the execution of DLA's responsibilities. DPSC is responsible for procuring medical materiel and coordinating assembly efforts. Medical materiel sets will be assembled at Defense Depots located in Ogden, Utah, and Columbus, Ohio. The sets contained in ISO shelters will be assembled at Ogden, while those housed in Tent, Extendable, Modular, Personnel (TEMPER) tents and packed in cargo containers will be assembled in Columbus. The assembly work at both depots is performed under the technical direction of the medical assembly section in the supply operations division of DPSC. DEPMEDS procurement is handled by the existing organizational structure of the DPSC procurement division. DLA's responsibilities also include the procurement and storage of Army-owned Prepositioned War Reserve Stocks (PWRS) and DLA-owned Other War Reserve Stocks (OWRS) according to the requirements provided by the Army.

CHAPTER 3

ASSESSMENT OF THE ARMY DEPMEDS BY ILS ELEMENT

The functional break-out for new system planning is described in AR 700-127. It lists 15 functional elements that are critical to successful fielding of a new system. Those functional elements are:

1. Maintenance
2. Support and Test Equipment
3. Supply Support (including Packaging, Handling, and Storage)
4. Transportation and Transportability
5. Technical Data
6. Manpower and Personnel
7. Training and Training Devices
8. Facilities
9. Computer Resource Support
10. Materiel Fielding Planning
11. Design Influence
12. Standardization and Interoperability
13. Reliability, Availability, and Maintainability
14. Support Management and Analysis
15. Cost Analysis and Funding.

The discussion presented here gives the current status of each of those functional elements and identifies issues in each that are critical to successful fielding. While the ILS elements have been considered by the Organization Integration Team, coordinated by The Surgeon General's staff, a formal ILS Team has not been formed and an ILS Plan has not been written.

MAINTENANCE PLAN

Currently no comprehensive maintenance plan exists for DEPMEDS-equipped units that addresses organic equipment and the maintenance levels in which they are to be supported. Maintenance plans exist for some components of DEPMEDS insofar as those components have been previously fielded; examples are medical equipment currently fielded with combat zone (CZ) and the communications zone (COMMZ) hospital units and certain nonmedical components. However, maintenance plans are needed for all newly fielded DEPMEDS items. The formulation of both in-storage and operational maintenance plans for such medical items is being delayed until manufacturers or vendors are identified and contracts are awarded. Nonmedical items managed by AMC have been previously fielded and have maintenance plans. The air conditioner, heater, and power distribution unit are Air Force items and have not been type-classified at this point. TROSCOM has responsibility for the maintenance plan for these items as well as for providing interservice support agreements for depot support with the respective services.

SUPPORT AND TEST EQUIPMENT

The DEPMEDS hospital TOEs reflect equipment requirements for equipment handling, electric generators, environmental control units (ECUs), recovery, and petroleum, oil and lubricants (POL) vehicles. However, no documentation is available for the use or disposition of this equipment. Only DEPMEDS medical test, measurement and diagnostic equipment (TMDE) is identified in AMIM S796, which does not consider any equipment on unawarded contracts. No special tools have been identified for DEPMEDS equipment. The data item description (DID) in the DEPMEDS acquisition general requirements specifies that the contractor provide tools and test equipment lists for DEPMEDS nondevelopmental items (NDI). TMDE and tool requirements for AMC-managed items need to be specified by the appropriate major subordinate commands.

SUPPLY SUPPORT

Procurement

Starting in 1984, medical items for DEPMEDS have been requisitioned by USAMMA from DPSC. The orders are segregated to cite Other Procurement Army (OPA) funds for items costing \$3,000 or more and Operations and Maintenance

Army (O&MA) funds for items costing less than \$3,000. USAMMA has placed orders for the O&MA items by medical materiel set or assemblage, a process that allows it to place one requisition for an assemblage that DPSC "explodes" into separate requisitions for individual components, some of which are available from DPSC stock while others require procurement action. DPSC is accumulating the O&MA items at the assembly depots but has not provided detailed status on that effort to USAMMA. DPSC plans to provide the Army with a shortage list of deficiencies 4 months prior to the required delivery date for each module and is developing a capability to provide intermediate status on assemblage procurement.

The major medical end items financed with OPA funds are ordered from DPSC separately by USAMMA. The DPSC procurement of those items is progressing slowly. Of the 30 OPA items requisitioned, contracts have been awarded for 2; 1 has been satisfied from available assets; solicitations for 16 have closed but no award has been made; 9 are in the presolicitation phase; and 2, the Sterilizer Agar and the Perimeter Ophthalmic, have been referred to the DMSB as nonprocurable. USAMMA has placed orders for the remaining O&MA-funded medical items by medical materiel set or assemblage, and DLA is accumulating the associated materiel for assembly. The assembly process is expected to start at Ogden and Columbus in early 1987.

An unresolved procurement issue involves the purchase of approximately 30 items that must be compatible with specific OPA equipment. An example is special paper for an electrocardiograph monitor recorder. These items are part of the assemblages and will be procured with O&MA funds, but USAMMA and DPSC have not agreed how to handle the requisitioning of these items. USAMMA wants DPSC to identify the appropriate support item once the contract for the end item is awarded and proceed with procurement as part of the assemblage while DPSC has proposed to the DMSB that the Services initiate separate requisitions for these support items. Final resolution is pending a DMSB decision.

Nonmedical items will be provided by the AMC commodity commands. In some cases, this procurement will require liaison with another Service that is the source of supply for an equipment, e.g., Air Force-managed generators. More information is needed from TROSCOM and TACOM on the procurement status of both the non-medical associated support items of equipment defined as part of DEPMEDS and the other equipment identified in the TOEs as integral to DEPMEDS units. A first step

in this process will be to confirm that TROSCOM and TACOM have identified all the equipment required by DEPMEDS units according to the TOEs.

Wholesale Provisioning

Wholesale provisioning of repair parts for medical equipment and for medical consumables is not being performed because DPSC plans to stock items in support of DEPMEDS only in response to demand. This policy will result in excessive leadtimes for wholesale supply support for new requirements generated by DEPMEDS. The nonmedical DEPMEDS equipment is already in the DoD inventory and does not require initial provisioning.

Retail Allowances

For all major medical end items, DFSC is buying Provisioning Technical Documentation (PTD) that will include the manufacturer's recommended parts kits. Separate kits, which the Services standardize, are available for organizational-, intermediate-, and depot-level maintenance. For each DEPMEDS-equipped unit, USAMMA will develop from the parts kits a Mandatory Parts List (MPL) to support medical equipment maintenance. This process can only proceed after the contracts have been awarded for the major medical end items. The Prescribed Load Lists (PLLs) that will evolve from the MPLs will be demand-based.

While this concept could work relatively well for an operational unit, USAMMA must develop a plan to periodically update the PLLs for Prepositioned Overseas Materiel Configured to Unit Sets (POMCUS) and other nonoperational units. In addition to the organizational-level allowances, USAMMA will formulate recommended parts lists for the Authorized Stock Lists (ASLs) for the Medical Logistics Battalions and different lists for the depot repair activities. AMC must develop recommended parts lists for items under its cognizance. Procedures to consolidate the USAMMA and AMC lists into PLLs for nonmedical equipment must be developed, and the AMC commodity commands will require specific guidance from the PM on this subject.

Retail Requisitioning

AR 700-127 specifies that the PLL, ASL, and associated supported items of equipment required for a new system be requisitioned by the gaining Major Command (MACOM) 150 days prior to FUED. The PM must ensure that this

requirement is satisfied either by the MACOMs or by special procedures executed by the Materiel Developers as part of Total Package/Unit Materiel Fielding.

War Reserve

USAMMA is computing and funding prepositioned war reserve requirements, which DPSC is procuring, based on requirements during the first 60 days after mobilization. The war reserve requirement to support Army medical units that require overseas storage are configured to unit sets (POMCUS). The remainder of the war reserve requirement to support other medical reserve units are Primary Mobilization (PRIMOB) requirements that will be procured and stored by DLA by individual line and will not be configured to unit sets. When the components are to be assembled into Medical Materiel Sets (MMSs), USAMMA will send DPSC a "build directive letter," with an appropriate fund citation. Other war reserve requirements are computed by the Army but must be funded by DLA.

Packing

DPSC estimates that the assembly process for MMSs will begin in early 1987. The Army must provide DLA with specific configuration and packing instructions for the assemblages before the assembly process can begin. The DMSB is developing packing specifications for "turn-key packing" and "maintenance packing" based on the findings of the DMSB form, fit, and function working group. Once these specifications are completed and The Surgeon General specifies the mode of packing required for each hospital unit, USAMMA can inform DLA which assemblages must be packed according to which mode of packing.

Storage

The Army has developed storage space requirements for each of the seven types of hospitals and has proposed in a draft Inter-Service Support Agreement that DLA store some medical assemblages. This storage requirement consists of both primary mobilization assets, POMCUS, and malpositioned POMCUS (POMCUS assets for which storage is not available in Europe). While DLA has not responded to the draft agreement, it is important to clarify storage plans as soon as possible in case DEPMEDS storage will require military construction (MILCON) initiatives. Total storage requirements for deployable medical units will be significantly increased by the DEPMEDS project, and a comprehensive storage plan is required to address war

reserve, FOMCDS, and assets for active units. The storage plan must be designed to support mobilization requirements and to minimize storage maintenance costs, including shelf-life replacement.

Shelf Life

Because of the mission of DEPMEDS-equipped units and the nature of medical consumables, a substantial investment will be made in dated and deteriorative (D&D) materiel. USAMMA must develop specific plans to provide for efficient maintenance of D&D items on a regular basis in the hospitals. These plans must consider expansion of the use of select portions of the D&D materiel in operational medical facilities.

TRANSPORTATION AND TRANSPORTABILITY

No formal transportability analysis of DEPMEDS units has been performed in accordance with AR 70-47, "Engineering for Transportability," which requires that materiel developers for major systems request transportability analysis and approval from the Military Traffic Management Command (MTMC). On the other hand, AR 700-127, "Integrated Logistic Support," assigns the Combat Developer the responsibility for mobility analysis. The PM must arrange for this analysis with the MTMC Transportation Engineering Agency. While definitive data on the change in weight and volume of deployable hospitals are not available, there are strong indications that DEPMEDS hospitals will require significantly more transportation assets than current Army field medical units. Moreover, plans call for significant airlift of medical supplies for DEPMEDS-equipped units from the Continental United States (CONUS) to the theater of operations during mobilization. The validity of these planning assumptions with respect to strategic airlift capabilities must be confirmed.

TECHNICAL DATA

Technical data exist for previously fielded equipment and components and should be revalidated. Further technical data formulation for DEPMEDS NDIs are awaiting procurement and are contained in the DEPMEDS acquisition general requirements. In that document, the DIDs requires the contractor to provide operating and maintenance manuals.

The AMIM for DEPMEDS indicates that there will be no change to manning requirements. Discussions with the Army Health Services Command indicate that the QQPRI's for medical and dental materiel sets are completed. However, some questions concerning the manning of the support components of the hospitals still remain. The PM must consider the following manpower and personnel issues:

- The validity of assumptions made in the manning analysis of the support elements of the hospitals in view of the changes made in support equipment, i.e., Utility Packs replaced by generators, heaters, air conditioners, etc.
- The impact on manning levels if it is necessary to substitute old equipment for DEPMEDS equipment to field completely equipped hospital units
- Validation of the DA DEPMEDS TOE for each hospital type against the TOE for the current hospital types
- The impact of the Health Services Support to the Air Land Battle (HSSALB) doctrine change on manning and its impact on the project schedule.

TRAINING AND TRAINING DEVICES

Training responsibilities are divided among five commands: USAMMA is responsible for new equipment training for medical equipment; AHS is responsible for medical equipment training following the new equipment training; TROSCOM and TACOM are responsible for new equipment training for the nonmedical equipment; and TRADOC is responsible for follow-on training for the nonmedical equipment.

USAMMA is currently preparing a work statement for a contract to provide new equipment training on medical equipment, and AHS is preparing a contract solicitation for follow-on training. TROSCOM, on the other hand, assumes that since the equipment is nondevelopmental and has been previously deployed, new equipment training is not necessary. We do not agree with that assumption since hospital units will be receiving this equipment for the first time. The PM is presently tasking TROSCOM to review the need for new equipment training.

Although a great deal of effort is being expended on training for DEPMEDS, no specific program exists for the intermediate steps in each commands' training program. By default, all the programs are scheduled to be completed by the fielding

date and the PM has no way to assess progress toward that date. Each command must develop training milestones and a means of updating them.

FACILITIES

The AMIM indicates that the only specific MILCON requirements for DEPMEDS will be for eight training facilities, which are listed in Table 145-9 of the AMIM along with the associated IOC dates. A comprehensive storage plan for DEPMEDS still needs to be developed, and that plan may uncover additional facilities requirements. No operational facilities requirements have been identified. The apparent assumption that DEPMEDS hospitals, including those in the COMMZ, can be quickly erected and efficiently operated without any site preparation must be re-examined.

COMPUTER RESOURCES SUPPORT

The automated Theater Army Medical Management Information System (TAMMIS), under development by AHS, is scheduled to be installed in field hospitals to provide support for medical operations. The TAMMIS system provides management information on patient movement, patient accounting, blood products control, supply support for medical supplies, and biomedical maintenance support. The system is scheduled to run on the Tactical Army Combat Service Support Computer System (TACCS) along with other elements of the standard Army information system. Completion of TACCS has been delayed because of contractual problems, and because of that the TAMMIS project is looking for an alternative computer system. The TAMMIS system is currently scheduled to be fielded in the second quarter of FY87, but the fielding date depends on the availability of a suitable computer.

Nonmedical logistics support will be provided by the Unit Level Logistics System (ULLS), which operates on the Unit Level Computer (ULC) system. The scheduled fielding date for the ULLS and ULC is the third quarter FY87. These systems are currently planned to be distributed to every unit that has unit-level maintenance and PLL responsibility. The BOIP is currently being developed and is expected to be released for comment in June 1986. The Combat Development Directorate at AHS will be given the opportunity to comment on the BOIP. Further information must be obtained on the delivery schedule for the computer systems, training plans, storage maintenance requirements for software and hardware

updates, and support requirements. There is also a requirement to update the system data bases with unit-specific information such as the PLL before they are placed in storage.

MATERIEL FIELDING PLANNING

The materiel fielding planning process described in AR 700-127 begins 780 days before the first unit-equipped date. The process is started by the Materiel Developer's preparing a draft materiel fielding plan (MFP) for the gaining major commands.

USAMMA has prepared a contract solicitation for the MFP covering medical equipment and proposals due on 21 April 1986. The solicitation calls for development of a separate MFP for each type of hospital [Mobile Army Surgical Hospital (MASH), Evacuation Hospital (EVAC), etc.]. The draft MFP for the first hospital type is to be available 80 days after contract award, and the draft MFP for the last hospital type is to be available 130 days after award.

The schedule for the materiel fielding process must be examined carefully to determine whether the total time of 780 days can be reduced without exposing the project to unnecessary risks. If the fielding process takes the full 780 days, the proposed fielding date cannot be met. If the contract to write the materiel fielding plan is awarded within 30 days after the solicitation closes and the contractor produces the first draft MFP to go to the gaining command for review 80 days later, the earliest that a hospital could be fielded according to the materiel fielding milestones in AR 700-127 is the first quarter of FY89. The current scheduled FUED is third quarter FY87.

TROSCOM and TACOM will need to prepare materiel fielding plans for nonmedical equipment if none has been previously prepared or if the gaining major commands have not previously fielded the equipment. If they are required, those MFPs must be combined with the medical materiel fielding plan since the gaining major commands must have visibility of all equipment new to the hospital units to properly prepare a materiel support plan. If TROSCOM and TACOM need to prepare new materiel fielding plans, the materiel fielding date will be further delayed.

DESIGN INFLUENCE

The DMSB has provided the standard composition for DEPMEDS medical assemblages, and a quad-service Form, Fit, and Function Working Group under DMSB guidance provided recommended configurations for DEPMEDS medical materiel sets. Precise drawings describing wiring modification, plumbing, equipment-mounting instructions, and packing arrangements must be completed before DLA begins the assembly process, which is scheduled to start in early 1987. Moreover, storage and mobility assessments cannot be completed before those drawings are finished.

In addition to assemblage design--both storage and operational--specifications for the hospitals must be developed to show how to arrange and attach the different assemblages. AHS is working on a "DEPMEDS Users Manual" that addresses site selection, unpacking, setup, and operations of DEPMEDS-equipped hospitals.

An issue of major significance to DEPMEDS is the HSSALB concept--which is likely to be approved in the near future as Army doctrine. That doctrine will alter the current force structure of seven-type hospitals to three-type hospitals and will change the capabilities required of deployable hospitals. In other words, HSSALB will substantially alter the equipment requirements of DEPMEDS, and that will affect nearly every ILS element. It is critical that the impact of HSSALB be determined immediately and that problems arising from HSSALB be coordinated with the Office of the Deputy Chief of Staff for Operations, other Services and ASD(HA).

