Application of the Critical Success Factors Methodology to Development of a Microcomputer-Based Decision Support System at Naval Hospital, Millington, Tennessee

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Thomas W. Burden
Lieutenant, Medical Service Corps
U. S. Navy

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I. Introduction

In these turbulent times, the word "revolution" is frequently misused to describe the process of "evolution." Perhaps in no field has a true revolution been more apparent, however, than in that of information technology. In fact, in his book, The Third Wave, futurist Alvin Toffler cites the "information revolution," after the agricultural and industrial revolutions, as the third major revolution to affect the global society. Probably the most obvious and symbolic manifestation of this information revolution has been the emergence of the personal or microcomputer as a tool for the nontechnical user. As but one indicator of this social phenomenon, Time magazine, in place of its annual "Man of the Year," picked the microcomputer as its "Machine of the Year" for 1982.[1]

In a relatively few number of years, the microcomputer as an executive tool has become as ubiquitous as the hand-held calculator of the Seventies. While for some executives, a microcomputer may be nothing more than a $3,000.00 paperweight, millions of users now consider their "micros" to be as indispensable to their jobs as are their telephones.

Conditions Which Prompted the Study

Prior to the undertaking of this project, senior executive decision making at Naval Hospital, Millington, Tennessee took place without the benefit of a responsive, coordinated, management information system. The existing system relied heavily on manual data collection and processing and a limited amount of remote, off-line automation using antiquated punchcard equipment and batch processing. Due to constraints imposed by higher authority and the questionable status of future developments of the Tri-Service Medical Information System (TRIMIS) project, the immediate prospect for an automated executive decision support system

was remote. The hospital commanding officer wished to pursue development of a low-cost, off-the-shelf microcomputer-based system as a means of quickly upgrading the level of executive decision support. A Zenith microcomputer was available for use in the command suite should this prove feasible.

Problem Statement

The objective of this endeavor was to develop and implement a microcomputer-based decision support system which enhanced senior executive decision making at Naval Hospital, Millington.

Objectives

The objectives determined necessary to complete this application project were as follows:

1. To identify those factors considered by senior management to be critical to the continued success of the hospital.

2. To identify those indicators which were considered appropriate measures of each critical success factor identified above and which lent themselves to microcomputer-based automation.

3. To identify other significant considerations such as: desired system capabilities, user preferences, and compatibility with existing and planned systems.

4. To develop a system requirements package.

5. To survey commercially available software and identify that which meets the command's needs.

6. To evaluate, select, and procure software and install it on existing hardware.

7. To design and implement data collection procedures necessary for system operation.

8. To program software to accommodate data input, manipulation, and desired output.

9. To present system to executives for their acceptance and commence training.

Criteria

The development of decision support systems is by nature, an iterative process. As such, no system is ever truly complete. Furthermore, due to the highly subjective nature of this application project, objective, quantifiable criteria indicative of successful system implementation could not be obtained. However, the goal of this research project was to produce a realistic solution to an actual management problem, that is - to develop a cost-effective microcomputer system capable of enhancing executive decision making. Therefore, for purposes of this project report, the system was to have been considered "completed" when at least ninety percent of the critical success factor indicators considered suitable for automation had been programmed on the system software and initial prototyping had been completed.

One additional concern in comparing alternatives was the total expenditure of command funds required to acquire a given system. For this reason, an additional criteria of success required that the cost of the system implemented not exceed either the funds available for acquisition or any administrative limit imposed by higher authority.

Assumptions

No specific assumptions were made regarding this project.

Limitations

Due to the subjective nature of the managerial styles of the executives involved and the unique aspects of the hospital examined, the system implemented at this facility may not be directly suitable for use in other institutions.

A true state-of-the-art "decision support system" is a powerful and expensive mainframe

computer system which is based on state-of-the-art technology. Because of resource and administrative constraints, this project focuses on development of a much less sophisticated microcomputer-based executive workstation. The distinctions between the two are addressed in this paper.

For purposes of this paper, the term "senior executive" was defined as the hospital commanding officer and executive officer. It is expected that following initial microcomputer installation, the scope of this project could be expanded to include those executives at the directorate level, followed by the heads of administrative and clinical departments.

Since a Zenith Model Z-120 microcomputer was available for use with the system, it was desirable that the proposed system operate with that hardware in mind.

It was recognized that post-implementation evaluation was requisite to successful implementation of this or any system. However, due to time constraints and the scope of this project, this paper addressed only the initial implementation phase. Once sufficient time has elapsed to permit a meaningful experience-based evaluation, a comprehensive analysis should occur.

A Review of the Literature

Decision Theory: The literature is in general agreement that in order to use a decision support system to improve decision making, one must first gain an understanding of the decision process itself. However, decision making as a discrete topic for study was not discussed in management literature prior to the mid-fifties. A 1958 Cornell University-McKinsey Foundation survey revealed that the greatest share of the study to date had been limited to psychological studies of individual, group, and leadership factors in decision making.[2] It was not until the early 1960's that decision theory as an element of management science started to be

addressed.[3] Two schools of decision making theory emerged to predominate in the literature, the *classical* decision theory and the *behavioral* theory. To further explore decision theory, it is helpful to briefly trace its development from the classical school to the behavioral school and to also develop a taxonomy of decision types.

Classical Decision Theory

The earliest approach to the study of decision making was that of the classical decision theorists whose normative models were based on the same assumptions as Adam Smith's "Economic Man" concept. As modified for decision theory, these specific assumptions are:

> The decision maker is a rational person who will always choose an alternative that optimizes the organization's goals.
>
> The decision maker has ready access to perfect information concerning all aspects of the decision situation.
>
> Multiple goals can be cast in a linear fashion and combined mathematically into a single simplifying solution.
>
> All people will handle information in the same manner when faced with the same decision situation.
>
> Communication, perception, personality, and motives do not influence the actions or choices of the decision maker.[4]

Decision Process

According to classical decision theory, a decision situation is composed of four elements: (1) information, (2) decision rules, (3) risk, and (4) decision aids. Information forms the basic raw material for a decision and is composed of such factors as identifying the opportunity for a decision and the relevant factors to be considered. Decision rules are probalistic or nonprobalistic in nature and tell the decision maker which choice to make once sufficient information has been obtained. Risk is a measure of the degree of certainty or uncertainty under

which the decision is made. Decision aids are tools such as mathematical models and operations research techniques, which help to reduce risk or optimize the decision.[5]

Behavioral Decision Theory

The seminal behavioral contributions to the area of organizational decision making were developed at the Carnegie Institute of Technology in the Sixties and early Seventies by theorists who disagreed with the stringent assumptions necessary for the classical model. March and Simon and Cyert and March found that instead of the ideal, classical decision maker equipped with perfect knowledge, actual decision makers operated under *bounded rationality* and exercised *satisficing,* making decisions equipped with only a portion of the total information available.[6,7]

Simon, declaring a "new science of management decision" further emphasized bounded rationality as a part of the decision process. By extending the limits on the boundaries through additional information, Simon believed that one could theoretically improve the effectiveness of decisions.[8] Accordingly, in a critical development which made the computer useful to decision makers, Simon first classified decisions as either *structured* or *unstructured.* Structured decisions were defined as those which had the potential to be programmed for computer processing while unstructured decisions could not be easily programmed. A decision was considered suitable for programming if the structure of the task permitted precise rules to be defined for information processing and alternative selection. As a result, Simon's decision types are also referred to as either *programmable* or *nonprogrammable.*[9]

Simon saw the decision making process as a series of three phases of management activity, *intelligence, design,* and *choice.* Intelligence included collecting relevant information; design included inventing, developing, and analyzing possible courses of action; and choice included selecting one of the possible alternatives.[10]

Categories of Management Control Activities

Aside from the two major decision theories, another perspective on organizational decision making can be gained by viewing decisions within the context of the management control activities required or exercised. Taking a different approach from Simon, et al., Anthony developed a classification scheme of management control activities which defined three levels of management activity, each with its own informational needs. Anthony defined his levels of management control activities as *strategic planning, management control, and operational control.* Anthony recognized that the distinction between the levels was often unclear, and that the levels were frequently continuous rather than discrete in nature.[11]

Gorry and Scott Morton later believed that analysis of the informational needs of the categories was helpful in distinguishing between the three levels. They offered the following model:

Characteristics of Information	Operational Control	Management Control	Strategic Planning
Source	Largely internal	← →	External
Scope	Well-defined, narrow	← →	Very Wide
Level of Aggregation	Detailed	← →	Aggregate
Time Horizon	Historical	← →	Future
Currency	Highly current	← →	Quite old
Required Accuracy	High	← →	Low
Frequency of Use	Very frequent	← →	Infrequent

Figure 1. Information Requirements by Category[12]

Managerial Decision Types

In what appears to be a refinement of Simon's "programmable" and "unprogrammable" decision types, Ackoff classified managerial decision types as:

> a. Decisions for which adequate models are available or can be constructed and from which optimal (or near optimal) solutions can be derived...
>
> b. Decisions for which adequate models can be constructed, but from which optimal solutions cannot be extracted...
>
> c. Decisions for which adequate models cannot be constructed.[13]

Management Information Systems Framework: In addition to describing the decision process itself, the literature suggests that in order to more fully understand organizational decision making, it is helpful to have a framework which allocates information resources to the support of organizational decision making. This section addresses the development of such a framework.

Framework Development

Gorry and Scott Morton, addressing the development of an information systems framework, utilized two of the above decision theory concepts as the basis of their framework for examining the purposes and problems of information systems activity. Specifically they adopted Simon's *structured - unstructured* continuum and added a third category which they called *semi-structured.* Placing this continuum on one axis, Gorry and Scott Morton also adopted Anthony's continuum of management control activities as the other axis. As a result, Gorry and

Scott Morton defined a bidimensional framework with nine main types of decisions. The completed framework with their examples of various decision types appears as follows:

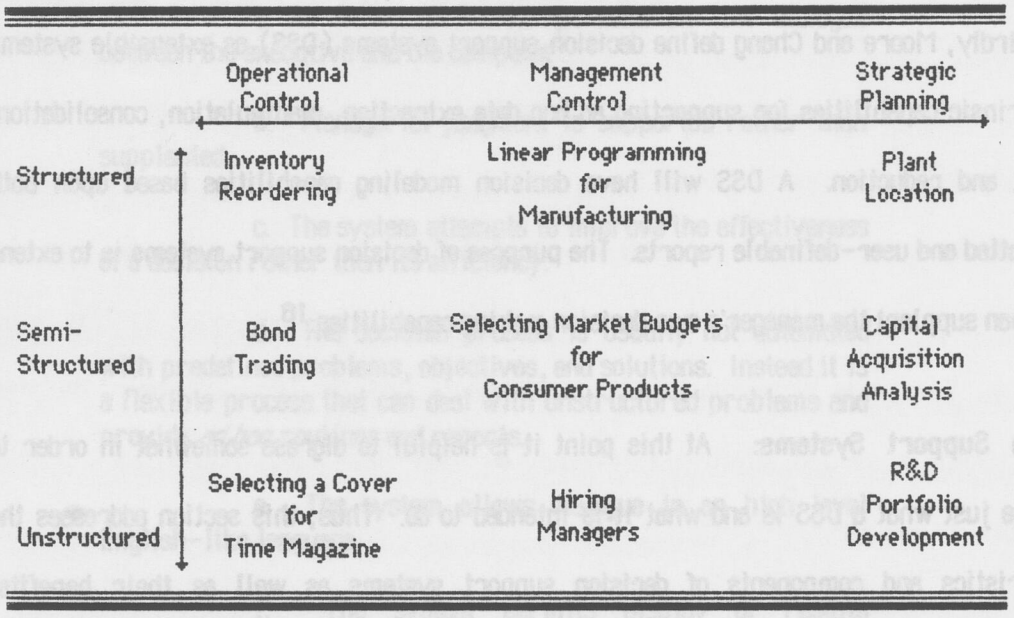


Figure 2. A Framework for Information Systems[14]

Another useful information systems framework is that described by Moore and Chang which is based on task structure. Moore and Chang describe three types of computer-based information handling systems: *transaction processing systems, management information systems,* and *decision support systems.*[15]

First, transaction processing systems (TPS) are defined as pure data processing systems which gather, update, and post information according to predefined procedures. Little or no managerial decision making is required, and most decisions are clerical and routine in nature. This form of decision making is *programmed* in the purest sense of the word. An example of a transaction processing system might be an automatic inventory reorder system based on the economic order quantity (EOQ) principle.[16]

Secondly, management information systems (MIS) are defined as systems with predefined

data aggregation and reporting capabilities. Most MIS reports are processed in the batch mode. Query options are normally limited to a set of predefined operations with little or no ad hoc reporting capability. A MIS is often built upon an existing TPS.[17]

Thirdly, Moore and Chang define decision support systems (DSS) as extensible systems with intrinsic capabilities for supporting ad hoc data extraction, manipulation, consolidation, analysis, and reduction. A DSS will have decision modeling capabilities based upon both preformatted and user-definable reports. The purpose of decision support systems is to extend rather than supplant the manager's own decision making capabilities.[18]

Decision Support Systems: At this point it is helpful to digress somewhat in order to determine just what a DSS is and what it is intended to do. Thus, this section addresses the characteristics and components of decision support systems as well as their benefits, limitations, and capabilities.

Decision Support System Characteristics

Moore & Chang characterized DSS by concentrating on the meaning of each word in the term. *Decision* emphasizes the primary focus on decision making rather than the more subordinate activities of information collection, processing and retrieval. *Support* highlights the role of the automated system in aiding rather than replacing the decision making process, while emphasizing the role of managerial judgment in the process. *System* emphasizes the integrated nature of the overall approach suggesting the wider context of decision maker, machine, and environment.[19]

Keen and Scott Morton stressed the importance of automation as a critical element of a true decision support system. They point out that without the extension of technical capabilities made possible by the computer, an effective DSS could not exist.[20]

Thierauf, Turban, and others have described decision support systems in terms of current technological capabilities. Specifically, these systems are composed such that:

a. An interactive mode permits on-line dialogue between the executive and the computer.

b. Managerial judgment is supported rather than supplanted.

c. The system attempts to improve the effectiveness of a decision rather than its efficiency.

d. The decision process is usually not automated with predefined problems, objectives, and solutions. Instead it is a flexible process that can deal with unstructured problems and provide *ad hoc* routines and reports.

e. The system allows dialogue in an high level English-like language.

f. The system permits display of results graphically.

g. An interactive mode and ease of programming reduces or eliminates need for staff support (programmers and analysts).[21,22]

Microcomputers: Having briefly reviewed the literature concerning decision support systems, it is now helpful to do the same for the field of microcomputers. It is noted that the technology surrounding the entire microcomputer field is quite volatile with significant changes introduced almost weekly. Attempts to publish current, professional, literature in this field are hampered by this fact. As such, most of the current literature in this field is found in the popular press rather than in professional journals or texts.