The following additional design issues also must be resolved:

- Feeding System. A modified version of Air Force "Harvest Eagle" system has been approved by the DMSB. That system, however, does not meet the Army's mobility requirements. Research is continuing on this matter, and a possible solution is to use the core modules from the Combat Field Feeding System being developed at the Army R&D laboratories at Natick, Massachusetts.
- Power Generation. The DMSB has approved a standard 100 kilowatt generator for DEPMEDS. Research is underway, however, to improve the existing Utility Pack, including converting it to use diesel as its primary fuel and improving its efficiency. If this product-improvement effort is successful, the quantity of the new electrical generator and environmental

control systems must be reduced since the Army owns a substantial inventory of Utility Packs.

- Waste Water. A system needs to be developed (or selected) to accumulate waste water at a central collection point based on the current Army development program for waste water management in the field. Additionally, the disposition of waste water from the collection point needs to be coordinated with the MACOMs.
- Oxygen Generation and Sterile Fluids. DEPMEDS hospitals will have large requirements for oxygen and sterile fluids. If systems can be incorporated into the hospitals to generate oxygen and sterile fluids, the mobility and sustainability of the hospitals will be significantly improved. Unless existing NDI equipment is approved for field use, R&D efforts in these areas must be continued.

STANDARDIZATION AND INTEROPERABILITY

The DMSB has ensured a high degree of standardization among DEPMEDS hospitals of the different Services. However, the procurement process is not designed to ensure that a given type of equipment, in functional terms, is the same in each DEPMEDS hospital. Various manufacturers may supply the same type of equipment to meet a specific functional requirement, but because the equipment is purchased in different fiscal years, the equipment model may be different and incompatible with other equipment. This complicates the maintenance and supply support of DEPMEDS hospitals.

RELIABILITY, AVAILABILITY AND MAINTAINABILITY (RAM)

No RAM tests for DEPMEDS have been documented and RAM testing of NDI is not required in AR 702-3. However, a field RAM engineering data-collection effort must be undertaken to provide a feedback and corrective-action loop as well as baseline data to evaluate potential requirements for systems modifications.

SUPPORT MANAGEMENT AND ANALYSIS

The PM is responsible for the DEPMEDS ILS planning and testing, and for LSA strategy, documentation, and record. The only evidence of any LSA effort is the minutes of the quad-service LSA meetings. There is no evidence of formal ILS planning and testing development for CZ/COMMZ hospital systems. AMC should apply materiel release programs for all previously fielded equipment.

COST ANALYSIS AND FUNDING

The PM must have detailed visibility of what funds are programed, budgeted, and executed for the DEPMEDS project. Additionally, the FM must know how those funds are allocated and expended against each hospital; for example, the PM must know how many MASH, Combat Support Hospital (CSH), etc., were procured with funds expended in FY85. The budgeting and accounting systems must be examined to determine how these data can best be extracted and compiled for the PM's overall control plan.

CHAPTER 4

MAJOR ISSUES

The issues presented in this chapter are highlighted because they require the PM's attention. These issues must be resolved before DEPMEDS can be successfully fielded.

PROJECT MANAGEMENT

The Project Manager must obtain approval of a charter giving him substantial authority over DEPMEDS planning, direction, and execution. The need for a strong charter is particularly evident when considering the limited project management staff that can realistically be expected to be assigned in the critical near term. A strong charter is even more important when the status of the Army's progress is compared with that of the other Services, bearing in mind that the Army has the largest dollar share and number of field hospitals in DEPMEDS. The multiple materiel developers and the assignment of USAMMA as DEPMEDS Logistician, as well as Materiel Developer for medical materiel also support the requirement for an authoritative PM. If the PM does not receive the authority to gain immediate control of the DEPMEDS program and ensure its successful fielding, the Army could lose DEPMEDS funds in the next Program Objective Memorandum (POM)/Budget process. Loss of funds, compounded by the present DoD concerns over the Army's ability to carry out patient care responsibilities in wartime will be counterproductive to the Army Surgeon General's present initiatives and will adversely affect the Army's reputation and total obligation authority.

The Army has not classified DEPMEDS as a "major system" requiring project reviews by the DSARC and ASARC because the equipment involved is primarily NDI. However, the dollar value of the DEPMEDS acquisition is high enough to normally require DSARC/ASARC review. The PM must obtain a waiver for DEPMEDS to be officially exempted from the ASARC/DSARC review process based upon the negligible amount of new technology involved. Appendix B is a proposed PM charter.

PROCUREMENT

The progress of DPSC procurement for the major end items of medical equipment is of serious concern. Contracts have been awarded for only 2 of the 30 major items financed with OPA funds. As long as the estimated delivery dates for major equipment is so uncertain, any fielding schedule is uncertain. The DMSB Project Coordinator and the DPSC Project Officer are currently addressing ways to expedite the procurement process. If the procurement pace does not markedly improve in the near future, the personal attention of The Surgeon General, expressed in letters to the Commander, DLA, will be needed.

The requisitioning and procurement process for 30 support items that must be compatible with end items and thus cannot be identified or procured until a contract is awarded for the end item must also be resolved. While the acquisition of the remaining lower-cost items for the medical assemblages is not as serious a problem, very little data are available on that process. DPSC must provide USAMMA with regular status reports on procurement of both end items and assemblages.

The status of the procurement of the associated support items of equipment (ASIOE) provided by the AMC commodity commands must be established. The DEPMEDS TOEs must be stratified by the Materiel Developer and each commodity command must ensure that the items for which they are responsible will be available to support the fielding plan.

STANDARDIZATION

The acquisition of medical equipment is segmented by fiscal years. That is, a particular "standard" equipment for the DEPMEDS project, such as an X-ray, might be procured from several different manufacturers. This would increase the expense and difficulty of supply support, maintenance, and training. Changes in the funding and/or procurement process for DEPMEDS must be explored by the PM, USAMMA, and DPSC to resolve this problem.

DESIGN AND CONFIGURATION

There are unresolved DEPMEDS support equipment issues, including the feeding system to be used, waste water management system to be developed, and the status of the Utility Pack. By December 1986, precise specifications must be developed for both storage and operational configurations for DEPMEDS assemblages.

The storage specifications must resolve the questions of how to pack DEPMEDS equipment. Without resolving these design issues, the project cannot logically proceed beyond acquisition.

RETAIL ALLOWANCES AND REQUISITIONING

USAMMA is developing MPLs for medical repair parts, and a similar comprehensive effort must be initiated by AMC to support nonmedical items reflected in the DEPMEDS TOEs. Specific procedures and schedules must be developed, and responsibilities assigned for requisitioning the authorized medical and nonmedical repair parts for DEPMEDS-equipped units.

PROVISIONING

DPSC is not establishing any new items in stock in support of maintenance requirements for medical equipment. This procedure will clearly cause excessive leadtimes for the acquisition of medical repair parts in support of DEPMEDS. DPSC must work with the Services to establish criteria for initial provisioning of these medical repair parts and fund the execution of this effort.

MATERIEL FIELDING PROCESS

The development of materiel fielding plans and the materiel fielding process could delay the fielding of the first Army DEPMEDS hospitals. AR 700-127 schedules the total materiel fielding process over a period of 780 days. Even if a contract for development of MFPs is awarded expeditiously and none of the losing bidders challenge the award, the first draft MFP will not be available for distribution to the major commands before August 1986. If the materiel fielding process then follows the normal 780-day schedule, the first hospital could not be fielded until October 1988.

STORAGE

A comprehensive storage plan must be developed to address the requirements of the active units, POMCUS, PWRS, and the training centers. As a first step in formulating a total storage plan, the capability and willingness of DLA to store medical materiel sets must be established.

READINESS MEASURES

Measurable support-related materiel requirements and support conditions for IOC have not been developed. AHS, the Combat Developer, must remedy this deficiency in accordance with AR 700-127.

TRANSPORTABILITY

The DEPMEDS hospitals have not had a formal transportability analysis by the MTMC Transportation Engineering Agency (MTMCTEA) as required by AR 70-47. Serious concern that the size of the DEPMEDS hospitals may prevent the Army from achieving the mobility requirements of the units must be resolved through analysis by MTMCTEA. Both system design and equipment R&D must be pursued to enhance the mobility of DEPMEDS units.

HSSALB

The doctrine for the types, numbers, capabilities, and employment of DEPMEDS hospitals is changing in accordance with the HSSALB concept. The implications of the HSSALB concept for DEPMEDS must be quickly identified. The equipment acquisition process particularly should be adjusted as soon as possible to avoid misallocation of limited resources. The HSSALB concept will change the mix of medical and support equipment required for DEPMEDS.

FIELDING SCHEDULE

The present schedule calls for a First Unit Equipped Date (FUED) of third quarter FY87 for fielding DEPMEDS, but that schedule is not realistic in view of the current status of the project. The most serious impediments to that schedule are the conditions surrounding the materiel fielding process and the procurement process for major medical end items. Specifications for medical materiel set configuration and packing present further impediments to the timely fielding of DEPMEDS. The present schedule might be slipped as much as 18 months, but even then, any revised FUED will remain tentative until the questions regarding procurement, configuration, packing, and the materiel fielding process are resolved.

DIVISION OF RESPONSIBILITY BETWEEN MATERIEL DEVELOPERS

The division of responsibility for Materiel Developer between USAMMA, TROSCOM, and TACOM adds complexity to the management of the DEPMEDS

program. The PM must ensure that each command has a clear understanding of what DEPMEDS equipment is assigned to them for procurement, for materiel fielding plan development, and for new equipment training. The PM must closely monitor the actions of the Materiel Developers to ensure that the requirements of total package fielding are met.

FORMALIZED RESPONSIBILITIES AND CONTROL

The JSOR (Appendix C) assigns the functions of Mission Assignee, the Combat Developer, the Trainer, the Logistician, and the Operational Tester to medical commands or medical agencies. It defines the responsibilities associated with these functions in general terms and gives the assigned commands the authority to carry out their responsibilities for medical equipment. However, not all equipment being fielded in DEPMEDS-equipped units is medical equipment. The PM must ensure that the commands that have authority to manage the nonmedical equipment are tasked with the responsibility to carry out the appropriate ILS functions. Assignments made under the JSOR are formal and carry the weight of regulation, but they are not definitive in scope or task. Responsibilities for nonmedical items have been assumed by other activities, such as AMC, without formal tasking and definitive guidance. In absence of such guidance, the orientation of the participating activities tends to be towards the integration of an end item to the ultimate user rather the integration of an item of equipment into a system under the total package fielding concept. Our research indicates that there is no comprehensive list of responsibilities or finite management guidance for DEPMEDS. The PM must formalize interrelated taskings with each participant and establish a formal information reporting system to facilitate an intensive management program. The PM must also designate a central management structure to coordinate a total DEPMEDS and DEPMEDS unit LSA record, ILS plan, and analysis.

CHAPTER 5

CONTROL PLAN DEVELOPMENT

Following this assessment of the Army DEPMEDS project, the Logistics Management Institute will work closely with the PM to develop a project control plan. The control plan for DEPMEDS provides the PM with a means to manage the actions of those commands involved in its development and to identify tasks critical to its successful completion. The control plan will:

- Include both Program Evaluation and Review Technique (PERT) diagrams and Gantt charts.
- Update both the PERT diagrams and Gantt charts from a single data base.
- Use commercially available software or the Air Force's Computer Support Network Analysis System (CSNAS) on a microcomputer.
- Include tasks being performed by at least ten commands involved in the development of the DEPMEDS hospitals and probably include more than 100 individual tasks.
- Provide various levels of detail in the PERT diagram, showing major tasks for management overview and detailed subtasks for program monitoring.
- Evaluate the effect of added tasks or changes in task completion date on hospital fielding dates.
- Define a standard format for communicating task descriptions and schedules.

These initial concepts will be refined as we begin the detailed analysis and development of the control plan. We will develop the control plan by continuing the work breakdown of functions started in this assessment.

Once the major tasks are defined and the responsible commands identified, the PM will be required to provide guidance on:

- Major tasks to be included in the plan
- Validation of task assignments
- Level of detail required for subordinate tasks

- Type and frequency of reports to update status.

The PM must then task commands involved to provide periodic, detailed information on subordinate tasks and their associated milestones using a standard report format.

Development of a control plan will benefit the commands participating in the DEPMEDS project, as well as the PM, by requiring commands to closely review and, in some cases, develop their own internal milestones for DEPMEDS-related tasks. Commands will be able to identify tasks outside their organization that are prerequisite to starting their own tasks. The plan will also communicate a clear understanding of what tasks the project manager expects supporting commands to perform, and it will provide supporting commands the opportunity to tell the project manager what tasks they are capable of doing and when the tasks can be completed.

APPENDIX A

**CHARTER
DEPLOYABLE MEDICAL SYSTEMS**

CHARTER
DEPLOYABLE MEDICAL SYSTEMS

I. BACKGROUND

A. DOD Instruction 6430.1 prescribes policy and assigns responsibilities governing the standardization and acquisition of deployable medical systems. It also charters the Military Field Medical Systems Standardization Steering Group (MFMSSSG) to guide this DOD effort. The term Deployable Medical Systems as used in this charter identifies all field type hospitals in a Theater of Operations.

B. The importance, complexity and magnitude of applicable AMEDD Deployable Medical Systems Project (DMSP) warrants centralized and intensified control at DASG level. This is vital to improve the DA medical readiness posture.

C. The Director of Health Care Operations (D/HCZ) represents The Surgeon General on the MFMSSSG and provides overall executive guidance relative to approach and implementation of DMSP management. In this regard, D/HCZ conducts principal management reviews, provides solutions to problems and establishes operational priorities in relation to total DASG assigned mission, responsibilities and projects.

D. The establishment of AMEDD Systems Coordinator (SC) and Deployable Medical Systems Consultants Office is essential to strengthen the DASG management effectiveness and assure efficient and timely implementation of medical contingency systems and support programs.

II. MAJOR OBJECTIVES OF THE DEPLOYABLE MEDICAL SYSTEMS PROJECT ARE TO:

A. Determine Deployable Medical Systems that can be operational in time to provide adequate support in accordance with approved plans.

B. Coordinate with MFMSSSG working groups to insure maximum DOD Standardization.

C. Update applicable TOE's to include as functional components the revised medical equipment sets, i.e. Surgery, X-ray, Ward, etc. and nonmedical support equipment i.e. shelters, utility systems, vehicles, food service, etc.

D. Acquire sufficient deployable medical systems to meet current estimate of wartime requirements to include integration of products of DOD Standardization effort and programming, budgeting, procurement, assembly etc. of modern materiel. This includes the modernization of existing equipment and sets.

E. Ensure that all deployable medical systems are prepositioned and ready to be employed with full base support and resupply system. This includes the development of storage and maintenance capabilities for preassembled, ready for issue materiel both in CONUS and OCONUS.

F. Ensure that procedures to measure equipment readiness posture of DMS are in effect and properly accomplished. Applicable procedures should be based upon the identification of readiness significant component of each equipment set or item.

G. Develop procedures to acquire and provide dated and deteriorating items and high technology equipment to field units prior to employment.

H. Prepare DMSP user manual prescribing purpose, scope, operational characteristics, support requirements and other essential instructions.

III. DESIGNATION OF SYSTEMS COORDINATOR

Wilbur J. Balderson is designated as Systems Coordinator (SC) for the AMEDD Deployable Medical Systems Project (DMSP) effective 1 December 1982.

IV. MISSION OF SYSTEMS COORDINATOR

The SC is the focal point in DASG for DMSP and responsible for centralized intensive coordination and facilitation in all events in the Life Cycle System Management and Acquisition of DMSP in accordance with DODI 6430.1, AR 40-60, AR 40-61 and other pertinent directives. He participates as AMEDD lead in DOW deployable medical systems standardization effort.

V. MISSION OF DEPLOYABLE MEDICAL SYSTEMS CONSULTANTS

The Deployable Medical Systems Consultants Staff will provide support necessary for accomplishing the professional medical aspects of DMSP under the supervision of D/H CZ. This group will support the SC during specific phases of DMSP including participation in MFMSSSG functional component panels, performing independent evaluations and analysis and serving as technical advisors relative to clinical aspects of tests and evaluations of DMSP modules.

VI. AUTHORITY AND RESPONSIBILITIES

A. Authority

By direction of The Surgeon General, the Director of Health Care Operations further delegates to the Systems Coordinator full line authority for coordinating and facilitating all aspects of DMSP necessary to execute assigned mission. The SC and Deployable Medical Systems Consultants are authorized to coordinate with appropriate organizations and agencies to promote optimum commonality of deployable medical systems.