Microcomputers in DSS

Reimann and Waren have stressed that the "fundamentally important characteristic of a

DSS is an interactive, ad hoc analytical capability that permits managers to simulate or model their problems as completely and accurately as possible...that is the DSS should provide management the equivalent of the pilot's filght simulator."[23] Reimann and Waren believe that the computational power necessary to achieve this degree of sophistication is beyond the range of today's microcomputers; therefore, they emphasize the importance of a mainframe computer in building a true decision suport system.[24]

While the current technological state-of-the-art in microcomputers precludes their use in developing a fully capable DSS, they are not, however, without value in this area. Callamaras, Keen and Woodman, Godbout, Barnard, and Hennage all have declared microcomputers to be cost effective alternatives to their more costly albeit more capable mainframe relatives.[25,26,27,28,29]

State-of-the-Art in Microcomputer Use

Hardware. Computer technology has advanced to the state that it is now possible to achieve a level of microcomputer capability that previously was attainable only in a small mainframe or minicomputer. For this reason, executives are attracted to the concept of a low-cost but capable microcomputer alternative to mainframe decision support system.

Mansfield addressed the evolution in the last decade of microprocessor chips which form the heart of any computer. From MOS Technology 6502 and Zilog Z-80 chips which were initally capable of processing data in eight-bit segments at the speed of one megahertz, new chips have evolved such as the Intel 8088 or the Motorola 68000 families which are able to process sixteen and thirty-two bits at four and eight megahertz, respectively. In addition, these new chips are also capable of addressing 256 times the memory storage previously available (thereby further increasing their utility for the type of data procesing needed in decision support applications).[30]

Concurrent with the development of more capable microprocessors, the industry has seen a substantial reduction in the price of both microprocesor chips and memory chips. Morgan and Morgan report that the cost of computer logic devices (microprocessors) has historically fallen by 25 percent each year while memory cost has fallen by 40 percent each year. They also report an increase in computational speed by a factor of 200 and a decrease in power consumption by a factor of 10,000 over the past 25 years.[31]

Software. Hardware alone, however, is incapable of satisfying any informational need. Equally, if not more important, is the software utilized in the system. Historically, the development of software has lagged behind that of hardware, and lack of of capable programs has been cited by Silbert and others as the Achilles' heel of the computer industry.[32]

That software which controls the overall operation of all applications programs used on a given computer is known as the operating system. In fact, Sanders states that the operating system defines the nature of the interface between the user and the machine, and that it is the key element in determining how easy a given program is to use.[33]

Variants of microcomputer operating systems are as diverse as the number of manufacturers; however, five major operating systems have emerged to dominate the market. Freifeld and Englemayer cite CP/M ("Control Program for Microcomputers" from Digital), TRS-DOS (from Tandy/Radio Shack), and DOS 3.3 (from Apple) as early contenders for "a standard operating system in an industry noted for its lack of standards."[34] They report each of these three systems to have an extensive loyal following. Another new contender making a strong showing is the Macintosh operating system from Apple Computer which in only two years has gained over 500,000 users.[35]

However, the operating system with the clearest claim to the title of industry standard is that employed with the IBM personal computer - PC-DOS (also sold as MS-DOS from

Microsoft). Rubin and Strehlo report that from the time IBM first entered the microcomputer market, "MS-DOS became a standard, not because it was the best system, but because everybody knew that IBM would sell a lot of computers."[36] Rubin and Strehlo further claim that, while MS-DOS is far from the "friendliest" system to use, eighty-five percent of the new software being developed for personal computers was for PC-DOS and MS-DOS.[37]

As important as operating systems are to a computer system, no system is of much value without application software to perform the various functional operations. Several types of application software exist, and several thousand individual products are marketed; however, most microcomputer software can be classified into six main functional classifications: word processing, spreadsheets, data base, telecommunications, graphics, and utilities. The glossary in Appendix A contains definitions of these various classes of software.

Peripherals. Another major consideration in any microcomputer system is the selection and use of peripheral hardware items. McWilliams[38] and Bates[39] both describe the host of peripherals now available on the market. Microcomputer data storage can take the form of floppy disks, hard disks, and the new compact disk read only memory (CD-ROM). Data input can be accomplished through keyboards, scanners and bar code readers, digitizers, mice, and graphics tablets to name but a few. Output can occur by letter quality or draft printer, plotter, or the exciting new laser printer which is capable of providing offset type quality. Through the simple addition of a modem, microcomputers are opened to the almost unlimited realm of telecommunications, thereby providing access to remote mainframe computers and their data bases as well as other microcomputers.[40]

DSS Design Issues: Having briefly addressed general decision theory, decision support systems, and microcomputers, this paper will now discuss literature concerning the design of

decision support systems.

The traditional design methodology for development of an information system is the life cycle framework summarized by Davis.[41] This approach, also known as the "systems development life cycle" is composed of formalized, sequential steps beginning with a feasibility assessment and cost-benefit study. The cycle progresses through the design, development, conversion, and operation and maintenance phases, and concludes with a post implementation audit.

Keen describes a less formal technique which he terms *value analysis*. Rather than performing a complete life-cycle cost benefit study prior to undertaking an information project, Keen advocates the judicious use of the empirical approach, proposing that management allocate a given level of resources to the project and perform an evaluation of the results after a predetermined period of time.[42]

In another approach, the value of the previously discussed Gorry-Scott Morton framework becomes obvious when an additional element is added to the matrix. By superimposing an additional column containing the type of information resource appropriate to a given decision situation, it is possible to match the proper information resource to that decision making situation. As shown in the following revised model, Gorry and Scott Morton state that the systems historically considered to be automated management decision aids (transaction processing systems and management information systems) are, in fact, best suited to situations which are structured in nature. Conversely, Gorry and Scott Morton further contend that as the decision situation becomes less structured in nature, the greater becomes the value of more flexible decision support such as automated DSS and human intuition.

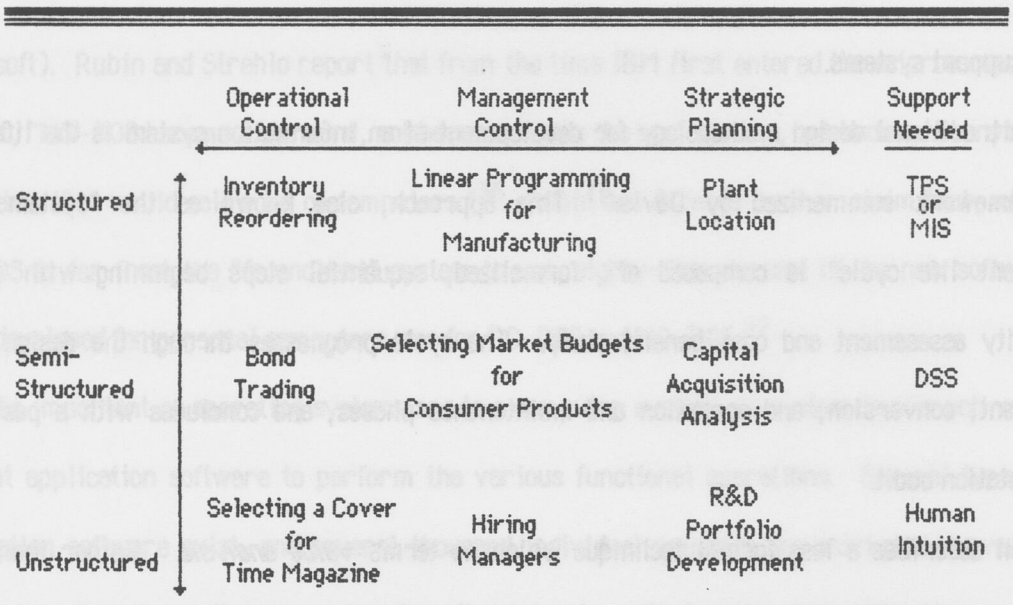


Figure 3. Information Systems Framework with Computer Support[43]

This distinction becomes important to senior executives when one considers that the "knee-jerk" response of most institutional data processing department managers is to attempt implementation of a rigid management information system for any type of decision situation. In fact, Moore and Chang have coined the term "migration effect" to cover the tendency of data processing professionals to force-fit structured solutions to unstructured or semi-structured problems. In their words:

> Over time the initially unstructured or semi-structured planning issue that originally motivated the DSS project migrates in the minds of both the user and DSS designer. This occurs when the traditional life cycle design methodology begins to enforce premature closure on the original problem definition so that the specifications can be "frozen." The resulting DSS system design, therefore, also tends to migrate over to the development time interval. This migration is invariably toward the upper-left, structured/operational cell in the Gorry and Scott Morton framework.[44]

Alavi and Henderson, comparing the traditional life cycle design approach with an evolutionary approach based on judgment modeling found the evolutionary approach to be more effective than the traditional strategy. Alavi and Henderson attribute the relative success of the evolutionary strategy to the fact that the user is involved in the system's development and prototyping rather than being presented with a "completed" system as is the case in the traditional method.[45]

Gerrity, developing a decision support system for the banking community advocated a decision-centered approach which consists of the following five steps:

1. Intelligence-problem recognition
2. Design-development of alternatives
3. Choice-alternative selection
4. Implementation-placing the chosen alternative in operation.
5. Control-monitoring & evaluation[46]

Bock, addressing the design of medical computer systems, cites the need for consideration of human factors in the initial design and development stage. Bock contends that the success of these systems depends upon early identification and resolution of human design issues.[47]

Keen and Scott Morton point out that design of any information system is not a linear sequence of well-defined steps. Therefore, they cite the importance, prior to undertaking any design effort, of identifying the key decision or desicions crucial to the functional success of the endeavor.[48]

Rockart, advocating a similar viewpoint, proposes an approach to information systems development which he terms "critical success factors methodology."[49,50] In addition to his

method, Rockart cites four other methods of determining executive information needs, the *by-product technique,* the *null approach,* the *key indicator system,* and the *total study process.*

In the by-product approach, little attention is paid to the true needs of the executive. Instead, data which is easily obtainable as the by-product of existing processes are presented to the executive without regard to its relevance.

The null approach simply states that since an executive's activities are dynamic and ever-changing, no predetermined information can possibly be useful. As a result, reliance is placed upon subjective, word of mouth, and informal communication.

The key indicator system assumes that the organization can define and process a few predefined measures indicative of the organization's overall health, and that exception reporting can be used to identify problems. Rockart argues that this approach, while useful, is incomplete.

Finally, the total study approach, such as IBM's Business Systems Planning methodology, produces a composite of informational needs determined by surveying a large sample of managers with the goal of developing a total understanding of all relevant subsystems. While this system can be quite useful, Rockart argues that its expense and effort do not necessarily justify its results.

Rockart's critical success factors (CSF) approach is dependent on identifying those key areas of the organization in which positive results are essential to the continued successful performance of the organization. To define these factors, Rockart advocates that appropriate executives be interviewed on two or three successive sessions. During the initial session, the overall objective is discussed, executives' goals are recorded, and performance indicators are proposed for each success factor. The next session involves refining the goals and factors as well as the performance indicators. Possible reports are also discussed. The third session, when needed, is used to obtain final agreement on all success factors and performance indicators.[51]

Software Selection Methods: While the merits and limitations of almost every available microcomputer software product have been addressed at great length in the popular literature, little has appeared in the professional literature concerning off-the-shelf software selection methodologies. Hession and Rubel suggest that there are basically four methods of selecting between hardware or software alternatives.[52] These are the *dealer demonstration approach*, the *talk to a friend approach*, the *read the reviews approach*, and the *benchmark testing approach*. The following section briefly addresses each approach.

Dealer Demonstration

The dealer demonstration approach involves going to a dealer to view actual operation of the product. While the presentations may be excellent, the potential buyer is exposed to only those products the dealer offers for sale. Since the dealer's inventory may be limited, some products may be ignored and the demonstrations may not fit the buyer's specific needs. In addition, the opportunity for extensive "hands-on" experience with the product is likely to be limited.

Talk to a Friend

With this approach, decision making is based on the recommendation of a friend or colleague. A potential advantage of this approach is that the individual usually has no profit incentive, and, therefore, can recommend products more objectively. A potential disadvantage is that the friend did not make an optimal purchase decision himself, or that his task requirements differ significantly from those of the buyer.

Read the Reviews

The read the reviews approach is based on published reviews of evalutions usually performed by "expert" users. Although reviewer bias is certainly an issue to consider, most reviewers have spent a considerable amount of time using the product, and are usually well-versed in its capabilities. As with the "talk to a friend" approach, however, the reviewer may have a different set of task requirements from those of the potential buyer.

Benchmark Testing

As stated above, the first three methods of evaluation may fail to address the actual requirements of the buyer, and while valuable as adjuncts, are therefore not recommended for exclusive use. The fourth method of evaluation, the "benchmark" method, concentrates on satisfying the identified needs of the user. Benchmarks are explicit standards against which a hardware or software product can be compared. Benchmarks are goal oriented in nature and are set up to determine how well a particular product performs a predefined series of tasks. Normally, benchmarking involves a two-step process: functional comparisons and speed comparisons. Functional comparisons evaluate the product's ability to perform certain tasks, while speed comparisons assess the product's speed and efficiency in doing so.

DSS Implementation: Successful development of any decision support system ultimately rests on successful implementation of the designed system. In this section, the literature concerning some of the more important considerations in the implementation process will be briefly addressed.

Factors Affecting Successful Implementation.

The factors affecting successful implementation of system projects have been studied from both the perspective of both unsuccessful and successful projects. Ackoff, studying unsuccessful project implementation cites four primary reasons of failure:

1. Reorganization within the organization changing the persons responsible for the project.

2. Lack of involvement at a high level within the organization.

3. Attempts by individuals to use the project for personal benefit rather than benefit to the organization.

4. Economic pressures leading to a general reduction in expenditures.[53]

Reviewing case studies of successful information system implementations, Keen and Scott Morton identified the following five characteristics as requisites to implementation success:

1. Top management support.

2. A clear felt need by client.

3. An immediate visable program to work on.

4. Early commitment by user and conscious staff involvement.

5. A well-institutionalized OR/MS or MIS group.[54]

Bennett, addressing the need to properly introduce new or non-technical users to decision support systems, advocates the use of a system "chauffeur" as a method of ensuring successful implementation. A chauffeur is a system expert who is able to relate to both the technical aspects of the system as well as to the organizational aspects of the user. Specifically,

Bennett sees the role of the chauffeur as:

> 1. Exegetist- who explains the systems and interprets concepts and objectives.
>
> 2. Confidant-who provides support, helps overcome misconceptions, encourages users to view system as tool rather than threat.
>
> 3. Crusader-who demonstrates the power and value of system.
>
> 4. Teacher-who provides personalized training to users.[55]

Methodology

A broad framework for the methodology used in this project was established earlier in the "Objectives" section of this chapter. While an in-depth discussion of the system's implementation is contained in Chapter II, the following section briefly defines the specific approaches taken to achieve each objective:

Objective 1. Identify critical success factors. Since identification of the elements of a decision support system is necessarily a subjective process, a case-based, inductive approach was considered appropriate. The broad, initial aspects of the system's development were determined primarily through the use of the Critical Success Factors approach advocated by Rockart. A review of the hospital's misison and functions statement, coupled with a series of interviews with the hospital commanding officer and executive officer, provided the information needed to identify the organization's critical success factors. The factors ultimately adopted are presented in detail in Appendix G.

Objective 2. Identify appropriate measures of each critical success factor. For

each critical success factor identified, specific supporting data elements and performance factors were developed. These measures consisted of numerous raw data elements composed of workload statistics, authorized resources, and administrative requirements, as well as several normally accepted indices of hospital performance. These supporting data elements and performance indicators identified are also presented in Appendix G.

Objective 3. Identify other significant considerations. The prospective users were also interviewed to identify any other desired system capabilities and user preferences (i.e. graphics, telecommunications, etc.) These considerations are addressed in Chapter II.