B. Responsibilities

1. The SC is responsible for:

a. Formulating and maintaining a DMSP plan and master milestone schedule as approved by D/H CZ.

b. Ensuring through a systems approach that DMSP actions are identified, coordinated, assigned and accomplished in a timely manner.

c. Ensuring the development and implementation of DMSP in accordance with approved plans, policies and procedures.

d. Working with the medical and nonmedical responsible participating organizations/agencies, develop and execute plans of actions to meet milestones of all DMSP elements.

e. Facilitating joint service cooperation of DMSP.

f. Collecting and synthesizing information as a basis for actions and recommendations.

g. Identifying new initiatives to keep abreast of changing technology and military requirements.

h. Recommending priorities for implementation of DMSP.

i. Conducting In-Process Reviews to determine actual progress toward meeting stated objectives.

j. Preparing taskings to organizations/agencies.

k. Informing higher authority and key staff members of status and problems relative to DMSP. This includes the preparation of progress reports and situation reports for transmittal to The Surgeon General.

2. Army medical organizations/agencies listed in Annex A will assist the SC in assigned mission areas as required.

3. The SC will interface with appropriate staff elements of other organizations listed in Annex B as required to accomplish assigned mission.

VII. COMMUNICATION CHANNELS

A. The SC is authorized direct communication with supporting and interfacing organizations to the extent necessary, and in accordance with approved policies, to facilitate the timely and orderly conduct of assigned responsibilities.

B. The SC has a direct channel of communication to The Director of Health Care Operations, DASG.

C. All taskings and required actions will be communicated through established channels.

VIII. LOCATION AND SUPPORT

The SC and Consultants Staff are located at the Pentagon with necessary facilities and administrative and functional support provided by DASG-HC2.

IX. PROJECT TERMINATION

A. The DMSP will be disestablished when it is determined that the major objectives have been accomplished or can be attained without further use of intensive management.

B. Six months prior to termination of DMSP a transition agreement will be developed to identify the agencies/activities to assume responsibility for continued support of this project.

APPROVED: _____



WILLIAM P. WINKLER, JR.
Brigadier General MC
Director, Health Care Operations

DATE: _____

13 Dec 82

APPENDIX B

PROJECT MANAGER CHARTER DEPLOYABLE MEDICAL SYSTEMS

APPENDIX B

PROJECT MANAGER CHARTER DEPLOYABLE MEDICAL SYSTEMS

I. DESIGNATION OF THE PROJECT MANAGER

Colonel Wendell Stepp is designated the Department of Army (DA) Project Manager (PM) for Deployable Medical Systems (DEPMEDS). Colonel Stepp assumed project responsibilities effective 1 November 1985. The PM reports directly to Director, Health Care Operations, Office of the Surgeon General. This charter supersedes the DEPMEDS charter approved by Brigadier General William P. Winkler, Jr., Director, Health Care Operations on 13 December 1982.

II. MISSION

The mission of the PM is to implement, for the Army, the provisions of para E.4. of DoD Directive 6430.2, "DoD Medical Standardization Board," dated June 21, 1984 [promulgated in Army Regulation (AR) 10-65], and portions of AR 70-17 and 700-127 as specified in other sections of this charter. The PM will:

A. Establish and maintain a standard family of deployable medical systems within DA.

B. Exercise executive authority, regarding DEPMEDS components and other materiel assigned to support Army DEPMEDS equipped units, over:

- Planning, programming, and budgeting
- Standardization and development
- Acquisition
- Support
- Product improvement
- Disposal.

C. Present DEPMEDS-equipped units requirement for nonmedical support equipment to responsible DoD activities and establish the reporting structure for continuous monitoring of required integrated logistics support (ILS) functions.

III. AUTHORITY AND RESPONSIBILITIES

A. AUTHORITY

The DA PM, DEPMEDS is delegated the full-line authority for the execution of that part of The Surgeon General's (TSG) assigned Army mission related to the integration of DEPMEDS into the Army's force structure. The PM is also delegated full-line authority assigned to TSG for the DA standardization and intensive management of DEPMEDS units. The PM will provide DA planning, programming, and budgeting guidance to Army organizations with support responsibility for DEPMEDS.

B. RESPONSIBILITIES

1. The PM is responsible for:

- a. Planning, programming, and budgeting for DEPMEDS.
- b. Planning and directing of the acquisition of DEPMEDS to ensure the economical and timely execution of a balanced program.
- c. Ensuring that responsible organizations develop and execute plans to provide full ILS and to maintain an evaluation system for monitoring the performance of fielded DEPMEDS.
- d. Planning and coordinating the Army role in DoD development and product improvement.
- e. Managing the execution of the Army advanced development, engineering, and production for DEPMEDS.
- f. Interfacing with other elements of the Federal Government on technical, standardization, and ILS aspects of the DA DEPMEDS Program.

g. Ensures development and implementation of ILS planning for DEPMEDS.

h. Monitoring, through testing and field validation, the system's Reliability, Availability, Maintainability, and Durability (RAM-D), where applicable, to ensure that requirements are met and maintained throughout the DEPMEDS Program and field operations. The PM will take appropriate action to correct RAM-D deficiencies. The PM will ensure that contractor(s) establish and maintain an effective quality-control program throughout the system's production and modification.

i. Specific tasks are delineated in Annex A.

2. Organizations listed in Annex B will support the PM in their assigned mission areas in accordance with this charter and other DoD and DA Directives, policies, regulations, and separately negotiated memorandums of understanding or agreements.

IV. RESOURCE CONTROL

A. The Office of the Surgeon General will plan, program, budget, and fund the cost of DEPMEDS to include procurement, test, evaluation, and qualification.

B. The PM will ensure that:

1. Funds and manpower requirements are developed and submitted in accordance with DA funding and manpower procedures for inclusion in each annual Program Analysis Resource Review (PARR)/Modernization Resource Information Submission (MRIS).

2. Research, Development, Test and Engineering (RDTE), procurement, product assurance, operation and maintenance, and stock fund requirements are compatible with the life cycle progression of DEPMEDS.

C. Departmental funds approved to accomplish the objectives of the DEPMEDS Program will be provided to the responsible Major Command (MACOM)

or other Military Departments/Agencies in accordance with established procedures, except that Army RTDE funds and procurement funds allocated for production base support will be provided to the PM for allocation. The PM will provide the guidance and will allocate funding to participating organizations in accordance with existing regulations and procedures. Participating organizations receiving or expending DEPMEDS-related funds will furnish status or progress analysis as directed by the PM to assess mission accomplishment.

V. COMMUNICATION CHANNELS

A. Direct communication is authorized between the PM and all DoD elements involved in the DEPMEDS Project except for correspondence dealing with specific contractual actions. The PM is authorized to issue over his own signature such correspondence, technical directives, implementing plans, and allocations necessary in fulfillment of the project responsibilities. All correspondence and instructions to contractors or potential suppliers which bind the government, or which may have an effect on a potential or existing contractual arrangement, will be issued only by the appropriate contracting officer. The PM may deal directly with any commercial source on any component of DEPMEDS when such exchange of information does not abrogate the responsibilities of an authorized contracting officer.

B. The PM has a direct channel of communication to the Army Surgeon General, the Army Chief of Staff, and the Secretary of the Army should any participating organization fail to respond to project requirements.

VI. SERVICE AGENCY REPRESENTATION

Each of the MACOMS will, and the Defense Logistics Agency (DLA) is requested to, designate a representative authorized to negotiate and execute agreements necessary to implement the DEPMEDS Program. The PM is authorized to enter into separate agreements with the DLA and other Military Departments for establishing Service/Agency DEPMEDS representatives. These representatives will

advise the PM on DEPMEDS matters related to their respective Service or agency and will serve as focal points in the implementation of the DA DEPMEDS Program.

VII. LOCATION AND SUPPORT

The offices of the PM are located at the Pentagon, Room 2D459, Washington, D.C. 20301-2300. Facilities and administrative support will be provided by the Administrative Office, Office of the Surgeon General.

VIII. TERMINATION

The mission of the PM is expected to continue 3 years beyond the First Unit Equipped (FUE). Revalidation of the need for PM, DEPMEDS, will occur at this time.

APPROVED _____ DATE _____

I-B-8

ANNEX A

PROJECT MANAGER CHARTER DEPLOYABLE MEDICAL SYSTEMS

The PM shall exercise executive authority within the Department of the Army over the Deployable Medical Systems Program. Specific responsibilities of the PM are defined in this annex and the basic charter for the management and standardization of DEPMEDS. Executive authority of the PM is defined as intensive management of the overall DEPMEDS Program as follows:

A. Provide guidance, direction, and control over the standardization of DA DEPMEDS including documentation for procurement, logistics support, and configuration management.

B. Make centralized DEPMEDS procurement assignments for DA DEPMEDS components.

C. Publish a consolidated DA DEPMEDS procurement plan containing the estimated DA DEPMEDS requirements for the 5-year, outyear period. This plan will be published during the first quarter of each fiscal year and will provide direction on the mode of procurement, i.e., multiyear, sole source, etc.

D. Acquire appropriate documents for, and maintain the status of, component planning, programming, and budgeting for DEPMEDS and associated resources.

E. Establish procedures for controlling the procurement of non-DoD standard DEPMEDS components.

F. Solicit approval from the Defense Medical Standardization Board for the acquisition of deviations to the standard DEPMEDS when necessary.

G. Direct the establishment of economical repair limits, maintenance standards, and disposal criteria for components of DEPMEDS.

H. Establish standards for DEPMEDS technical publications and assure that operator, service, and maintenance manuals and repair parts catalogs are available in usable form concurrent with equipment delivery.

I. Monitor the programming and scheduling of depot level maintenance requirements for DEPMEDS.

J. Ensure that planning for DEPMEDS training is accomplished, including the identification of resources, establishment of standards, coordination of requirements, and assignment of specific training missions.

K. Monitor, through testing and field validation, the system's Reliability, Availability, Maintainability, and Durability (RAM-D) to ensure that requirements are maintained throughout production and operations. The PM will take appropriate action to correct operational RAM-D deficiencies.

L. Provide necessary controls for the equitable initial supply distribution of DEPMEDS and for the redistribution/disposal of displaced equipment determined by DA to be excess in their requirements.

M. Provide guidance and assistance for DEPMEDS mobilization planning and readiness reporting. Maintain surveillance of current capabilities.

N. Assure that participating activities provide an effective product assurance program consisting of quality assurance, reliability, maintainability, and system performance assessment/technical performance measurement for DEPMEDS.

O. Ensure readiness and affordability of DEPMEDS by application of Value Engineering, Design to Cost and Producibility, Engineering and Planning methodologies throughout the development cycle.

P. Establish methods to control the configuration management of DEPMEDS.

Q. Coordinate requirements for DEPMEDS in support of international, security assistance, and cooperative programs.

R. Control and be responsible for DEPMEDS components introduced into the inventory through offshore procurement and supported through military channels.

S. Plan, direct, and consolidate efforts of participating activities in the development and product improvement of DA DEPMEDS and DA DEPMEDS components.

T. Task medical and nonmedical organizations and agencies with assigned responsibilities. Develop plans of execution and milestone objectives for these participants.

U. Direct the overall management of the DEPMEDS resource programs.

V. Determine the appropriate source of support for the solution of DEPMEDS technical problems.

W. Make appropriate technical, program, and general management decisions associated with project and charter execution in all areas not specifically delegated elsewhere or precluded by law.

X. Task materiel developers to develop materiel release programs.

Y. Establish a control system for the execution and status reporting of ILS functions required to ensure the integration and fielding of DEPMEDS-equipped Army units and facilitate the Army Total/Unit Materiel Fielding (TP/UMF) Plan.

Z. Execute all responsibilities stated herein for the Army DEPMEDS Program.

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ANNEX B

DEPLOYABLE MEDICAL SYSTEMS PROJECT PARTICIPATING ORGANIZATIONS

Office of Assistant Secretary of Defense (Health Affairs)

Defense Logistics Agency

Office of Deputy Chief of Staff for Logistics

Office of Deputy Chief of Staff for Operations and Plans

Office of Deputy Chief of Staff for Research, Test and Evaluation

Defense Medical Standardization Board

U.S. Navy Fleet Hospital Project Manager

U.S. Air Force Medical Logistics Office

Medical Office, U.S. Marine Corps

Joint Committee on Tactical Shelters

U.S. Army Materiel Command

U.S. Army Forces Command

U.S. Army Training and Doctrine Command

U.S. Army Europe

U.S. Eighth Army

U.S. Army Japan

U.S. Army Health Services Command

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ANNEX C

DEPLOYABLE MEDICAL SYSTEMS PROJECT
ACCESSION LIST

PM NAME	DATE ASSUMED	DATE TRANSFERRED
Wilbur Balderson (Systems Coordinator)	13 December 1982	*****

APPENDIX C

JOINT SERVICE OPERATIONAL REQUIREMENT (JSOR)



DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 22061

REPLY TO
ATTENTION OF

ATCD-SE

20 November 1984

SUBJECT: Joint Service Operational Requirement (JSOR) for
Department of Defense Deployable Medical System

SEE DISTRIBUTION

1. Reference: AR 71-9.
2. HQDA approved the subject JSOR (Encl) on 25 Oct 84. The following information is applicable to this document.
 - a. System Designation: IPR.
 - b. Mission Assignee Agency: US Army Medical Materiel Agency.
 - c. Combat Developer: US Army Health Services Command.
 - d. Trainer: US Army Health Services Command.
 - e. Logistician: US Army Medical Materiel Agency.
 - f. Operational Test Responsibility: US Army Health Services Command.
 - g. CARDS Reference Number: 1455.
3. Subject requirements document is forwarded for information.

FOR THE COMMANDER:

1 Encl
as


S. D. SERAFINI
LTC, GS
ASST AG

DISTRIBUTION:
(Over)

**SUBJECT: Joint Service Operational Requirement (JSOR) for Department
of Defense Deployable Medical System**

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Comdt, Marine Corps (RD)
CNO, ATTN: OP-98, OP-323E, ONR-07
HQ USAF, ATTN: RDQLM
CINC
USAREUR & Seventh Army, ATTN: AEAGC-FMD
REDCOM, ATTN: JSE
Cdr,
Eighth US Army, ATTN: CJ-FD-MF
FORSCOM, ATTN: AFOP-FM
INSCOM, ATTN: IAFOR-R
OT Evaluation Agency, ATTN: CSTE-PCD
USALSC, ATTN: C-FD
USAMMA
MRDC
USA Health Svc Comd, ATTN: HSC-LO
USARJ, ATTN: AJGC-FDA
USACAA, ATTN: CSCA-RQ
JSACSC
USA Log Eval Agcy, ATTN: DALO-LEI
USA Safety Center, ATTN: PESC-SE
USA Western Comd, ATTN: AFOP-FD
US Tactical Air Comd, ATTN: DRP
AMC, ATTN: AMCDE-PA
USA Nuc & Cml Agcy
National Security Agcy
USA CA Cen & Ft Leavenworth
ATTN: ATZL-CAM-I
USA Soldier Spt Cen & National Capitol Region,
ATTN: ATZI-NCP-M
USA Training Spt Cen, ATTN: ATIC-DST-PM
TCATA, ATTN: ATCAT-OP
USACAC LO (AK)
USAJFKSWC, ATTN: ATSU-CD-MO
Comdt,
USAArms, ATTN: ATSB-CD
(See next page)

JOINT SERVICE OPERATIONAL REQUIREMENT (JSOR)
DEPARTMENT OF DEFENSE
DEPLOYABLE MEDICAL SYSTEM

1. TITLE.

a. DOD Deployable Medical Systems (Level 3 and 4 medical treatment facilities).

b. CARDS reference number: 1455

2. STATEMENT OF THE NEED/THREAT.

a. This Joint Service Operational Requirement (JSOR) specifies common requirements for medical and nonmedical materiel designed to support patient care under a variety of field environmental conditions in Level 3 and 4 treatment facilities for the Army, Air Force, Navy, and Marine Corps. The materiel addressed under the provisions of this JSOR will be used to achieve and maintain commonality/standardization of system component items as directed by DODI 6430.1, Department of Defense Deployable Medical Systems.

b. This JSOR is not intended to address those service-unique requirements or developmental projects for which separate documentation is required.

3. TIMEFRAME AND IOC. The Department of Defense (DOD) Deployable Medical Systems are required for fielding FY87 through FY 91.

4. OPERATIONAL AND ORGANIZATIONAL PLAN (O&O Plan).

a. The DOD Deployable Medical Systems for Level 3 and 4 medical treatment facilities will be used in the Combat Zone and Communications Zone of a Theater of Operations to provide health services support to all authorized personnel.

b. The medical systems are intended for use in all geographic areas and under all climatic conditions commensurate with operational and contingency requirements of the Department of Defense.

c. The medical systems must function under all battlefield conditions anticipated in future conflicts.

d. Authorization of component items will be accomplished IAW individual services' internal operating procedures concerning authorization documentation. Personnel requirements will also be addressed by the individual services with respect to quality and quantity of military occupational specialties.