Objective 4. Develop a system requirements statement. All desired applications and capabilities were then distilled into one needs statement. This constituted the systems requirement statement which is contained in Appendix H.

Objective 5. Survey available software. Following definition of the institution's specific requirements, initial surveys of commercially available software were conducted by reading literature reviews of products and services as well as by viewing dealer presentations.

Objective 6. Evaluate, select, procure and install software. Those programs determined during the initial survey to be clearly unsuited for use were eliminated from further consideration. Software products with potential for application were formally evaluated through benchmark testing and the scoring process outlined in Appendix B. Appendices C through E contain descriptions of the benchmark tasks. All programs tested are summarized in Appendix F.

Final selection and procurement were based on an evaluation of both objective and

subjective factors with the goal of selecting that program or combination of programs which best satisfied such factors as:

a. time to perform the benchmark tasks,

b. ease of use and learning curve,

c. overall cost of operation,

d. degree of integration afforded between functional areas, and

e. power, or ability to perform sophisticated functions while handling large amounts of data.

Objective 7. Design and implement data collection procedures. Based on a series of structured design diagrams, appropriate data collection procedures were developed, documented, and implemented. Where possible, data collection procedures used exisiting collection and reporting systems.

Objective 8. Program software. When the desired software had been identified and procured, it was configured for installation on the system hardware according to the manufacturer's instructions. Following installation, the desired data input, manipulation, and output routines were programmed on the software according to the manufacturer supplied documentation, and system specific program documentation was developed. Initial data were then entered into the computer by clerical staff members and prototype manipulations were conducted. Sample outputs are contained in Appendices K through Z.

Objective 9. Present system for acceptance; commence training. After initial programming, the system was presented to the executives for their evaluation, and recommended improvements were made. Initial orientation was commenced using Bennett's chauffeur concept.

Endnotes

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Chapter II. Discussion

The methodology proposed for this application project was described in Chapter I. This chapter relates in greater detail the experiences of the actual development and implementation process.

Hospitals, by their nature, are information-dependent organizations. In fact, the amount of information available within the average hospital easily overwhelms the capacity of any one individual to absorb. Since the goal of this project was to provide the hospital commanding officer and executive officer with the information needed to support their decision making, some framework for separating the essential information from the unessential was required. The approach selected from among those contained in the literature was the critical success factors methodology advocated by Rockart.[1,2]

Identification of Critical Success Factors and Performance Indices

Identification of the hospital's critical success factors began with a review by this author of the hospital's published mission and functions statement. With this statement in mind, an initial interview was conducted with the hospital commanding officer and executive officer to explain the intended benefits of the system and the proposed methodology. At that time those executives were requested to identify those key areas of organizational activity in which favorable results were absolutely necessary to the continued success of the hospital. Those factors initially considered important were recorded by the author, as were the officers' preliminary comments regarding the desired performance indicators.

During this initial session, the participants agreed with Rockart that the intended goal was not simply to develop a prescribed set of key indicators for each critical success factor, but additionally to identify the necessary supporting data elements that would be of potential value in

supporting command decision making. Certainly, one by-product of this process was expected to be the calculation of certain key performance indicators, but the proposed system was also expected to provide much greater flexibility than that. The initial session concluded with agreement by the officers to consider additions and refinements prior to the next meeting.

The second meeting, held a week later, brought about substantial progress, producing seven of the eight factors ultimately accepted, as well as several supporting data elements and performance indicators. Conscious effort was made by the three participants during this session to avoid the tendency to classify all command functions as critical or to specify the need for broad, all-encompassing data bases. Effort was also made to avoid the "migration effect" cited by Moore and Chang[3] which would have otherwise resulted in a structured, therefore less flexible, information system.

During the third meeting, an eighth critical success factor was generated, and supporting data elements and performance indicators were finalized for each of the factors thus identified. Following this session, a final statement of the eight critical success factors and their supporting data elements and performance indicators was presented and accepted by the commanding officer and executive officer. These factors are presented in Appendix G.

Identification of Other Significant Considerations

Having thus far identified the eight critical success factors and their respective measures of performance, the prospective users were interviewed in order to identify any other desired system capabilities or user preferences. One desirable item of major importance to emerge was the potential for combining data from one critical success factor with that from another. For example, it might prove beneficial to evaluate a request for additional operating funds from the pharmacy department (Factor 3) in light of demonstrated pharmacy workload (Factor 1).

Another specific user preference identified was the potential for business graphics. This

feature would enable the users to present numerical data in graphical mode using pie charts, bar charts, line charts, and scatter plots. The capability to produce hard copy output of these graphics was also desired.

A final consideration identified concerned the computer hardware to be used with the system. As stated in Chapter I, a Zenith model Z-120 microcomputer was available in the command suite for immediate use with the proposed system. Several other similar Zenith microcomputers were already in use in various departments throughout the hospital. To provide for compatibility with the exisiting microcomputers, to enable lateral data transfer, and to avoid the cost and delay associated with procurement of a new microcomputer system, it was therefore desirable to develop the executive decision support system using exisiting equipment.

Zenith microcomputers are designed to operate software based on MS-DOS, earlier described as the most widely accepted operating system in the business community. The microcomputer available was equipped with the internal electronic circutry needed to display business graphics and had a wide-carriage dot matrix printer which was well-suited to producing large spreadsheets and graphical output. However, this particular computer was equipped with dual 5.25 inch floppy disk drives. In order to accommodate the relatively large volumes of data expected with the proposed system, it was desirable to maximize the amount of on-line data storage capacity. For this reason, the dual-drive system was exchanged for another department's underutilized Zenith Z-120 microcomputer which was equipped with a 10-megabyte Winchester hard disk drive and one 5.25 inch floppy disk drive. Since this exchange increased the system's storage capacity by a factor of thirty-six, it is believed that accomplishment of this exchange early in the development process greatly facilitated the subsequent programming and use of the decision support system by eliminating the frustration often experienced when using limited storage devices.

Development of the System Requirements Statement

Having thus far identified the command's critical success factors, their supporting data elements, performance indices, and other significant considerations, the next task in the development of this decision support system was to develop the system requirements statement. The goal at this stage was to define in words the specific software and hardware needs of the system under development.

Software Application Classification. The first step in the development of the system requirements statement was to classify each of the supporting data elements and performance indicators by type of application in order to determine the system's basic software requirements. As stated in the Literature Review section, microcomputer software can be divided into six functional classifications - word processing, spreadsheet, data base, telecommunications, graphics, and utilities. Based on the normally inherent capabilities of the six types of software, this author evaluated the basic requirements for formatting and manipulation of each of the supporting data elements and performance indicators and assigned each to a particular classification of applications software. The specific software classification identifed for each supporting data element or performance indicator is contained in parentheses in Appendix G. As a result of this classification process, it was determined that the system to be developed would require three types of application software - spreadsheet, data base, and business graphics.

Hardware Specification. In addition to identifying the types of application software required for the system, it was also necessary to specify the specific hardware to be used. Most information systems texts advocate first identifying the software product which meets the users'

needs. Following this, the texts advocate selecting hardware which is capable of operating the desired software. In this case, due to the desire to implement the system using existing hardware, the process was intentionally reversed. While it appears that this reversal did not adversely affect the final outcome, this author recommends that one normally select software first, followed by hardware. Deviation from this rule is considered appropriate when the hardware initially selected has been satisfactorily subjected to a formal evaluation process and when the hardware employs an industry standard operating system, such as MS-DOS.

At this point, the existing microcomputer hardware was described as precisely as possible using relevant technical terms, so as to ensure that the software utilimately selected was compatible with the hardware. To complete the definition of the system, the hardware description was combined with the functional software classifications and other desired system capabilities to comprise the systems requirement statement which is presented in Appendix H.