5. ESSENTIAL CHARACTERISTICS.

a. General: The items of materiel addressed by this document are components of the functional medical areas (subsystems) of the medical treatment facilities that make up the Department of Defense Deployable Medical Systems. Essential Characteristics stated herein are generic in nature and relate as applicable to all component items. Deviations, relative to distinct mission and/or logistic/support restrictions, will be considered on an item-by-item basis. No additional components may be added to the Deployable Medical System without prior approval of the Military Field Medical Systems Standardization Group.

b. Electrical: The characteristics of the electrical powered items shall be consistent with the requirements contained in the latest edition of specification DPSC-DEPMEDS-AT(DM), Deployable Medical Systems, General Requirements For.

c. NBC Contamination Survivability: The component items will be designed/constructed of materials that facilitate chemical agent decontamination and use of routine hospital decontamination solutions. Contamination avoidance may be provided by replacement in shelter work areas and in reusable, protective containers designed/constructed of materials that facilitate chemical agent decontamination or have been painted with a chemical agent resistant coating.

d. Nuclear Survivability: The component items will require only High Altitude Electromagnetic Pulse (HAEMP) survivability. Protection of the components will be achieved at the earliest possible time consistent with advances in technology associated with this type of protection. Replacement or repair of the item made inoperable by other nuclear effects can be accomplished prior to any mission degradation.

e. Containerization: Component items (and accompanying accessories), when required, as determined by the individual military service, will be packaged in reusable, portable, spun-molded polyethylene or equal fiberglass, plastic, or metal containers, which may be an integral part of the equipment design or separate items. The container must protect contents from vibration, shock, and compression damage during transit and/or storage and be corrosion resistant, dustproof, and waterproof, IAW the latest edition of specifications DPSC-DEPMEDS-AT(DM), Deployable Medical Systems, General Requirements For.

f. Safety/Health: The component items will comply with applicable safety and health design performance and operational requirements and not present uncontrolled safety and health hazards to personnel throughout the life cycle of the item. As a minimum, MIL-STD's 454, 882, 1472, and 1747 apply.

9. Reliability, Availability, and Maintainability (RAM): Commercial RAM data will be obtained and used to determine life expectancy, reliability, availability, and maintainability characteristics of the cited equipment. The military RAM characteristics will be consistent with commercial performance as demonstrated through proven marketability and use by commercial sources. This information will be obtained during the market survey conducted by the logistician. RAM performance will be given priority in the evaluation of alternative approaches or in the comparison of candidate systems/equipment to ensure the systems/equipment are supportable and able to meet mission and readiness requirements.

6. TECHNICAL ASSESSMENT: As directed by the Military Field Medical Systems Standardization Steering Group (MFSSSG) under the provisions of DODI-6430.1, the Quad-Service Standardization Panels were formulated to develop a Department of Defense Deployable Medical Systems (DEPMEDS) component data base. A DOD Clinical Review Committee and Logistics/Maintenance Panel were convened to review the data base for accuracy and completeness. Ad hoc committees were organized under the direction of the MFSSSG to determine nonmedical materiel support requirements for the Department of Defense Deployable Medical Systems. A multi-service DOD standardization deployable medical systems coordination will be conducted during November 1984. Equipment issues that remain unresolved at the completion of the CY84 test will be addressed jointly by the MFSSSG Chemical Review Committee, the services logisticians, training developers, and user representatives. The Defense Medical Materiel Board (DMMB) and the services will determine market survey information requirements to further define the essential characteristics of the system component equipment items.

7. LOGISTICAL SUPPORT CONCEPT: The components of the Department of Defense Deployable Medical Systems will be supported by established logistical support capabilities of the individual service, or under a joint logistics support agreement as appropriate. The individual and/or joint logistical support analysis will be used to determine and define all logistical support issues for the operation, maintenance, and support of the components. Repair parts, special tools, and test, measurement, and diagnostic equipment/calibration devices to support the equipment will be acquired under the authority of this document.

8. TRAINING ASSESSMENT. The materiel developer and the combat developer will develop a complete training subsystem specifically designed to support all phases of training from initial entry through sustainment training, to include New Equipment Training (NET) for user testing and initial fielding or to the extent required to support all phases of training for the Deployable Medical System.

a. As a result of the market survey and upon completion of the Logistics Support Analysis (LSA) generated IAW DARCOM Pam 750-16 for system operation and maintenance, the materiel developer and the TRADOC proponent school will jointly evaluate the need for standard technical documentation, training devices, and extension training materials, and identify requirements for NET.

b. System technical manuals and materials will be IAW AR 310-3. Commercially available technical manuals and materiel will be evaluated for adequacy by the TRADOC school IAW Chapter 8, AR 310-3.

c. The materiel developer/provider will provide any training devices identified as required by subparagraph a above under the authority of this document.

d. The combat developer will develop, or ensure development of, any training products, or changes to existing ones, required against the deployable system IAW TRADOC Reg 351-9. The training products developed as part of the training subsystem will be designed according to the Systems Approach to Training (TRADOC Reg 350-7), using the data generated IAW DARCOM Pam 750-16.

e. The Training Test Support Package will be tested during user testing.

9. **MANPOWER/FORCE STRUCTURE ASSESSMENT.** Manpower/Force Structure will be determined by the individual services.

10. **STANDARDIZATION and INTEROPERABILITY.** Interest in system components by NATO or other allies has not been fully identified.

11. **LIFE CYCLE COST ASSESSMENT.** Life cycle cost assessment will be determined by the individual services.

12. **MILESTONE SCHEDULE.** A milestone schedule will be developed by the individual services.

	Concur	Nonconcur
Special Assistant to the Chairman, MFMSSSG	X	
Department of the Army OTSG-DASG-ECL	X	
Department of the Air Force, OTSG, AFMSC/SGSL	X	
Department of the Navy, OTSG OP-093	X	
HQ, U. S. Marine Corps (Code MED)	X	
Commandant, Academy of Health Sciences, U. S. Army, HSHA-CDM	X	

APPENDIX D

**NAVY, AIR FORCE, AND MARINE CORPS
MANAGEMENT OF DEPMEDS**

APPENDIX D
NAVY, AIR FORCE, AND MARINE CORPS
MANAGEMENT OF DEPMEDS

NAVY

The Navy field hospital program started before the Deployable Medical System (DEPMEDS) concept was established as a quad-services program. As a result, the Navy established an organization to acquire individual DEPMEDS line items through the Defense Personnel Support Center (DPSC) and other support agencies and to assemble the hospital completely within the Navy. This approach was used for all hospitals procured during FY83, FY84, and FY85. Starting in FY86 and continuing through FY90, the Navy will order complete DEPMEDS medical materiel sets assembled by the Defense Logistics Agency (DLA) under the quad-services DEPMEDS concept. The Navy's organization is headed by the Fleet Hospital Program Manager (PML-500). The program management office is part of the Naval Supply Systems Command located in Arlington, Virginia. The program office is staffed by six logistics element managers in the following areas:

- Medical Systems
- Logistics (supply, maintenance, and coordination of all other elements)
- Acquisition
- Mobilization and Strategic Planning
- Facilities Engineering
- Manpower and Training.

Each logistics element manager is responsible for planning, monitoring program milestones, participating in periodic reviews of the program status, identifying problems, and coordinating action with other logistics managers. Monthly meetings

threatening the scheduled fielding dates.

The program management office is supported by the Fleet Hospital Support Office (FHSO) located at Naval Air Station, Alameda, California. FHSO, a field activity of the Naval Supply Systems Command, is responsible for component requisitioning for the fleet hospitals, assembly of the hospitals, storage, storage maintenance, transportation planning, and post-activation recovery. FHSO uses a contractor to assemble the hospitals that were procured prior to the establishment of DEPMEDS (FY83-FY85). The other functions at FHSO are performed by 18 military personnel and 45 civilian employees.

The first hospital will be fielded in December 1986. It is being assembled by FHSO and does not use medical materiel sets assembled by DLA. The first seven hospitals will be operational by September 1987, and all hospitals will be operational by September 1992.

A training facility is currently under construction at Camp Pendleton, California, and will be completed for the first class in October 1986. Students will be trained to assemble and repackage component parts of the hospital, while other components will remain assembled to make maximum use of the limited training time. The course is scheduled for 12 days, which will make it possible to train reserve units during annual active training periods. Each class will train 164 students.

The fleet hospitals will be transported by sea using roll-on, roll-off ships, and one ship is required to move a 500-bed hospital. Some hospitals will be permanently stored aboard ship for rapid deployment. The Navy is also planning to store hospitals outside the United States using host nation agreements. Of the 25 hospitals being built by the Navy:

- Three will be 250-bed combat zone hospitals.

- Twelve will be 500-bed combat zone hospitals.
- Five will be 500-bed communication zone hospitals.
- Five will be 1000-bed communication zone hospitals.

The first eight hospitals will be manned by active-duty personnel, and the remaining ones by reserve medical units.

The Fleet Hospital Program Manager has scheduled a test for the first Fleet hospital at Camp Pendleton in April 1987. It will include a full complement of personnel and simulated patient loading. The cost for a full test is estimated to be \$2 million; if funding is not available for the full test, the Navy plans to do a partial test.

Our analysis indicates that the Navy's program is well organized and well staffed. The Program Manager has a project charter and he appears to be following standard program management procedures. Even with the large support staff and the authority given by the charter, coordinating actions with commands outside of the Naval Supply Systems Command requires intensive management. However, the program management staff and the FHSO provide strong central control for the project.

AIR FORCE

The Air Force does not have a Project Manager specifically for DEPMEDS; instead, the management of the program is handled within the existing organizational structure. The Air Force plans to acquire thirty-three 500-bed hospitals and three 250-bed hospitals. The 250-bed hospitals and the first eleven 500-bed hospitals will be Air Force-designed, but the remaining 22 hospitals will be DEPMEDS standard.

Air Force policy guidance for DEPMEDS is provided by the medical readiness office on the staff of the Air Force Surgeon General. The configuration of the Air

Force DEPMEDS hospitals, using the standardized DEPMEDS sets and equipment, is approved by the medical consultants division of the Surgeon General's staff. The Air Force Medical Logistics Office (AFMLO) requisitions all medical materiel from DPSC, and Air Force-deployable hospitals are assembled at the Marine Corps Logistics Base in Albany, Georgia, where AFMLO has two personnel permanently assigned to monitor and assist the assembly effort. AFMLO is also responsible for producing the "Tables of Allowance" (TAs) for the hospitals. The TAs specify the medical equipment and supplies, but only select nonmedical items; thus, they are limited in scope compared to an Army Table of Organization and Equipment (TOE).

The Air Force concept of operations for a deployable hospital is substantially different from that of the Army. First, Air Force hospitals are not required to be highly mobile since they will be prepositioned at their planned operational sites. Second, Air Force hospitals rely on their host installation for facilities, food service, utilities, and transportation. This reliance simplifies DEPMEDS management insofar as the nonmedical support equipment is concerned. The Medical Wartime Hospital Integration Office (MWHIO) is responsible for ensuring proper coordination with the gaining commands and other organizations for the support services needed to operate deployable hospitals. It resolves questions about nonmedical equipment, performs liaison with non-Air Force medical R&D organizations, and addresses wartime manning requirements of deployable hospitals. Both the Army and Navy usually have an officer assigned to MWHIO.

The Air Force is developing a management control mechanism for DEPMEDS using a software system created by the Air Force Logistics Command called Computer Support Network Analysis System (CSNAS). CSNAS uses the Program Evaluation and Review Technique (PERT) to link separate elements of a project and provide a means to efficiently record and display project status. At present, the control system being developed covers only the acquisition and assembly phases of

the project. However, AFMLO personnel consider the system well suited for project management through the Initial Operational Capability (IOC) date of a hospital. The software can operate on an IBM, or IBM-compatible Personal Computer (PC) and is available to the Army.

MARINE CORPS

The Marine Corps relies primarily on the Navy for medical care within a theater of operations, but does provide limited flow-through facilities that are expected to hold patients for brief periods. Each of the three Marine Amphibious Forces has one 200-bed hospital (Hospital Company) and five 60-bed hospitals (Medical Companies). The Marine Corps procured and assembled these facilities before the DEPMEDS standards for deployable hospitals were established. Since replacement equipment for those hospitals will be DEPMEDS standard, the Marine Corps has a strong interest in the equipment selection for DEPMEDS. The senior medical officer assigned to the Marine Corps is a member of the Defense Medical Standardization Board (DMSB). Logistics planning and management for Marine Corps DEPMEDS is accomplished within the Materiel Division under the Deputy Chief of Staff for Installations and Logistics, Headquarters, Marine Corps.

APPENDIX E

ACRONYMS AND ABBREVIATIONS

APPENDIX E
ACRONYMS AND ABBREVIATIONS

AFMLO	Air Force Medical Logistics Office
AHS	Academy of Health Sciences
AMC	Army Materiel Command
AMIM	Army Modernization Information Memorandum
AR	Army Regulation
ASARC	Army System Acquisition Review Council
ASD(HA)	Assistant Secretary of Defense (Health Affairs)
ASIOE	Associated Support Items of Equipment
ASL	Authorized Stock List
BOIP	Basis of Issue Plan
COMMZ	Communication Zone
CONUS	Continental United States
CSH	Combat Support Hospital
CSNAS	Computer Support Network Analysis System
CZ	Combat Zone
D&D	Dated and Deteriorative
DA	Department of the Army
DASG	Department of the Army Surgeon General
DEPMEDS	Deployable Medical System
DID	Data Item Description
DLA	Defense Logistics Agency
DMSB	Defense Medical Standardization Board
DMSP	Deployable Medical System Project

DPSC	Defense Personnel Support Center
DSARC	Defense System Acquisition Review Council
ECU	Environmental Control Unit
EVAC	Evacuation Hospital
FHSO	Field Hospital Support Office
FUE	First Unit Equipped
FUED	First Unit Equipped Date
HQDA	Headquarters, Department of the Army
HSSALB	Health Services Support for the Air Land Battle
ILS	Integrated Logistics Support
ILSMT	Integrated Logistics Support Management Team
ILSP	Integrated Logistics Support Plan
IOC	Initial Operational Capability
ISO	International Standards Organization
JSDMSCG	Joint Service Deployable Medical Systems Coordinating Group
JSOR	Joint Statement of Operational Requirements
LSA	Logistics Support Analysis
MACOM	Major Command
MASH	Mobile Army Surgical Hospital
MFMSSSG	Military Field Medical Systems Standardization Steering Group
MFP	Materiel Fielding Plan
MILCON	Military Construction
MME	Medical Materiel Set
MPL	Mandatory Parts List
MRIS	Modernization Resource Information Submission
MTMC	Military Traffic Management Command

MTMCTEA	MTMC Transportation Engineering Agency
MWHIO	Medical Wartime Hospital Integration Office
NDI	Non-Developmental Item
O&MA	Operations and Maintenance Army
O&O	Operational and Organizational
OPA	Other Procurement Army
OSD	Office of the Secretary of Defense
OWRS	Other War Reserve Stock
PARR	Program Analysis Resource Review
PERT	Program Evaluation and Review Technique
PLL	Prescribed Load List
PM	Project Manager
POL	Petroleum, Oil and Lubricants
POM	Program Objective Memorandum
POMCUS	Prepositioned Overseas Materiel Configured to Unit Sets
PRIMOB	Primary Mobilization
PTD	Provisioning Technical Documentation
PWRS	Prepositioned War Reserve Stock
QQPRI	Quality and Quantity Personnel Requirements Information
R&D	Research and Development
RAM	Reliability, Availability and Maintainability
RAM-D	Reliability, Availability, Maintainability and Durability
RDTE	Research, Development, Test, and Engineering
SC	Systems Coordinator
TA	Table of Allowance
TACCS	Tactical Army Combat Service Support Computer System
TACOM	Tank and Automotive Command

TAMMIS	Theater Army Medical Management Information System
TEMPER	Tent, Extendable, Modular, Personnel
TMDE	Test Measurement and Diagnostic Equipment
TOE	Table of Organization and Equipment
TP/UMF	Total Package/Unit Materiel Fielding
TRADOC	Training and Doctrine Command
TROSCOM	Troop Support Command
TSG	The Surgeon General
ULC	Unit Level Computer
ULLS	Unit Level Logistics System
USAMMA	U.S. Army Medical Materiel Agency

PART II

**DEPLOYABLE MEDICAL SYSTEMS
(DEPMEDS) PROJECT MANAGER
ISSUES MANAGEMENT FILE (IMF)**

**George L. Slyman
Albert J. Colaianni
Douglas W. Brown
Will H. Horn**

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CHAPTER 1

INTRODUCTION

This report is the second document submitted under LMI Task Order AR602 for a Deployable Medical Systems (DEPMEDS) project control plan. Previously, we submitted Working Note AR602-1, "An Assessment of the U.S. Army's Deployable Medical Systems Project," in which we provided the DEPMEDS Project Manager (PM) an assessment of the project and identified the major issues requiring the PM's attention. Since the first report, the PM's In Process Reviews (IPRs) with the representatives of various Agencies have expanded the major issues and identified related ones that we have incorporated into an automated file system we call the Issues Management File (IMF).