Software Selection

Initial Evaluation. Following definition of the institution's specific requirements, initial surveys of commercially available software were conducted by reading literature reviews of products and services as well as by viewing dealer presentations and by soliciting opinions of other users. Thus, three of the four software selection methods presented in the Literature Review were used to help initially narrow the field of potential candidates. Overall, approximately fifty programs were considered during this stage. Those programs determined during the initial survey to be clearly unsuited for use were eliminated from further consideration. The following programs were considered to have potential for application, and were therefore subjected to benchmark testing:

Spreadsheet Software	Data Base Software	Business Graphics Software
Multiplan	Condor	Chartmaster
Supercalc	pfs File & Report	Microsoft Chart
Lotus 1-2-3	Lotus 1-2-3	Lotus 1-2-3
Peachtext 5000	Peachtext 5000	
	dBase III	

Figure 4. Software Subjected to Benchmark Testing

Benchmark Testing Process. Software products with potential for application were formally evaluated through benchmark testing and the scoring process outlined in Appendix B. Appendices C through E contain descriptions of the benchmark tasks. Each series of benchmark tasks was developed for this project by prescribing, within a given functional area, a series of increasingly sophisticated computer operations. For example, the "spreadsheet" benchmark begins with the simple formatting and arithmetic operations needed to generate an income statement. The tasks then become increasingly sophisticated, culminating with a relatively complex goal seeking operation. Benchmarks for the other functional areas were also developed using the same approach. It must be noted that the benchmarks developed were in no way intended to tax the limits of each program, but instead were designed to contain a representative sample of the operations expected to be required by the system once developed.

Selection Criteria. Final selection and procurement were to be based on an evaluation of both objective and subjective factors with the goal of selecting that program or combination of programs which best satisfied such factors as:

a. time to perform the benchmark tasks;

b. degree of integration afforded between functional areas;

c. overall cost of operation;

d. ease of use and learning curve; and

e. power, or ability to perform sophisticated functions while handling large amounts of data.

Product Selection: In developing the methodology for this project, benchmark testing was originally proposed as a quantifiable, objective approach which would play a major role in the selection of application software. As events would have it, several other factors came into play during the system's development which rendered the benchmarking process less important than originally intended. Rather than the benchmarking results, the three factors actually presenting the most clear-cut evidence in support of the ultimate selection were functional integration, ease of use, and use on existing systems. A brief discussion of the considerations addressed for each selection criteria follows.

Results of Benchmark Testing

Four of the seven software products identified for benchmark testing were already in use within the hospital (Lotus 1-2-3™, Supercalc™, Condor™, and Peachtext 5000™). Benchmark testing for these products was performed using the Zenith model Z-120 computer previously identified. Testing for the remaining products (Multiplan™, dBase III™, Chartmaster™, and Chart™) was conducted using demonstration copies of the programs and a similarly equipped Zenith computer generously made available by a local computer salesman. Each benchmark test was performed by the author a total of three times. The first two iterations were performed in order for the author to become familiar with the product's idosyncracies; the third iteration was performed for time. The results from all tests are summarized in Appendix F.

Based solely on the timed results for the given tasks, one product emerged as the clear-cut winner in the competition. Each program performed certain tasks faster than did the others.

However, when the overall ranking by functional category was totaled, Lotus 1-2-3™ emerged as the superior program for each of the "spreadsheet," "business graphics," and "data base" tasks. During the benchmark testing, however, it quickly became evident that operational speed alone was an inaccurate measure of any one product's capabilities.

Functional Integration

The need to employ data from one critical success factor with that from another argued most strongly for software which was capable of manipulating data across functional lines. One excellent example of this need would be the presentation of workload or financial data in a graphical format. To accommodate this need for integration, the ultimate selection was heavily weighted towards software capable of using data which was resident in files created by other applications. Of the software tested, two specific software configurations were found capable of performing integrated functional operations. Peachtext 5000™ afforded a limited degree of integration between its spreadsheet (Peachcalc™) and its data base (List Manager™), but was unable to link with a program for business graphics. The two Microsoft programs, Multiplan™ and Chart™, enabled the user to link spreadsheet data with graphics, but did not provide data base capability. The sole program tested which provided true three-way integration between data base, spreadsheet, and graphics components was Lotus 1-2-3™.

Ease of Use

"Ease of use" as applied to computer software is, by nature, a subjective matter. Certainly, some objective measure of difficulty could be applied, such as the amount of time required to become proficient with the program or the number of keystrokes required to perform a given operation. Following a review of the supporting documentation accompanying

each of the selected programs, it was the author's opinion that few significant differences existed in the relative complexity of use for each spreadsheet and graphics program. A perceptible increase was noted in the level of difficulty associated with dBase III™ and Condor™, both of which are more sophisticated *relational* data base programs. The remaining data base programs were judged to be equal in difficulty with the spreadsheet and graphics programs.

Overall Cost

The total cost of software for the decision support system was based on the prices of the individual components which are shown below with their respective federal government contract prices for fiscal year 1986 :

Program	Type	Price
Multiplan	Spreadsheet	$ 115.00
Supercalc	Spreadsheet	225.00
Lotus 1-2-3	Spreadsheet/Data base/graphics	306.90
Peachtext 5000	Spreadsheet/Data base	263.50
Condor	Data base	50.00
pfs File & Report	Data base	165.00
dBase III	Data base	417.00
Chartmaster	Graphics	275.00
Microsoft Chart	Graphics	175.00

Figure 5: Software Prices

One option considered was to combine Microsoft Multiplan and Chart with dBase III, resulting in a total cost of $707.00. Another option, combining Supercalc, Condor, and Chartmaster would have cost a total of $550.00. Similar combinations would have resulted in a total cost of approximately $500.00. None of these combinations, however, would have provided true functional integration of data. By far, Lotus 1-2-3™ at a cost of $306.70, was found to be

the least expensive path to acquiring the desired functional capability.

Computational Power

Computational power essentially describes the ability to easily process large amounts of data and to perform sophisticated operations. With the possible exception of Peachtext 5000™, which is primarily a word processing program, each of the programs tested is capable of relatively sophisticated operation for normal business use. One important indicator of the power of a spreadsheet program is the size of the worksheet. In the case of Multiplan™, Supercalc™, and PeachText 5000™, the spreadsheet size is limited to 63 rows by 254 columns. In addition, each of these programs performs an average of only ten mathematical functions. Release number one of Lotus 1-2-3™, on the other hand, permits a worksheet size of 256 columns by 2048 rows, and performs over 50 mathematical functions. Finally, Lotus 1-2-3™ is the sole program to enable "macros" which permit the user to define a single function keystroke in place of a given series of keystrokes, thereby avoiding needless subsequent repetition of keystrokes.

Existing Use

One final important consideration in the selection of software was the software already employed throughout the hospital. Of the eight departments which would eventually provide raw data to the system, four had no microcomputer support and, therefore, were not a factor for this aspect. The remaining four departments already collected and processed numerous elements of the required supporting data using Lotus 1-2-3™ and the Zenith Z-120 computer. It was therefore readily apparent that the use of software compatible with that already in use would be a definite advantage.

Selection and Installation

Based on the considerations addressed above, Lotus 1-2-3™ was the obvious best answer to the software selection problem. This program was acquired and installation commenced immediately according to the manufacturer's instructions. Installation consisted of copying the Lotus program onto the Zenith hard disk drive and configuring it for operation with the MicroPeripherals printer. Since it was desirable to maintain the application program and its raw data where both were readily accessible, all Lotus 1-2-3 program and utility files were copied onto the hard disk and stored in a reserved area known as a *directory*. This directory, labeled "DSS", was intended to facilitate the system's operation by limiting files to those necessary in its use, while improving the degree of functional data integration. This act also ensured that data manipulation could proceed without the need to continuously exchange floppy disks.

Design and Implementation of Data Collection and Entry Procedures

Data Collection. Following software installation, it was necessary to develop procedures to assure a continuous supply of raw data to the system . To accomplish this, each data element or performance indicator to be automated was decomposed into its basic sub-elements to determine such factors as raw data sources, collection methods, frequency of collection, transformation processes, and resultant output. For each data element or performance indicator analyzed, a structured design model similar to that descibed by Yourdon was prepared. A representative structured design diagram is contained in Appendix I.

Based on the structured design diagrams prepared, appropriate data collection procedures were developed, documented, and implemented. Data elements, transformation processes, and outputs common to two or more indicators were noted and aggregated. Where possible, data collection procedures used exisiting collection and reporting systems. In several instances, data

input consisted simply of submission of an extra copy of an exisiting manual form such as the daily nursing workload summary reproduced in Appendix J. For departments already using Lotus 1-2-3™, data submission consisted of duplicating the data disk and delivering the copy to the DSS system operator for transfer to the hard disk. To assure an uninterrupted source of data in the proper format, agreement was obtained from the head of each responsible department to provide continuous data input and to refrain from altering the agreed upon procedures without further consultation.

Software Programming

Following installation, the desired data input, manipulation, and output routines were programmed on the software according to the manufacturer supplied documentation, and system specific program documentation was developed. Since Lotus 1-2-3™ had been selected for use in all applications, this process was greaty simplified. Programming consisted primarily of utilizing the columns and rows of the spreadsheet matrix such that columns represented data fields while rows represented the individual records or transactions. This format applied consistently to alphanumerical data base entries as well as to numerical spreadsheet data. The differences and similarities can be observed by comparing two sample applications, the Facilities Projects data base in Appendix R (alphanumeric) and the Patient Workload data base in Appendix K (numeric).

One area identified during the critical success factor development stage was that of equipment resources management. Subsequent to identification of that element, it was learned that the command was to soon receive a new centralized automated equipment management system known as the Programmed Equipment Support System (PESS). Because of the potential for needless duplication of effort, the decision was made to delay development of a Lotus-based system until the specific nature of the PESS system could be ascertained.

Data Entry

Initial data was then entered into the computer by the author, the Executive Officer's Assistant and another clerical staff member. Since the four departments already using Zenith/Lotus systems had ongoing data capture routines in effect, this process was somewhat simplified. For other departmental submissions, a considerable amount of manual data entry was required. Some manual data entry consisted of duplication of text and data previously stored in the command's central word processing system. Had both the word processing and Zenith/Lotus systems been equipped for telecommunications, manual input could have been avoided for certain supporting data elements. This factor highlighted the value and importance of hardware and software compatibility within organizations.

Following data entry, prototype manipulations were conducted and a representative output document was printed for each element. Format corrections were made to enhance the quality of the visual presentation for several documents. Sample outputs for each critical success factor are contained in Appendices K through Z. To preserve individual privacy, fictitious names and social security numbers were substituted for actual data in selected fields. In addition to any data output resulting from ad hoc data manipulation, it was decided that a weekly compilation of each of the outputs (Appendices K through Z) would be presented to the executives in the form of a Commanding Officer's fact book.

Presentation of System for Acceptance

At this stage, the prototype system was considered sufficiently developed to allow presentation to the Commanding Officer and Executive Officer. Due to the time constraints imposed in the preparation of this paper, description of the system development process concludes. It must be stressed, however, that the system presentation represents only the first

step in an iterative process of refinement. Much remains to be done including the entry of additional historical data, the entry of newly acquired data, and the refinement of program structures to include additional data elements and new routines. As such, no true decision support system can ever be considered "completed."

Endnotes

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Chapter III: Conclusion and Recommendations

Conclusions

Several of the more technical conclusions to be drawn from this project are adequately addressed in Chapter II and will therefore not be discussed here. Results of benchmark testing is one example while software pricing is another. However, several more general conclusions can be logically drawn from the experiences of this undertaking, and some additional conclusions of a more subjective nature can also be proposed. Specifically these are:

Critical success factors methodology. One prime problem in development of an information system is determining precisely what information is to be gathered and processed. Some method is required of separating the "wheat" from the "chaff." In response to this concern, Rockart's critical success factor methodology proved to be quite beneficial. Based on the logical approach of limiting efforts to those areas truly essential to accomplishment of the organizational goals, it may be concluded that this method offers a sound first step in the development of any information system.

Level of decision making: As cited in Chapter I, the three levels of management activity identified by Anthony were strategic planning, management control, and operational control. Since this system was designed for the use of the two most senior executives within the hospital, it was the author's initial expectation that many of the critical success factors identified would be of a strategic nature. In fact, a review of the critical success factors and their supporting data elements reveals activities which are more consistent with the management control level than the strategic level. Three possible explanations for this come to mind. First, it is possible that the personalities and managerial styles of the executives involved simply shaped development of the informational requirements to the management control level. Secondly, it is

possible that despite eforts to control for it, the "migration effect" cited by Moore and Chang came into play and that efforts were channeled into activities which lent themselves to automation. A final and more likely explanation is that the organizational structure of naval medical facilities makes true strategic planning unnecessary at the operational level found in most hospitals. Since naval hospitals ultimately report to a central Naval Medical Command via geographical Naval Medical Command headquarters, it is more likely that the normally expected hospital strategic planning activities are preempted by activities at a higher level in the bureaucracy.

Time required. The complexity of a hospital-based decision support system is great. Consequently, development of such a system using sound methodology cannot occur overnight. Prototype development of this system required almost ten months of intensive effort on the part of the author and several supporting staff members. While it is true that the author was unable to devote full attention to this project because of other residency requirements, it may be concluded that at least four man-months were required to develop the system to its initial presentation stage. It is fully expected that a significant amount of additional time will be required in the forthcoming months to fully implement, evaluate, and refine the system. Those intending to develop similar systems should be guided accordingly.

Compatibility. Institutional data processing managers have traditionally "beat the drum" for compatibility of data processing equipment within the organization. This project provides ample support for that position. Had each of the departments responsible for submitting data used either incompatible microcomputer hardware or software, the level of effort required to accomplish the goal would have been raised severalfold. It is possible that the degree of incompatibility encountered would have rendered the objective unattainable with the constraints

identified. Instead, the exisiting compatibility in hardware and software not only simplified the data collection and manipulation processes, but actually created the environment for successful completion of this project.

Microcomputers in decision support. In response to the controversy over the usefulness of microcomputers in decision support systems, it is believed that this project amply demonstrates the technical feasibility of their use. Less certain, however, is whether the project demonstrates their practical feasibility. Indeed, further questions are posed such as whether it is reasonable to expect senior physicians with no computer background to devote sufficient time to learning how to use microcomputers or whether they will take the time to construct and use the data and models in their decision making. It is the author's impression that substantial use of the chauffeur concept will be necessary for successful operation of the system, and that a long evolutionary period will be needed to progress beyond that point.

As discussed in Chapter I, the weakest link in computer development has often been that of available application software. This is no less true than in the area of decision support. While Lotus 1-2-3™, because of its integrated nature, appears capable of performing many of the required operations, future generations of microcomputer software are expected which will more closely emulate the decision support software available on mainframe systems. Benefits expected to accrue from these packages include more sophisticated modeling capabilities, the use of unstructured English-like language, and the ability to perform goal-seeking.