PURPOSE

In this report, we:

- Describe the organization and content of the IMF
- Provide suggestions about the operation of the IMF and the organization needed to manage it
- Provide the IMF, loaded on a diskette with the software necessary for its maintenance
- Relate the IMF to the project control plan.

DEVELOPMENT OF THE ISSUES MANAGEMENT FILE

Review of Software

In Chapter 5 of the DEPMEDS assessment (Working Note AR602-1), we outlined our approach to developing the project control plan. A part of our concept was that the PM would have visibility of the key issues affecting the project's progress by accessing a single data base and that the data base would be the source for updating charts and schedules that present the time relationship of the issues to each other and to the project as a whole. We also noted that the system should be

sized to operate on a personal computer (PC), and that the PC software systems should be user friendly.

We have now completed an examination of three commercial software file systems for use in creating and maintaining the IMF:

- Ashton-Tate dBASE III: Although offering considerable flexibility in structuring a file, we believe dBASE III is more complex and requires more time to learn than is necessary for the IMF.
- Softshell 3by5 Plus: We believe that Softshell's 3by5 software is not versatile enough, particularly in providing sufficient data fields, for the IMF.
- PFS:FILE: Our choice is PFS:FILE because of its capabilities and ease of use. It offers good flexibility in record design, information input, and search procedures. (We also examined another of the PFS: software family, PFS:REPORT, which can be used to set up and print reports from information in any fields of the IMF records.) In combination with PFS:REPORT, PFS:FILE offers an excellent range of choices for sorting issues and printing reports in sequences determined by the PM.

We consider the IMF as a primary source of the information to load into the project schedule system that we call the Schedule Management File (SMF). To ensure compatibility of information input, simplicity of use and applicability to hardware, we concurrently searched for the software for the SMF.

We examined the following three software systems for use in creating and updating the SMF:

- USAF Computer Support Network Analysis System (CSNAS): This system is still under development for application to a PC. At this time, it is fully operational on a main frame computer only. Because a PC-based system is needed to facilitate the PM's accessibility to the automated file, we did not further consider CSNAS for the SMF.
- Harvard Total Project Manager: Although it is published by the same firm as the PFS: series, we found this system to be cumbersome and not as easy to use as we think the SMF software should be. While a newer version might correct the shortcoming, the availability of other systems makes waiting a questionable option. The literature contains professional reviews of various project management software packages that confirm our opinion.
- Breakthrough Software's Time Line: Our test of this software indicates it is more user-oriented and has the flexibility and capacity we feel is required.

The literature identifies it as among the best of numerous alternatives and our use of it confirms that assessment. Thus, we selected Time Line as the software for the time-related Gantt charts and schedules in the SMF.

During our research into software systems for the IMF and the SMF, we hoped to identify a simple automated method to input data from the IMF to the SMF. While such a capability exists we found that the interface is neither simple nor automatic. Management intervention and judgment are required to keep the information in the files current and properly applied. We believe the two files serve particular purposes and when used for status, analysis, and evaluation, provide an effective and manageable approach to controlling the critical aspects of the project without being linked through an automated interface.

Standard File for Description of Issues

With the PM's concurrence on using PFS:FILE (and PFS:REPORT) as the software for the IMF, we concentrated on identifying the essential data elements and the record format for the file. Using the issues and related actions developed at the PM's first IPR, we established a test format and created the draft IMF. The file was printed and provided to the PM for use during the second IPR. After comments from the PM, we made some modifications to the file format, primarily the addition of several data fields to expand the flexibility of the file and its use for various report sequences. The revised format is the standard file for recording the issues the PM desires to monitor throughout the project. The IMF is described in detail in Chapter 2.

SUMMARY

The IMF is a basic information source for project management. In Chapter 2 of this report, we describe its organization and provide user's instructions and recommendations on its day-to-day operation. In Chapter 3, we relate the IMF to the SMF (the time-oriented schedule system) and both files to the project control plan. The procedures for report preparation, using the PFS:FILE and PFS:REPORT software, are described in the respective user's manuals; the Appendix augments that information and provides examples of reports.

CHAPTER 2

ISSUES MANAGEMENT FILE (IMF)

IMF STRUCTURE

The IMF is structured to accommodate the key data for managing the issues affecting the DEPMEDS project. The data can be modified in accordance with the PFS:FILE software user's manual. The user's manual describes the procedures for creating a file, storing information in the file, searching for and updating a record (referred to as a "form" in the PFS:FILE user's manual) in the file, and printing and copying information from a file. Although the procedures for changing the file format or for removing one or more records from the file are the same as those in the user's manual, we suggest the PM establish administrative control over this procedure since the IMF is likely to be used by several members of the PM's staff and uncoordinated changes or removals may cause confusion or loss of information. We also suggest the PM's staff maintain a back-up of the file and copy the working file to it several times a day.

Format

The design of the IMF provides a standard format for the description of an issue and the actions related to that issue. An issue represents a condition or problem requiring the PM's attention that can be resolved through the accomplishment of one or more actions. The relationship between an issue and its actions is established in the numbering scheme used in the IMF's records. The issue is the lead record and is numbered as XXX.000. The actions related to the issue are numbered sequentially beginning with XXX.100. Using the derivative numbering concept for the issue and the actions permits linking of records for auditing the status of the condition or problem. For example, the first issue defined was the requirement to clearly

identify the equipment line items and line-item numbers (LINS) projected for inclusion in the deployable medical systems and their acquisition schedule. The issue and its related actions are in the IMF as:

- ISSUE NO. 01.00¹ IDENTIFY LINES AND LINS PROJECTED FOR DEPMEDS
- ISSUE NO. 01.10¹ LAYOUT BY FY, MODULES AND EQUIP BASED ON ACQ SCHEDULE
- ISSUE NO. 01.20¹ LAYOUT NONMEDICAL ASIOE ACQ SCHEDULE
- ISSUE NO. 01.30¹ LAYOUT TOE EQUIP ACQ SCHEDULE.

Although the record format is identical for either an issue or an action, the hierarchical numbering scheme permits the records to be related and tracked through the IMF.

In addition to the numbering scheme, the design of the IMF provides a standard format for recording other information applicable to the issue/action such as the responsible agency and action officer, the source of the issue and its status, and critical dates in its management. These data are presented as fixed length information fields in specific locations on the file. Figure 2-1 is an example of one record from the IMF.

Each information field's label, the length of the field, and its purpose are as follows:

- ISSUE NO*: An administrative control number assigned by the PM. The actions related to the issue are derivative numbers. The ISSUE NO makes each record unique and through a hierarchical numbering scheme ties each action back to the original issue. ISSUE NO is a 7-character field (xxx [issue].xxx [action]), which provides for up to 999 issues and 999 actions under each issue.
- POC*: The point of contact (individual's name) for the issue/action. The POC is a 34-character field. The format for the entry is the official abbreviation of the military rank or for civilians, the title Mr./Ms./Mrs., followed by the individual's last name.

¹The IMF was initiated with the ISSUE NO. as a five-character field, hence the absence of a zero in the first and last positions. The final design provides space for a seven-character entry for file growth.

ISSUE NO: 04.10 POC: CPT Burns

DATE: 86/07/11

AGENCY: DTSG

OFFICE SYMBOL: DAEG-HCD PHONE: 697-2531

SUBJECT: IMPLEMENTATION PROCEDURES FOR APPLYING CHANGES TO MES

SYNOPSIS: Develop implementation procedures to insure procurement and requirement documents match. Meeting scheduled 21 JUL to determine procedures (DMSB, AHS, USAMMA, DASG-HCO)

ILS ELEMENT: SUPPORT MANAGEMENT AND ANALYSIS

PRI: 22

MACRO TASK: 02 DESIGN AND CONFIGURATION

TASK SOURCE: IPR

TASK DATE: 86/06/17

ACTION:

DATE DUE: 86/07/27 STATUS: open SUSPENSE DATE: 86/08/25

FIG. 2-1. ISSUES MANAGEMENT FILE FORMAT

- **DATE*:** The date of the latest entries on the record. DATE is an 8-character field expressed as year/month/day (ex:86/08/17). This method of entering DATE conforms to the PFS:FILE user's manual recommendation and permits automated sorting by date in any field in which the entry is so structured.
- **AGENCY*:** The official acronym or initials of the agency responsible for the issue/action. AGENCY is a 14-character field.
- **OFFICE SYMBOL:** The official correspondence/address identifier of the AGENCY. It is used to pinpoint information to the POC or to a specific office in the AGENCY. OFFICE SYMBOL is a 10-character field.
- **PHONE:** Telephone number of the POC or office in the AGENCY for information on the issue/action. PHONE is an 18-character field (xxx[area code]-xxx-xxxx[prime]/xxxx[alternate]).
- **SUBJECT:** The title and/or short description of the issue/action. SUBJECT is a 120-character field.
- **SYNOPSIS:** A narrative providing more information on the issue/action. This field includes comments such as background information, follow-up requirements, relationship to other issues, and its impact if it is not resolved. SYNOPSIS is a 10-line, 600-character field.

- **ILS ELEMENT*:** The integrated logistic support (ILS) element/subelement that encompasses the issue/action. The ILS element is determined by the PM based on the description of ILS elements/subelements in Army Regulation (AR) 700-127. It is used to retrieve and consolidate issues/actions for management or to recapitulate them for presentation to a project review group. ILS ELEMENT is a 30-character field to permit entry of both the ILS element and abbreviated subelement descriptions. The standardized names for the ILS element used to create the IMF are:
 - ▶ Maintenance Plan
 - ▶ Support and Test Equipment
 - ▶ Supply Support
 - ▶ Transportation
 - ▶ Technical Data
 - ▶ Manpower and Personnel
 - ▶ Training
 - ▶ Facilities
 - ▶ Computer Resources Support
 - ▶ Materiel Fielding Planning
 - ▶ Design Influence
 - ▶ Standardization and Interoperability
 - ▶ RAM
 - ▶ Support Management and Analysis
 - ▶ Cost Analysis and Funding.
- **PRI:** The priority assigned by the PM to establish the relative importance of the issue/action to the project's completion or to identify the intensity of management the PM wants to focus on them. PRI is a 4-character field.
- **MACRO TASK*:** Identifies the issue/action to a task in the SMF by task number and name. The MACRO TASK number and name is assigned by the PM when the issue/action is included in the SMF as significant for completion of the project. MACRO TASK is a 45-character field. (Note: The macro tasks used to create the IMF are listed in the section titled "IMF/SMF Crossover.")

- **TASK SOURCE:** Identifies the origin of the issue/action or the process used to identify them. It is also used to indicate a review office or senior officer assigning the issue/action or having particular interest in its status. In Figure 2-1, the TASK SOURCE entry is "IPR" to identify that the issue/action originated at an in-process review. TASK SOURCE is a 20 character field.
- **TASK DATE*:** The date the issue/action was identified and the decision made to record it in the IMF. This date provides a reference for aging the issue/action. TASK DATE is an 8-character field expressed as year/month/day.
- **ACTION:** An 8-character field not specified for a particular entry. It is available for the PM's use for any optional entry, e.g., the name of the PM's staff officer responsible for the issue/action.
- **DATE DUE*:** The date the issue/action is expected to be resolved or completed based on most current input from the POC. DATE DUE is an 8-character field expressed as year/month/day.
- **STATUS:** Determined by the PM based on the latest input from the POC. An issue/action that is unresolved or incomplete is recorded as open; those completed but retained in the IMF for reference are recorded as closed. This field provides a means of segregating records, and archiving the closed records keeps the file of open records smaller and easier to process. STATUS is a 6-character field.
- **SUSPENSE DATE*:** The PM-assigned date indicating when the next update on the status of the issue/action is due. SUSPENSE DATE is a 22-character field although only 8 characters are necessary for recording year/month/day. The extra characters allow a memo entry to retain an original suspense date or add a follow-up date.
- **ATTACHMENT:** A page appearing at the end of each record. This page allows the entry of notes or continuation of text from the information fields. Additional ATTACHMENT pages are automatically created by depressing the Pg Dn key on the keyboard.

The information field labels marked with an asterisk (*) are the ones that should be the most useful to the Action Officers for retrieving records. We have specified that an entry is required in these fields, and that the entry be in a standard format to facilitate the retrieval process and ensure that all the requested records are found. A field left blank causes the record not to be selected when retrieving against that field.

Information Sources

The following are the sources of the information loaded into the IMF conveyed to the PM with the system software and this report:

- The list of issues from the first IPR and the associated actions that were assigned to an agency for resolution.
- The initial draft printout of the IMF updated by the PM based on information from the second IPR plus new issues identified during the second IPR.

USE OF THE IMF

User's Instructions

The user's manuals for the PFS: family of software used to develop the IMF explain how to operate the program for managing and updating the information in the file. We suggest the PM and staff read those user's manuals and perform the sample exercises before making entries in the IMF. The PFS: programs are easy to use and once learned are readily adaptable to other requirements.

Additional Instructions

The IMF provided to the PM currently contains 168 records, one for each issue and associated action. The file includes both open and closed issues/actions; it can be continued as a consolidated file or separate files can be formed for open and closed issues/actions.

The program provides a simple method for removing a record or group of records by identifying a common field entry to select against. This capability is very powerful and must be used with caution because the same procedure is used to remove the complete file. We suggest any record that is no longer required in the active IMF be copied to an archive file for future reference and retrievability before it is removed from the active file.

OPERATIONS

The total IMF software package is delivered with this report. It consists of the IMF loaded to a diskette, the PFS: programs on diskette with a back-up copy of each program, the PFS: user's manuals, and a printed copy of the IMF. With this IMF software package, the PM can begin operating with the IMF as the project's primary

information file. The first record in the file is blank and is readily duplicated as the file expands by using the "ADD FORMS" entry from the PFS:FILE MAIN MENU.

Organization for Management of the Issues/Actions

We believe the best way to manage the IMF is by assigning specific issues/actions to each of the PM's staff officers for maintenance of the information in the fields. Since a large number of the IMF issues/actions require review and update, we suggest grouping the issues/actions and assigning specific groups to the PM's staff officers for management.

The structure of the IMF permits the selection of issues/actions by any of the entries or combination of entries in the data fields to form the groupings. We do not believe that grouping by ISSUE NO results in a compatible grouping because the relationship between issues as originally set will be lost as they are resolved and new issues added to the IMF. Grouping by Priority (PRI) is a method of bringing the current critical issues under the control of one officer, but it creates the need to transfer an issue between officers if the criticality changes. Grouping by either MACRO TASK or ILS ELEMENT creates the logical relationship for assignment to an officer for management. MACRO TASKS are the major events in the SMF's charts and schedules. The grouping by the MACRO TASK facilitates the responsible officer's linking of issues in the IMF to time-related events in the SMF and managing the updates and status. Grouping by ILS element is beneficial because it brings issues together under headings that are familiar to most senior officers and is a recognized approach to project management. We believe that grouping by ILS element is appropriate for organizing briefings and for coordinating the planning of future events prior to entering task/subtask dates in the SMF. We recommend that the issues/actions be grouped by MACRO TASK and assigned to the PM's staff officers for day-to-day management.

Organization for Management of the File

The initialized IMF has a growth capability limited only by the disk capacity. Creating additional files on other diskettes extends that capability to any limit. This flexibility in organizing and expanding the IMF is a benefit but, if not controlled, it can result in the records being improperly updated or in information being lost from a record.

We believe a system manager is needed to ensure that only coordinated and approved changes are made to the file format, the updates are promptly posted, the data field entries are consistent and follow a standard structure, and the integrity of the file is maintained. The system manager would also propose changes or additions, design new files, ensure a back-up file is maintained, set report sequence instructions, advise responsible officers on the use of the file, and relate the IMF to the SMF. The PM would depend on the system manager to support the project through rapid and accurate production of the time-related charts and schedules, and copies of issues/actions.

Because the DEPMEDS project continues for several years and its basic control system consists of the IMF and the SMF, we believe the system manager needs to be a member of the PM staff. A full-time system manager will facilitate the creation of new automated management records, files, and reports as the project progresses and new management requirements evolve. Additionally, the system manager will be the overall monitor of the automated files and an advisor to the PM's staff officers on how to detect problems in managing the project from information recorded in the files.

REPORT PREPARATION

The PFS: software provided with the IMF offers several options for preparing reports. The PFS:FILE program has a resident capability to print a particular record or group of records. A single record can be printed at any time by pressing the F2 function key on the keyboard. The complete file, selected records, or parts of records can be printed in a specified format by the "PRINT" option of the PFS:FILE MAIN MENU.

With the PFS:REPORT program, a report listing can be created showing selected information fields in any sequence specified. The limitations on the report listing are 80 columns (a standard page width) of normal print or 132 columns (a standard page width) of compressed print. Using a wide carriage printer and wide paper extends this capability.

The Appendix provides additional information on preparing reports and provides examples of setting the print instructions using PFS:FILE and PFS:REPORT with the IMF.

IMF/SMF CROSSOVER

To activate the SMF, we translate appropriate IMF issues/actions and other available information into tasks/subtasks and input them to the SMF. The visible link in the IMF is the entry in the MACRO TASK field of each record. Through this crossover process we identify the following tasks for the initial layout of the project schedule:

- 01 Project Approval and Funding
- 02 Design and Configuration
- 03 Management System
- 04 Supply and Storage
- 05 Training
- 06 Procure Medical Equipment
- 07 Procure ASIOE (Associated Support Items of Equipment)
- 08 Procure OSE (Other Support Equipment)
- 09 Transportation Analysis
- 10 Material Fielding Plan
- 11 Maintenance Plan
- 12 Personnel Planning
- 13 Assemble Sets
- 14 Assemble Hospitals
- 15 First Unit Equipped
- 16 New Equipment Training
- 17 Initial Operating Capability.

As we continue developing the SMF, we will add tasks and subtasks that we identify or are identified to us by the PM. During the life of the project, the PM will add tasks/subtasks that require monitoring to ensure the schedule for fielding is maintained. Our further efforts on the SMF will provide the details on this aspect of input to the tasks/subtasks in the SMF.

CHAPTER 3

CONTROL PLAN DEVELOPMENT

While the Issues Management File (IMF) was being completed, the Schedule Management File (SMF) was being developed using the Time Line software. The information in the IMF is the source for a large part of the tasks/subtasks input to the SMF although data on the completion dates of many issues/actions are not available. In such instances, the SMF is loaded with estimated dates to permit continuing the development of a completely structured file. In addition to the tasks/subtasks originating from the IMF, we are loading the SMF with other tasks/subtasks that are important to completing a milestone even though they are not currently a problem, i.e., they are not being managed as an IMF issue/action. The reason for expanding the SMF beyond the issues/actions in the IMF is to establish the SMF as the focal point for visibility of the overall project status. Its capability to associate tasks/subtasks with time and to transfer the impact of changes in time to other related tasks/subtasks make the SMF a valuable and permanent information source for the life of the project.

RELATIONSHIP OF IMF AND SMF

We are continuing to develop the project control plan as the DEPMEDS PM's management tool for identification and visibility of the status of issues/actions and tasks/subtasks that are critical to progress and ultimately to completion of the project. The project control plan is evolving as a management information system consisting of the IMF and the SMF, one related to the other but each serving a particular purpose. A third element of the system is the establishing of a procedure for obtaining the information needed to update the two files.

The IMF provides a method for recording and tracking the status of issues/actions whose resolution date affects progress toward achieving a key task/subtask. It is a transitory file with resolved issues/actions being closed and new ones being added as they are identified by the responsible agency or by the PM.

The SMF contains the key tasks/subtasks that must be completed in route to the fielding of DEPMEDS. Each task/subtask is not presumed to be or to become an issue/action, but each requires monitoring so that the PM is assured of its completion. The SMF reflects the project structure and is a means of auditing the responsible agency to ensure that it is performing in a time frame consistent with the project's overall schedule. The SMF relates the issues/actions from the IMF to a task/subtask to reflect the impact of a change in completion dates on the overall schedule for specific major milestones. The two files, the organization for managing and updating them, and the procedures for obtaining inputs to them provide the PM with a control system for fielding DEPMEDS.

CONCLUSION

The DEPMEDS project control system is not self-sustaining. It requires the PM's staff to keep the information current in the IMF and to post actual or target completion dates in the SMF, to continue to identify the key tasks/subtasks that occur during the project, and to enter the data in the SMF. Without continuous attention, the information in the files will soon become outdated and will have little value. With the proper maintenance, the system can provide a capability to quickly view issues and determine the effect that a delay in completing a key task or subtask can have on the overall project schedule. This capability benefits the PM and the agencies responsible for a task/subtask by showing the impact of an action on the entire project. With central visibility of the key tasks/subtasks the PM will be able to advise agencies of the status of tasks/subtasks external to their operation for their use in developing or adjusting internal schedules for DEPMEDS-related tasks. The PM's project control system, properly executed, is capable of benefitting the management of DEPMEDS at every level, providing continuous visibility of key events, and achieving project completion within reasonably accurate time frames.

APPENDIX
REPORTS PREPARATION

APPENDIX

REPORT PREPARATION

GENERAL

The system software provided with the Issues Management File (IMF) offers a wide range of choices for preparing reports. The capability to print a single record, preview a report listing, or format a report in various sequences is always available and easily executed. The user's manuals provide comprehensive instructions on options available in the report preparation and print procedures. This appendix augments the information in the user's manuals and provides an example of the report preparation and print procedure using the IMF with both PFS:FILE and PFS:REPORT. Both programs provide report preparation and print capability, but the PFS:REPORT program offers more flexibility in report design and provides a more formal product. The information provided here will facilitate understanding and operation of the report preparation and print capability of the two programs.

PROCEDURE USING PFS:FILE

The PFS:FILE print routine is available for execution anytime the program is loaded to the computer and the IMF is loaded in a drive. A single record displayed on the screen can be printed by simply depressing the F2 key. A group of records can be sequenced and printed in the same format as their screen displays, fields can be selected from the records and printed as partial formats of their screen display, or the fields can be rearranged and printed in new formats to accommodate a particular report requirement.

Our example procedure uses PFS:FILE and the IMF records to format and print a report that lists in priority sequence those issues/actions assigned a priority number, the status of the issue/action, and the point of contact (POC) for information on the status. Figures A 1 through A-4 depict the display screen and entries to format and prepare the report.

- Select the records to retrieve and print.
- Specify the print format.
- Indicate the fields to print and the arrangement of information on the report.

Select the Records to Retrieve

ISSUE NO: POC: DATE:

AGENCY: OFFICE SYMBOL: PHONE:

SUBJECT:

SYNOPSIS:

ILS ELEMENT: PRI: 00
MACRI: TASK:
TASK SOURCE: TASK DATE: ACTION:
DATE DUE: STATUS: SUSPENSE DATE:

DMS:IM1	Retrieve ssec	Page 1
F1-Help	Esc-Main Menu	F10-Continue

II-A-2

The next screen display is the PRINT OPTIONS list that permits the user to specify the print format. The user's manual describes the choices available for each of the options. If the complete record is to be printed, the standard 66 line PRINT OPTIONS format is used. Only certain information fields are needed for this report so the page length is reduced to eight lines by deleting "66" and typing in "8." Figure A-2 is the PRINT OPTIONS screen display set to print an abbreviated record of eight lines. Depressing the "Enter" key brings the screen display for indicating the information fields to print, the report sequence, and the arrangement of information as it prints.

```
PRINT OPTIONS

Pre-defined print spec:
Print item names (Y/N): Y
Print to: LPT1:
Number of copies: 1

Lines per page: 8
Pause between pages (Y/N): N
Printer control codes:
```

Esc-Main Menu ↓ Continue

FIG. A-2. ENTRY FOR PRINT FORMAT (PFS:FILE)

Indicate Fields, Sequence and Information Arrangement

The screen displays the IMF recorded format identified as "Print spec." The entries on this record establish the fields to print, the sequence of the report, and the

arrangement of information on the report. The characters used are "S," "X," and "+." The user's manual explains their purpose. For this report:

- "S" is used in the PRI: field to sort the retrieved records into the numerical sequence of the priority.
- "X" indicates to print the field on a line by itself.
- "+" indicates to print the field on line with other information but to leave two spaces between fields.

Figure A-3 depicts the screen displaying the "Print spec" to produce the report. Depressing the F10 key sets up the report and starts the printer.

ISSUE NO: X	POC: +	DATE:
AGENCY: +	OFFICE SYMBOL:	PHONE: X
SUBJECT: X		
SYNOPSIS:		

ILS ELEMENT:		PRI: S+
MACRO TASK:		
TASK SOURCE:	TASK DATE:	ACTION:
DATE DUE:	SUSPENSE DATE:	

DMS.IMJ	Print spec	Page 1
F1-Help	Esc-Main Menu	F10-Continue

FIG. A-3. ENTRIES TO INDICATE FIELDS, SEQUENCE AND INFORMATION ARRANGEMENT (PFS:FILE)

The report preparation procedure for PFS:FILE produced a three-page report sequentially listing the 22 issues/actions assigned a numerical priority greater than zero in the PRI: field of the IMF. Figure A-4 is the first page of the report.

PROCEDURES USING PFS:REPORT

The PFS:REPORT program is used to set up and print reports from information in any fields of the IMF records. The program is able to sort the information fields into a prescribed format and to sequence the report alphabetically or numerically. It provides the most benefit when used to generate control listings for status, staff

ISSUE NO: 01 00
POC: LTC Devine AGENCY: USAMMA/DPSC PHONE 343 - 7629
SUBJECT: IDENTIFY LINES AND LINS PROJECTED FOR DEPMEDS
PRI: 01 STATUS: open

ISSUE NO: 06 00
POC: LTC Champion AGENCY: DASG - HCD PHONE 697 - 2531
SUBJECT: MACOM DOCUMENTATION
PRI: 02 STATUS: closed

ISSUE NO: 32 00
POC: MAJ Sofer AGENCY: PM PHONE 697 - 5019
SUBJECT: BOX SHIPPING
PRI: 03 STATUS: open

ISSUE NO: 16 00
POC: LTC Alexander AGENCY: USAMMA PHONE: 697 - 5010
SUBJECT: TRANSPORTABILITY ANALYSIS
PRI: 04 STATUS: open

ISSUE NO: 55 00
POC: LTC Alexander AGENCY: PM PHONE 697 - 5010
SUBJECT: HEATER, AIR CONDITIONER, PDC
PRI: 05 STATUS: open

ISSUE NO: 54 00
POC: Mrs Zbornak AGENCY: TROSCOM PHONE: 693 - 2667
SUBJECT: TRAILER FOR 100 KW
PRI: 06 STATUS: open

ISSUE NO: 47 00
POC: LTC Rhodes AGENCY: DASG - HCL PHONE: 694 - 9058
SUBJECT: EQUIPMENT REDISTRIBUTION
PRI: 07 STATUS: open

ISSUE NO: 22 00
POC: LTC Devine AGENCY: USAMMA PHONE 343 - 7629
SUBJECT: SOW for MFP
PRI: 08 STATUS: open

ISSUE NO: 08 00
POC: CW3 Petto AGENCY: USAMMA PHONE 343 - 7441
SUBJECT: MAINTENANCE SUPPORT PLAN
PRI: 09 STATUS: closed

FIG. A-4. REPORT OF ISSUES (BY PRIORITY) (PFS:FILE)

reviews, and follow-up actions. The instructions in this example are to supplement the user's manual and facilitate understanding the instructions it contains.

The following procedure describes the steps in producing a report with PFS:REPORT and the IMF. As with the example using PFS:FILE, the report is for the issues/actions assigned a numerical priority in the PRI: field of the record.

Starting the Report Preparation and Print Procedure

Three steps are necessary to start the report preparation:

- Select the records to be retrieved from the IMF.
- Specify the print format.
- Indicate the fields to print, their location on the report, and the report sequence.

The procedure is initiated from the PFS:REPORT MAIN MENU by selecting "1," typing the filename (in this example, the filename is "DMS.IM1"), and depressing the "Enter" key. This action brings up the screen displaying the IMF record format "Retrieve spec."

Select the Records to be Retrieved

For the report, the records selected from the IMF are those assigned a priority number in the PRI: field. Since not every issue/action in the IMF is assigned a priority number, the records containing a blank in the PRI: field are read as a zero. To select the records assigned a numerical value greater than zero, the characters >0 are typed in the PRI: field. Depressing the F10 key causes the records assigned a priority number to be retrieved from the IMF. Figure A-5 depicts the "Retrieve spec" display with the entry in the PRI: field.

Specify the Print Format

The screen next displays the PRINT OPTIONS list that permits specifying the print format. The user's manual describes the entries and identifies the standard print format (the default values are the standard entries for the usual size printer paper). For this report, two changes are made in the standard format. The page width is changed from 80 to 132 columns and the printer control code is changed from blank to 15. This combination puts the printer into a compressed print mode

ISSUE NO: POC: DATE:
 AGENCY: OFFICE SYMBOL: PHONE:
 SUBJECT:
 SYNOPSIS:

ILS ELEMENT: MACRO TASK: TASK SOURCE: DATE DUE:	STATUS:	TASK DATE: SUSPENSE DATE:	PRI: 30 ACTION:
DMS.IM1		Retrieve spec	Page 1
F1-Help		Esc-Main Menu	F10-Continue

FIG. A-5. ENTPY TO SELECT RECORDS (PFS:REPORT)

and widens the page to allow more information per line of the report. "DEPMEDS ISSUES LIST (PRIORITY SEQUENCE)" is typed in as the title of the report. Figure A-6 is the PRINT OPTIONS list for the report. Depressing the "Enter" key brings up the next screen displaying the IMF record format.

PRINT OPTIONS

Title: DEPMEDS ISSUES LIST (PRIORITY SEQUENCE)
 Pre-defined report name:
 Print totals only (Y/N): N Pause between pages (Y/N): N
 Print to: PRN:
 Lines per page: 66 Page width: 132
 Printer control codes: 15

Esc-Main Menu ↵ Continue

FIG. A-6. ENTRIES FOR PRINT FORMAT (PFS:REPORT)

Indicate Fields, Sequence, and Arrangement

The screen displays the IMF record format identified as "Report spec." The entries in that record select the fields to print, the sort routine for sequencing the report, and the arrangement of information into columns on the report. The report is set up for seven columns and to sort by priority. The information fields are selected and assigned to columns by entering the column number (1-7) in the field. Entering a "1" in the PRI: field causes the report to sort and print in priority number sequence. Figure A-7 depicts the entries on the "Report spec" record.

ISSUE NO: 2	POC: 5	DATE:
AGENCY: 6	OFFICE SYMBOL:	PHONE: 7
SUBJECT: 3		
SYNOPSIS:		
ILS ELEMENT:		PRI: 1
MACRO TASK:		
TASK SOURCE:		ACTION:
DATE DUE:	STATUS: 4	TASK DATE: SUSPENSE DATE:

DMS.IM1	Report spec	Page 1
F1-Help	Esc-Main Menu	F10-Continue

FIG. A-7. ENTRIES TO SET SEQUENCE AND COLUMN ARRANGEMENTS (PFS:REPORT)

Depressing the F10 key starts the records selection, formatting, and printing process. (NOTE: A screen message "The report is too wide for the page" may appear. The changes to the standard PRINT OPTIONS to set a 132-page width and a 15 print control [compressed print] cause the report to fit on standard printer paper.) Figure A-8 is the report produced listing the 22 issues/actions assigned a numerical priority in the IMF.

SUMMARY

The PFS:FILE report preparation and print procedures are available any time the IMF is being reviewed or updated. A record displayed on the screen can be printed immediately by depressing the F2 key. Special reports are produced in a

DEPMEDS ISSUES LIST (PRIORITY SEQUENCE)

PRI	ISS	SUBJ	STA	POC	AGY	PH
01	01.00	IDENTIFY LINES AND LIMS PROJECTED FOR DEPMEDS	open	LTC Devine	USAMMA/DPSC	343-7629
02	06.00	MACOM DOCUMENTATION	closed	LTC Champion	DASG-HCD	697-2531
03	32.00	BOX SHIPPING	open	MAJ Sofer	PH	697-5019
04	16.00	TRANSPORTABILITY ANALYSIS	open	LTC Alexander	USAMMA	697-5010
05	55.00	HEATER, AIR CONDITIONER, PDC	open	LTC Alexander	PH	697-5010
06	54.00	TRAILER FOR 100 KW	open	Mrs Zbornak	TROSCOM	693-2667
07	47.00	EQUIPMENT REDISTRIBUTION	open	LTC Rhodes	DASG-HCL	694-9058
08	22.00	SOW for MFP	open	LTC Devine	USAMMA	343-7629
09	08.00	MAINTENANCE SUPPORT PLAN	closed	CWJ Petto	USAMMA	343-7441
10	21.00	ILS PROPENSITY	closed	MAJ Bluteau	PH	697-5014
11	41.00	DISTRIBUTION PLAN	closed	LTC Wilson	DASG-HCD	697-1674
12	34.00	BOLLY SET	open	LTC McAdams	AHS	471-5500
13	23.00	MFP	open	LTC Devine	USAMMA	343-7629
14	51.00	TRAINING SET ACQUISITION	closed	LTC Tyler	AHS	471-2454
15	03.00	DEPMEDS DATA BASE DOCUMENTATION	open	Mr Balderson	DMSB	343-7107
16	07.00	BOIP AMENDMENT FOR DEPMEDS	open	LTC Reed	AHS	471-4147
17	44.00	NON MEDICAL ASIDE STORAGE	open	Mrs Zbornak	AMC	693-2667
18	26.00	CONTRACT AWARD FOR MED EQUIPMENT	open	Dr Connors	USAMMA	343-7577
19	37.00	CRITERIA FOR CLOSING MODULES	closed	LTC DEVINE	USAMMA	343-7629
20	12.00	ICPT	open	LTC Tyler	AHS	471-2454
21	02.00	TRAINING SETS	open	LTC Tyler	AHS	471-2454
22	04.00	IMPLEMENTATION PROCEDURES FOR APPLYING CHANGES TO RES	open	CPT Burns	DASG-HCD	697-2531

FIG. A-8. REPORT OF ISSUES (BY PRIORITY) (PFS:REPORT)

variety of sequences and information arrangements through the "PRINT" instructions of the MAIN MENU.

The PFS:REPORT program provides a report preparation and print capability to supplement that resident in the PFS:FILE program. It offers more flexibility in report design and a more formal product. The instruction's for preparing the report initiate from the PFS:REPORT MAIN MENU.

Both programs offer relatively simple and straightforward approaches to producing a report from the IMF's records. Each entails a three-step process that selects the records for inclusion in the report; specifies the print format; and indicates the information fields, sequence and location on the report. The reports are tailored to the needs of the DEPMEDS PM's staff and can be produced as frequently as necessary to aid in managing the project.

PART III

**DEPLOYABLE MEDICAL SYSTEMS (DEPMEDS)
PROJECT MANAGER
SCHEDULE MANAGEMENT FILE**

**Will H. Horn
Douglas W. Brown
Albert J. Colaianni
George L. Slyman**

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CHAPTER 1

INTRODUCTION

This is the third document submitted under LMI Task Order AR602 for a Deployable Medical Systems (DEPMEDS) project control plan. Previously we submitted Working Note AR602-1, "An Assessment of the U.S. Army's Deployable Medical Systems Project," and Report AR602TR2, "Deployable Medical Systems (DEPMEDS) Project Manager Issues Management File (IMF)." The first document provided an assessment of the project and identified the major issues requiring the Project Manager's (PM's) attention. The second document described the IMF, provided guidance on its operation, and provided the IMF loaded on a diskette. The IMF is a tool to organize and store information on issues the PM needs to monitor. The Schedule Management File (SMF) is designed to record and analyze the timing of project tasks and has been delivered on diskette.

PURPOSE

This report presents a brief description of the SMF and the Time Line Software selected for its implementation as part of the DEPMEDS Project Control Plan. In subsequent chapters of this report, we:

- Describe the purpose and structure of the SMF (Chapter 2)
- Provide recommendations for managing with the SMF and relate the SMF to the project control system (Chapter 3)
- Identify some management issues that must be dealt with in using the SMF and present our conclusions (Chapter 4)

SMF DEVELOPMENT

The SMF is developed using Breakthrough Software Corporation's Time Line, a program specifically designed for project management. The SMF consists of a "MACRO" schedule to summarize the project and 17 "macro tasks," listed in Chapter 2, which record the detailed schedule data. To be consistent with the Time Line manual, these macro tasks will be referred to in this report as "subschedules." The scope of the subschedules is created to reflect a logical partitioning of tasks that

must be completed to successfully field DEPMEDS. This modular structure of the SMF allows a division of responsibilities for maintaining the SMF. The SMF is initialized with "placeholder" dates that must be replaced by actual project schedule data before the SMF is operational. The subschedules can be updated separately and the results will automatically be integrated into the MACRO project schedule.

CHAPTER 2

THE SCHEDULE MANAGEMENT FILE

PURPOSE

The purpose of the SMF is to organize and schedule the tasks that must be completed to successfully field DEPMEDS. The SMF depicts a chronological relationship between tasks and analyzes task start dates and durations to determine the overall project schedule. By duplicating the entire SMF, the same schedule structure can be used with different schedule data to represent different parts of the total project. This concept is discussed further in Chapter 3 and in the Appendix.

Project deadlines can be recorded in the SMF. Once the task start dates and durations are recorded, conflicts between those data and the deadlines are identified. The "critical path" for each subschedule and for the overall project is highlighted. The critical path is that set of tasks whose shippage could delay completion of the project.

The SMF is designed to analyze the project's *schedule* but not to manage project *resources*. While the Time Line software provides a capability to track the manpower expended by the various commands supporting DEPMEDS, liaison with the PM indicates that his staff need not perform this function.

STRUCTURE

The SMF is built around a schedule called "MACRO" that ties together 17 subschedules, or tasks, that contain the detailed schedule data. The completion times of the subschedules are automatically passed to the MACRO schedule through the "summarize" feature of Time Line, discussed in the Appendix. Each schedule in the SMF consists of both "tasks," which take time to accomplish, and "milestones," which are points in time. The structure of the SMF is different than the functional break-out of Integrated Logistics Support (ILS) described in Army Regulation 700-127. We believe the 17 subschedules provide a better template than the ILS elements to classify DEPMEDS project tasks into interrelated groups and to facilitate assignment of management responsibilities with the PM's staff. For

instance, "supply support" is an ILS element that includes procurement, allowances, requisitioning, packing, and storage. The SMF structure subdivides this ILS element into several subschedules.

The following listing shows the 17 subschedules together with their abbreviated names, which are used to address the subschedules when using the SMF on a computer:

- Project Approval and Funding (APPROVE)
- Design and Configuration (DESIGN)
- Management System (SYSTEM)
- Supply and Storage (SUP-STOR)
- Training (TRAINING)
- Procure Medical Equipment (PROMED)
- Procure Associated Support Items of Equipment (PROASIOE)
- Procure Other Support Equipment (PROCOSE)
- Transportability Analysis (TRANS)
- Materiel Fielding Plan (MFP)
- Maintenance Plan (MAINT)
- Personnel Planning (PERS)
- Assemble Sets (SETASSEM)
- Assemble Hospitals (TPUMF)
- First Unit Equipment (FUE)
- New Equipment Training (NET)
- Initial Operating Capability (IOC).

The MACRO schedule and the 17 subschedules are briefly described below, and their relationships are reflected in Figure 2-1. A complete understanding of MACRO and the subschedule requires working with the SMF on a computer and examining the Gantt and "dependency charts" as described in the Appendix.

MACRO

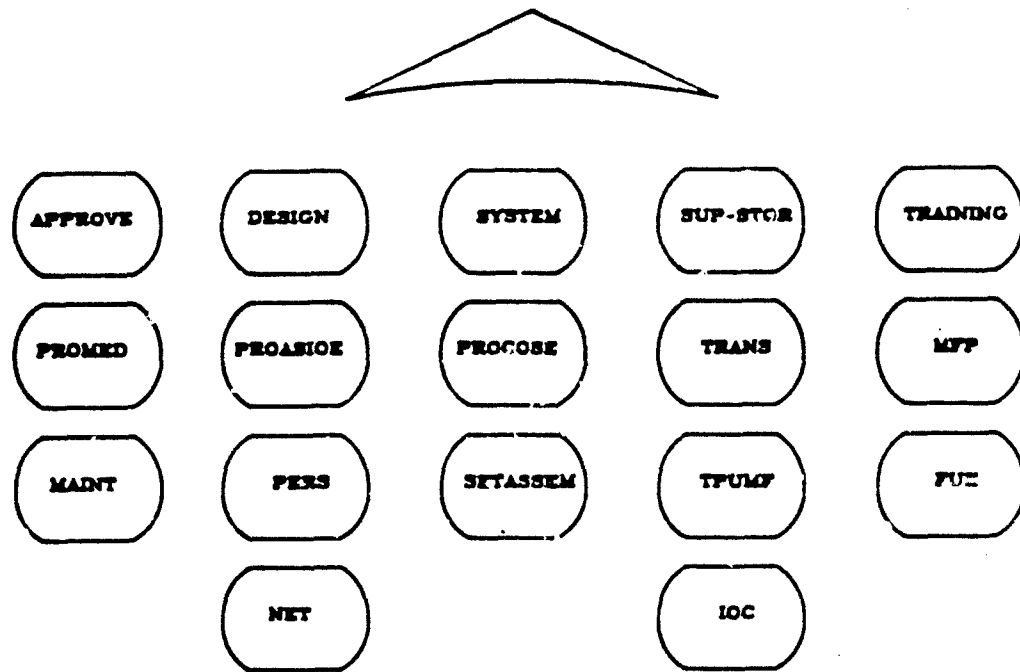


FIG. 2-1. MACRO-TO-SUBSCHEDULE RELATIONSHIPS

Macro

Purpose

MACRO is the "hub" of the SMF in the sense that the subschedule completion times are automatically passed to MACRO, which then reflects the overall schedule for the project.

Tasks and Milestones

The MACRO schedule includes the 17 "macro tasks" to summarize the subschedule completion times and, with each, an associated milestone to record the required subschedule deadline. The tasks in MACRO are not assigned to specific agencies because they involve actions by several organizations; organizational responsibilities are associated with tasks in the subschedules.

Project Approval and Funding (APPROVE)

APPROVE is included in the SMF as a placeholder task that is initialized as "completed." It is included in case the SMF is required for some aspect of DEPMEDS that is not already approved and funded.

Design and Configuration (DESIGN)

Purpose

DESIGN is the schedule of tasks to finalize the type and quantity of items in DEPMEDS.

Tasks and Milestones

DESIGN provides visibility into the open design and configuration issues that must be resolved. DESIGN tasks and milestones are discrete decisions that affect specific requirements for items such as X-ray equipment, power distribution centers, and storage boxes. Documentation tasks, including freezing the DEPMEDS data base and finalizing the Tables of Organization and Equipment (TOEs), are also included.

Management System (SYSTEM)

Purpose

SYSTEM is the schedule for developing management systems needed to provide the PM solid control of DEPMEDS.

Tasks and Milestones

The SYSTEM tasks establish the necessary management systems for DEPMEDS that do not currently exist, e.g., control of dated materiel, equipment allocation, management of substitutes and shortages, status reporting, and post-fielding management. Most of the tasks in SYSTEM proceed independently of the others but are tied to a final milestone to "complete the management system."

Supply and Storage (SUP-STOR)

Purpose

SUP-STOR schedules the development of supply and storage plans required to support DEPMEDS throughout its life cycle.

Tasks and Milestones

SUP-STOR tasks relate to the packing, preservation, and sustainment of all hospital configurations. The supply tasks include cataloging, war reserve requirements, and repair parts support issues. Storage tasks are represented by two major groups of tasks that culminate in a packing milestone and a storage milestone. The packing milestone includes the determination of the methods of packing: turnkey, maintenance, and long-term storage. The storage milestone encompasses the management of potency-dated medical supplies, Prepositioning of Materiel Configured to Unit Sets (POMCUS) requirements, the facilities required for storage of Associated Support Items of Equipment (ASIOE) and medical sets in the separate Major Commands (MACOMs), and storage in Army fixed installations.

Training (TRAINING)

Purpose

TRAINING schedules the development of the individual and collective skills required to support DEPMEDS through its life cycle. TRAINING also schedules the employment of the New Materiel Introductory Briefing Team (NMIBT).

Tasks and Milestones

TRAINING tasks begin with the assessment of DEPMED's impact on manpower programs and incorporate tasks for equipment training sets, joint services training, and initial and sustainment training for operators and maintainers.

TRAINING tasks include the creation of the NMIBT and its visits to familiarize the gaining MACOM with DEPMEDS and the impact the system will have on operations and support requirements.

The TRAINING milestone is achieved with the completion of the NMIBT visits, the development of instructional packages, the development and approval of the configuration of training sets, and the development of the plan for distributing and locating the sets.

Procure Medical Equipment (PROMED)

Purpose

PROMED is the schedule for the requisitioning, procurement, and delivery of the Medical Materiel Sets (MMS).

Tasks and Milestones

PROMED begins with requirements determination and is followed by the requisitioning of the MMS components in three materiel groups: Other Procurement Army (OPA) major equipment items, Operations and Maintenance Army (O&MA) MMS items that are neither dated nor deteriorative items, and O&MA dated and deteriorative MMS items. After requisitioning, the procurement actions for each type of MMS are scheduled for each of the three materiel groups. For each type of MMS a final milestone is the completion of procurement of all three materiel groups for that specific MMS.

Procure Associated Support Items of Equipment (PROASIOE)

Purpose

PROASIOE schedules the procurement and delivery of the nonmedical ASIOE. The items in this group are listed in Table 145-11 of the DEPMEDS Army Modernization Information Memorandum (AMIM).

Tasks and Milestones

For each nonmedical ASIOE item, PROASIOE schedules the establishment of materiel requirements followed by the procurement action. The requirements are scheduled to be recorded in the Basis of Issue Plans (BOIPs) and/or the data interchange process. Type classification of the environmental control unit components are included in the task list but not included in the required sequence for completion because it will not affect the hospitals to be fielded during the first

year. Type classification can easily be redefined as a required task. The final milestone is the completion of the procurement action.

Procure Other Support Equipment (PROCOSE)

Purpose

PROCOSE schedules the procurement and delivery of all nonmedical equipment except the nonmedical ASIOE.

Tasks and Milestones

PROCOSE schedules the confirmation of requirements for other support equipment (OSE) in the BOIP and/or data interchange processes. The procurement of the trucks and the components of the Distribution Illumination Set, Electrical (DISE) are scheduled by individual line item. The procurement actions for the remaining OSE are aggregated by commodity command, e.g., Troop Support Command or Tank Automotive Command. The final milestone is completion of the OSE procurement action.

Transportability Analysis (TRANS)

Purpose

TRANS schedules the transportability analysis of DEPMEDS required by AR 70-47.

Tasks and Milestones

TRANS schedules the collection of equipment specifications, the submission of the transportability report, the transportability analysis, and the resolution of any problems discovered during the analysis.

Materiel Fielding Plan (MFP)

Purpose

The MFP is a planning process to insure the effective and supportable transfer of DEPMEDS to field medical units.

Tasks and Milestones

MFP is a schedule of events involved in planning the DEPMEDS equipment distribution and its support. The completion of many of these tasks is dependent upon the final determination of the Materiel Fielding Schedule. As indicated in draft AR 700-XXX, three major milestones lead to the completion of the MFP: Materiel Fielding Schedule, Mission Support Plan, and Materiel Fielding Agreement. MFP includes tasks that indicate planning decisions in support of those three milestones, such as the identification, repair, storage, and transportation of displaced equipment.

Maintenance Plan (MAINT)

Purpose

MAINT encompasses all levels of maintenance support for both medical and nonmedical equipment.

Tasks and Milestones

MAINT begins with the identification of the type and number of the items to be maintained and the formulation of the maintenance plan. Other tasks following two separate branches, one oriented toward medical equipment and the other toward nonmedical equipment. Each branch addresses direct support, depot-level support, Test, Measurement, and Diagnostic Equipment (TMDE) and operational float requirements, and culminates with a milestone. MAINT is completed when both milestones are met.

Personnel Planning (PERS)

Purpose

PERS schedules the tasks associated with the manpower requirements process and authorization process required to successfully field and support DEPMEDS.

Tasks and Milestones

PERS tasks involve manpower authorizations, qualitative and quantitative personnel requirements information (QQPRI), and Military Occupational Speciality (MOS) additions and changes. All PERS tasks require completion for First Unit

Equipped (FUE), although post-fielding operational experience could generate specific refinements of personnel skills and authorizations.

Assemble Sets (SETASSEM)

Purpose

SETASSEM schedules the major steps to be performed in the assembly of medical materiel sets (MMS).

Tasks and Milestones

SETASSEM begins by requiring the resolution of certain issues that will affect all MMSs, e.g., defining packing specifications and determining which MMS components are "essential." Next, the packing of each type of MMS is individually scheduled. The final milestone is completion of set assembly.

Assemble Hospitals (TPUMF)

Purpose

TPUMF (Total Package/Unit Materiel Fielding) is the schedule for assembling DEPMEDS hospitals and transferring them to the gaining commands.

Tasks and Milestones

The first TPUMF task is the formulation of a TPUMF strategy. From that strategy, the remaining tasks are grouped according to three major milestones: publications, customer documentation, and transportation and staging. Transportation and staging entail bringing together the medical equipment, ASIOE, and OSE from different sources of supply. TPUMF is completed with the handoff of equipment to the MACOM.

First Unit Equipped (FUE)

FUE is included in the SMF as a "placeholder" task since the tasks associated with staging and handoff are included in TPUMF. If the user identifies additional tasks associated with the handoff process and needs to provide them maximum visibility in the SMF, he can schedule them in FUE.

New Equipment Training (NET)

Purpose

NET schedules initial training to the gaining MACOM for the employment, operations, and maintenance of DEPMEDS.

Tasks and Milestones

NET tasks involve the execution of operator, maintainer, and trainer training packages developed in accordance with the TRAINING subschedule. The responsibility for the preparation of instructional materials and the training of the MACOM NET teams is divided between the U.S. Army Medical Materiel Agency (USAMMA) for the maintainer and the Academy of Health Sciences (AHS) for the operator and trainer training. The NET milestone is met when the training of the MACOM NET teams is completed.

Initial Operating Capability (IOC)

IOC is included in the SMF as a "placeholder" task. Once the tasks reflected in FUE and NET are completed, the unit(s) should be operational. However, other tasks that may be identified later and that must follow NET before the units are operational can be recorded in this subschedule.

SMF OPERATIONS

Before using the SMF, the user must learn the basics of the Time Line program. The user should first work through the tutorial provided with the program and then study the other features of the manual while exercising the program on a computer. In addition to the program manual from Breakthrough Software on basic Time Line operations, the Appendix to this report provides information on several technical issues important for SMF operations. These issues include duplication of the SMF, data entry and update, changing the SMF structure, report options, and hardware requirements.

CHAPTER 3

MANAGING WITH THE SMF

SYSTEM MANAGER

We recommend that a "System Manager" be appointed with overall responsibility to maintain the SMF, even though its modular structure facilitates the monitoring of different SMF subschedules by different staff members. The System Manager would be the technical expert on the Time Line program and would assist other staff members in maintaining their subschedules. The System Manager would also make or monitor necessary changes to the SMF structure as the project develops. This responsibility is important to ensure that changes made by different people do not create contradictions or result in omissions in the SMF. The System Manager would coordinate regular updates of the project status recorded in the SMF.

SMF DUPLICATION

Since DEPMEDS hospitals will be fielded over several years, there will probably be more than one "schedule" to manage. As described in the Appendix, the SMF can be duplicated for every part of the project that requires separate schedule management at the PM level. For instance, one version of the SMF could represent the fielding schedule for the first hospital while another version reflects the fielding schedule for the remaining hospitals, as a group, to be delivered in the first year. Once this is done, each task, in each subschedule, must be reviewed and task dates adjusted as necessary. Adjustments might also be needed in the structure of the SMF for the particular schedule represented by the duplicate version, although the system is designed to minimize the need for such changes.

FEEDBACK FROM THE FIELD

The SMF will be useful only if it is provided timely and accurate status of the tasks in its subschedules. This necessitates a regular flow of information to the PM from the various agencies and commands supporting DEPMEDS. The SMF's

capability to list tasks for a particular command, discussed in the Appendix, can be used to produce checklists for gathering project status.

The ideal status input format from supporting commands would be one that would afford the PM maximum flexibility to subdivide the project for SMF duplication. For instance, if the delivery schedules of equipment were provided in spreadsheet format showing when the requirements for specific numbers of hospitals, by type, would be satisfied, then that input would suffice for any partitioning of the entire project.

Since the SMF is initialized with "placeholder" dates, replacing them with actual task data will require careful research and reporting by supporting commands.

"WHAT IF" ANALYSIS

The SMF provides a method for quickly assessing the effect that a change in a task start date or duration will have on the project. (This method is discussed on pages 103-104 of Breakthrough Software's Time Line manual.) This method is valuable because of the changing status of many tasks and the uncertainty in forecasting future completion dates. For any set of dates loaded in the SMF, the critical path and the project completion date will be calculated and displayed. The system can also determine tasks that are "almost" critical (those with slack time within 20 percent of task duration).

THE RELATIONSHIP BETWEEN THE IMF AND THE SMF

The SMF and the IMF are created for different purposes but should complement each other. The SMF contains the task schedule data and relationships and can efficiently calculate critical path and project completion dates. However, the SMF has limited capability for recording details or comments about specific tasks. The extensive capability of the IMF to record information on tasks can compensate for that limitation in the SMF. The appendix describes the coding format that relates IMF issues to SMF tasks.

SMF LIMITATIONS

The SMF requires accurate input data to produce meaningful schedules, and once those data are supplied, the PM and his staff will have to make numerous

judgments about the criticality of project tasks. For example, the SMF is constructed to require all OPA and O&MA items to be procured for an MMS before it can be assembled. If the estimated delivery dates for certain MMS components conflict with the fielding schedule, the PM and his staff will have to decide whether to code the procurement task as "complete" or whether the fielding must be delayed. The SMF's contribution to that process is limited to identifying the issues and depicting the effect of such decisions on the completion dates of the other tasks.

Certain aspects of the DEPMEDS project are not suitable for modeling in the SMF. For example, the SMF schedules the requirements determination and procurement of both Power Distribution Centers (PDCs) and DISE, and many questions about the requirements for, and tradeoffs between, these two items must be resolved before procurement can be completed. While the complexity of these design decisions is inappropriate for the SMF, the IMF can be used to store the information on such issues and provide the chronological record for review.

CHAPTER 4

SMF MANAGEMENT ISSUES AND CONCLUSIONS

MANAGEMENT ISSUES

Learning To Use the SMF

Before the SMF can be used, the Time Line program must be mastered. The program includes an excellent computer-based tutorial that should be worked to completion by new users. After working the tutorial, a new user should create and edit two small, practice schedules, with one a "subschedule" summarized by a task in a "master schedule." The "summarize" feature is fundamental to the SMF since it is the link between all subschedules and the MACRO schedule.

The Time Line manual is extensive and Breakthrough Software also provides excellent technical consulting services by telephone [(415) 898-1919]. All SMF users should thoroughly study the Time Line manual; the tutorial is an excellent introduction to the program but does not exercise many program features that are discussed in the manual.

Other Support Equipment

The procurement of OSE, i.e., nonmedical equipment not listed in the DEPMEDS AMIM, is scheduled in PROCOSE. Since the only specific items of OSE identified to date for line-item monitoring by the PM are the trucks and the DISE, those are the only individual line items included. The rest of the OSE is batched by commodity command. If the PM chooses to exercise more detailed tracking of OSE, then PROCOSE should be expanded by creating tracking entries similar to those for trucks and DISE for the items needing detailed management. On the other hand, if the structure of the PROCOSE remains consistent with the PM's desires for management control of this aspect of DEPMEDS, then criteria are needed to assign "completed" status to the tasks that involve the procurement of a group of OSE items.

Design Changes

The configurations of MMSs and the TOEs for DEPMEDS hospitals are still being refined. The sequence of tasks in the SMF calls for the design and configuration to be established before the remaining tasks are started. While this sequence is realistic for most of the project, some exceptions exist. For emerging design changes, the SMF should be reviewed to see whether task completion dates need to be revised. The criteria for changing a task's estimated completion date should be: Does the design change have any significant effect on the project, and if so, does it create an issue to be resolved *after* fielding or does the overall project schedule need to be adjusted?

Post-Fielding Management

To meet a fielding schedule, certain tasks will probably be classified as "complete" even though a few noncritical items remain incomplete. The SMF does not capture those incomplete tasks, but recording and monitoring their resolution are important. The IMF is an excellent management tool for this purpose but, if schedule management is needed, a new schedule structure, using Time Line, should be created once the nature of the post-fielding issues is known. The SYSTEM subschedule calls for the creation of a post-fielding management system.

CONCLUSIONS

The SMF is a valuable management aid for analyzing the schedules of the numerous interrelated tasks that comprise the DEPMEDS project. The system becomes operational when initialized with the current status of tasks, and that requires extensive data input from the commands and agencies supporting the PM. The SMF subschedules can be maintained by several different people, but a dedicated System Manager is needed to ensure that the SMF is kept up to date and that the structure and data in the system remain consistent. Together with the information recorded in the IMF, regular posting of the SMF can provide the PM with a clear picture of the overall status of the DEPMEDS project.

APPENDIX

TIME LINE AND THE SCHEDULE MANAGEMENT FILE TECHNICAL ISSUES

Most of the Schedule Management File (SMF) technical issues involve procedures that are in the Time Line manual, and this appendix frequently refers to that manual as the "user's manual". Additional assistance is available by telephone from Breakthrough Software at (415) 898-1919.

RECOMMENDED HARDWARE

Time Line runs on microcomputers that use the MS-DOS operating system, which include IBM Personal Computer (PC)-compatible machines. The SMF must be run on a computer with at least 320K of random access memory (RAM) and either two diskette drives or one diskette drive and a hard disk. A hard disk is highly recommended since the program runs much faster with one, given the frequent disk access.

The hardware for the SMF should include a wide carriage dot matrix printer and a plotter. Any of the popular dot matrix printers should be suitable and page 15 of the Time Line *Graphics* manual lists the compatible plotters. The reports described in the user's manual can all be produced on a printer, but the enhanced graphics, recently released by Breakthrough Software, require a plotter.

PROGRAM AND FILE STORAGE

Time Line and the SMF files are recorded on diskette and should be copied to a hard disk in accordance with the pamphlet entitled "Getting Started" that is included with the program documentation. A user who does not want to use the directory names as recommended in "Getting Started" for program and data storage should consult Appendix C of the user's manual.

It is crucial that backup copies of the program and data files be maintained, and we recommend that the user copy the entire directory of SMF data files to

diskette at the end of each day. If changes are to be made to the SMF's structure, the system should be backed up first on a diskette.

SMF-TO-IMF CONNECTION

Individual tasks in the SMF are created on a task form (see user's manual, page 79) that includes two lines for "notes." If a task corresponds to an issue in the Issue Management File (IMF), the issue number from the IMF is recorded in the "note 1" line of the SMF task. Also, the issue/action records in the IMF indicate what MACRO task, i.e., SMF subschedule, it relates to. We recommend that this convention be perpetuated as the IMF and SMF are updated.

THE "SUMMARIZE" FEATURE

The feature of Time Line that allows the project schedule to be divided into different subschedules is "summarize," described on pages 84-86 of the user's manual. MACRO is the only SMF schedule that summarizes subschedules; the 17 subschedules are all self-contained. For summarize to work properly, MACRO and all subschedules must be recorded on the same diskette or in the same directory on a hard disk. A subschedule can be updated on a different computer or on a different diskette or directory in the same computer, but it must be copied to the SMF diskette or directory to pass its revised completion date to MACRO.

DATA ENTRY AND UPDATE

Since the SMF is initialized with artificial task dates and durations, the tasks must be edited, as described on pages 79-91, to reflect the actual project status. In addition to updating the task start dates and durations as status is received from the field, the user should consider the "type" of task classification as discussed on page 80 of the user's manual. When a deadline exists for a task, it should be classified as "fixed" so any delay, actual or estimated, will be clearly displayed in the project reports.

As discussed earlier, the subschedules can be updated separately by different people using different computers and the results will automatically be assimilated by MACRO when the updated subschedules are loaded to the same computer, presumably by the System Manager.

SCHEDULE STRUCTURE ANALYSIS

The critical path and projected completion date of an SMF subschedule must be interpreted in terms of the subschedules structure, i.e., what tasks are represented and what dependencies are established between them. The best way to examine a schedule's structure is to print both the Gantt and PERT reports, described on pages 125-127 of the user's manual. The PERT report should be "rotated," as described on page 36 of the user's manual, and printed with the utility program called "SIDESTEP."

A user who wants to check only part of a schedule's structure should use the "filter" feature, as described on page 138 of the user's manual. This allows a select part of the schedule to be displayed, according to the specified criteria.

Although the user's manual uses the term "PERT" report, the report described in the manual is not a true PERT but rather a "dependency report" since it simply shows the chronological dependencies between tasks. For a true PERT report, the graphics capability must be used, and that requires a plotter.

TASK DEPENDENCIES

Time Line provides for a variety of relationships between tasks, called "dependencies" in the user's manual and discussed in detail on pages 93-102. The dependencies used in the SMF are all the same type; that is, the successor can start only when all its predecessors are completed. In some actual situations, one task is dependent on another but can begin before its successor is completely finished. Time Line can be programmed to reflect that kind of relationship - called a "partial dependency" - and the user should be aware of that option. However, we recommend that the simple, "end-to-end" dependencies be used if possible because it is difficult to see the details of partial dependencies after they are established. Using a simple dependency when there is actually some overlap in task durations merely requires that the user reduce the projected duration of the succeeding task by the length of the overlap.

RESOURCES AND COST

Pages 63-78 of the Time Line user's manual discuss the program's resource and costing features. The SMF uses these features only to indicate which organization is responsible for each task in the subschedules. To record an organization's responsi-

bility for a task in the subschedule, the name of the organization is entered in the first block of the last section of the task form (see user's manual, page 79), with the corresponding "amount" field left blank.

Each organization supporting DEPMEDS is classified as a resource with a cost rate set to zero. Thus, the SMF does not compare organization taskings with data on their available manhours or dollars.

SMF REPORTS

Time Line primarily displays project management data in the form of a Gantt chart, but several other report options are available, as described on pages 121-138 of the user's manual. Additionally, the advanced graphics reports, described in the manual entitled *Graphics*, provide a significant enhancement to the program's report options described in the user's manual. The *Graphics* reports must be produced on a plotter, a slow process compared with printing the standard reports on a dot matrix printer. However, the plotter-generated reports are more suited for management presentations than the reports produced on a dot matrix printer.

The user should become thoroughly familiar with the options to create reports on selected portions of a schedule using the filtering feature discussed on page 138 of the user's manual. This feature can be especially useful when working with a large schedule like PROMED.

Gantt Report

The Gantt Report is the most useful of the options available since it displays the basic schedule and conveys the most information of any Time Line report. The *Graphics* manual describes a more complete Gantt report that is the best Time Line product for project management and management briefing purposes. The options include an "actual-vs-planned" Gantt report that displays deviations from a project schedule.

PERT Report

The PERT report described in the user's manual is actually a chart showing only the dependencies between tasks, with no information on status of timing. Except for the smallest subschedules, this report is best produced by creating a print file on disk and printing it with the utility program "SIDESTEP." For small sub-

schedules, like TRANS, the PERT report can be displayed on the screen; larger reports must be printed as described on page 36 of the user's manual.

The *Graphics* manual describes a "time-scaled PERT" that conveys dates, task durations, and detailed dependency information. The time-scaled PERT provides enough information to be used for a management presentation, although the Gantt report is more appropriate for that purpose.

Status Report

The primary value of the "status report" is that it lists all tasks that are projected to be late. The report also identifies tasks that are scheduled to start in the next week and those on the critical path. It also identifies tasks that are "almost critical," i.e., those with slack time within 20 percent of task duration.

Task Reports

Time Line produces both a "task table report" and a "task detail report." The task table is a summary listing of tasks with numerous display options. It can produce a task list sorted by responsible organization, which could be especially useful if used with the "combine" feature described on pages 52-53 of the user's manual.

The task detail report is also useful if partial dependencies are used. When one task involves several partial dependencies, this report is the only way to display the dependencies without using the plotter routines. The display can be produced quickly on the computer screen.

Resource Reports

The resource report, the earned value analysis report, and the cost report are not applicable to the SMF.

CRITICAL PATH

The "critical path" is that set of tasks that have no "slack time"; that is, any slippage in their completion times will delay completion of the project. The Gantt report marks all tasks on the critical path with a "C" in the status column, and the filter function can be used to display only critical tasks (see user's manual, page 117).

"Almost critical" tasks can be included when the critical tasks are selected. Critical tasks can also be emphasized in PERT reports.

REVISING THE SMF STRUCTURE

The SMF structure is the scheduling model for DEPMEDS. As the project progresses, new issues and tasks will need to be incorporated into the SMF. A new task can easily be added to a subschedule, as described on pages 87-91 of the user's manual.

New subschedules can be added to the SMF structure if the summarize feature is used in the new MACRO task, as described on pages 84-86 of the user's manual. However, the Project Manager (PM) staff officers should try to incorporate new tasks into existing subschedules rather than complicate the SMF structure. The 17 subschedules have a broad enough range that a new task should logically fit into one of them.

SIDESTEP

The utility program SIDESTEP is recommended for printing rotated PERT (dependency) charts. The program comes with a small manual but can easily be used with the self-explanatory menu display screen. Our experience indicates that "font size 5" for high-speed compressed printing is best. The "paste value" must be set to zero.

DUPLICATION OF THE SMF

If the SMF is duplicated, as described in Chapter 3, the duplicated system should be stored in a hard disk directory with a unique name. If the user desires to rename the MACRO and subschedule files, then he must remember to adjust the "summarized schedule named" field (see page 79 of the user's manual) in each of the 17 tasks in MACRO to match the new subschedule names.

If the SMF is duplicated, the "schedule form" (see page 48 of the user's manual) should be annotated in a "comment" line to indicate the scope of the tasks being scheduled in that version of the SMF.