Recommendations

Completion of this portion of the system development project marks but one milestone on a fairly lengthy journey. Much remains to be done in order for the system to reach its full potential. The following recommendations are made with that goal in mind:

a. Full use should be made of Bennett's chauffeur concept, thereby providing the executives with maximum exposure to the system's capabilities and incorporating refinements identified as a result of the exposure. Every effort should be made to train the users sufficiently for them to become fully proficient with the operation of the system.

b. Those functional areas currently providing manual data input to the system should be considered as possible candidates for automation using hardware and software compatible with the Zenith/Lotus system.

c. The system should be operated in order to accumulate two to three months of data. At that time the system should be evaluated to assess the speed and accuracy of its data handling as well as its capacity to store and retrieve the accumulated data.

d. Following three months of operation, the users should be surveyed to determine whether the system has led to increased confidence in their decision making.

e. Also following three months of utilization, the users should be surveyed to determine whether they use the system in the manner originally intended (or use it at all). Should the response prove favorable, consideration should be given to providing the users with individual desktop computers.

f. A new commanding officer and executive officer is expected within six to nine months. Following this change, it is recommended that the new officers be interviewed to determine if modifications are required in either critical success factors or the supporting data elements.

Appendix A: Glossary of Technical Terms

Bit-The fundamental unit of information processing, made up of a binary digit. Eight bits equals one byte.

Benchmark-A prescribed computer operation which is used to compare the respective performance of various computers.

Byte-A collection of bits used to represent single units of information such as letters or numbers. A kilobyte (1K) equals 1024 bytes.

CD-ROM (Compact Disk-Read Only Memory)-A new form of information storage which is capable of permanently storing very large amounts of data on a relatively small disk.

CP/M (Control Program for Microprocessors)- An early eight bit microcomputer operating system developed by Digital Equipment Corporation.

CPU (Central Processing Unit)- The main computer unit which controls arithmetic and logical operations and executes instructions.

Data Base-A term used to refer to user information stored in a file-based format. Also a type of application software which processes file-based data.

Disk-A mass storage device which uses a magnetic medium on a circular, flat, rotating surface.

Disk drive-The mechanical mechanism which causes the disk to spin and which contains the device for writing and reading data to and from the disk.

DOS (Disk Operating System)- The set of instructions which instructs the computer how, where, and when to store and retrieve data on the disk.

DOS 3.3-The widely used eight-bit disk operating system developed by Apple Computer, Inc. in the Apple][series of microcomputers.

Dot matrix- A form of printer output which is created by placing a series of dots on paper in the form of alphanumeric characters or graphical images.

Floppy disk-Nonrigid computer disks normally found in either 8, 5.25, or 3.5 inch sizes.

Graphics-A form of application software which is capable of creating and outputting images such as pie charts, pictures, or diagrams.

Hard disk-Rigid computer disks capable of storing relatively large amounts of data (10 to 20 megabytes are common).

Hardware-A term used to describe the general equipment components of a computer system.

Mainframe-The CPU of large, centralized, and usually institutional-based computers.

Microcomputer-A relatively low-cost, mass produced computer normally consisting of a keyboard, CPU, video display, and disk drives.

Microprocessor–A CPU containing the arithmetic and control logic circuitry needed to operate a microcomputer. Usually identified by chip numbers such as Z-80, 8088, 6502, or 68000.

Minicomputer–A computer larger than a microcomputer but smaller than a mainframe.

Modem (Modulator-demodulator)–A device used to transmit computer data via telephone lines.

MS-DOS (PC-DOS)– A sixteen-bit microcomputer operating system developed by Microsoft and adopted by IBM, thereby becoming the most widely used business microcomputer operating system.

RAM (Random Access Memory)– Volatile data which can be stored and accessed directly at its location in the file, not requiring strict sequential storage. This data is lost when the computer is turned off, thus requiring data storage devices such as floppy disks.

ROM (Read Only Memory)– The area in computer memory which permanently stores operating instructions for the computer. This is not lost when the computer is turned off.

Software–A general term used to describe the programs and other nontangible components of a computer system.

Spreadsheet–A form of application software which stores and manipulates data in rows and columns similar to an accountant's spreadsheet. Normally used for numerical data.

Telecommunications–A form of application software which is used to direct the communication of data over telephone lines via modem.

Utilities–Software which performs "housekeeping" tasks such as disk copying, document formatting, or program modification.

Winchester–A sealed hard disk drive unit commonly used with microcomputers.

Word processing–A form of application software which performs the storage, manipulation, retrieval, and output of text documents.

Appendix B: Evaluation of Potential System Software

Manufacturer: _____

Program Name: _____

Type of application: _____

Operating system: _____

Minimum configuration required to operate:

Memory _____KB
Number of drives _____
Other accessories _____

Intended Market: Business Home

Price: _____

Media backup policy: _____

Policy on use with other machines: _____

Standard Warranty: _____

Service/Support: _____

Manufacturer supplied _____
Serviced by _____

Installed Data:

Date of first installation _____
Number installed to date _____

Upgrade Policy: _____

Integration: *(count 5 points for each "yes")*

Data Base	Yes	No	
Spreadsheet	Yes	No	
Graphics	Yes	No	
Communications	Yes	No	
Word Processing	Yes	No	_____ points

Documentation: *(count 1 point for each "yes")*

Complete	Yes	No
Easy to read	Yes	No
Indexed	Yes	No
Novice instructions	Yes	No
Tutorial available	Yes	No

Reference card Yes No _____ points

Data Input: *(count 1 point for each "yes")*

Can data be input by third party? Yes No

On-screen forms design to simplify data input? Yes No

Can data be edited after input? Yes No

_____ points

Data Output: *(count 1 point for each "yes")*

Can data be easily transferred to another application program? Yes No _____ points

Functions: *(count 1 point for each "yes")*

Does the product have any of the following Boolean and control functions?

EQUALS (=)	Yes	No
GREATER THAN (>)	Yes	No
LESS THAN (<)	Yes	No
GREATER THAN OR EQUAL TO (≥)	Yes	No
LESS THAN OR EQUAL TO (≤)	Yes	No
AND	Yes	No
OR	Yes	No
NOT	Yes	No
IF...THEN...ELSE	Yes	No
NESTED IF...THEN	Yes	No
TRUE	Yes	No
FALSE	Yes	No

_____ points

Does the product have any of the following statistical functions?

MAXIMUM	Yes	No
MINIMUM	Yes	No
MEAN	Yes	No
MODE	Yes	No
MEDIAN	Yes	No
VARIANCE	Yes	No
STANDARD DEVIATION	Yes	No
CORRELATION COEFFICIENT	Yes	No
SIMPLE LINEAR REGRESSION	Yes	No
MULTIPLE LINEAR REGRESSION	Yes	No
MOVING AVERAGE	Yes	No
EXPONENTIAL SMOOTHING	Yes	No
RANDOM NUMBER GENERATOR	Yes	No

_____ points

Total points: _____

Subjective evaluation:

Ease of Use: (time to perform selected benchmark tasks)

Spreadsheet Program:

Benchmark	Time Required
SS-A	_____
SS-B	_____
SS-C	_____
SS-D	_____

Total Spreadsheet Time: _____

Graphics Program:

Benchmark	Time Required
G-A	_____
G-B	_____
G-C	_____

Total Graphics Time: _____

Data Base Program:

Benchmark	Time Required
DB-A	_____
DB-B	_____
DB-C	_____

Total Data Base Time: _____

Appendix C: Spreadsheet Benchmark

Exercise SS-A. Develop and run the model, generating the pro forma income statement shown below. Attempt to replicate the report format as closely as possible. Save the report to disk and print it. Label the model and printed output SSA.1. Label the command file and output SSA.2.

UNIVERSAL PRODUCT, INC.
Projected Income Statement

	1984 Revenue	1985 Revenue	1986 Revenue	1987 Revenue	1988 Revenue
Operating Revenue	120,000	144,000	172,800	207,360	248,832
Cost of Goods Sold	96,000	115,200	138,240	165,888	199,066
Earnings before interest/taxes	24,000	28,800	34,560	41,488	49,766
Interest expense	30,000	10,000	10,000	10,000	10,000
Earnings before taxes	(6,000)	18,800	24,560	31,488	39,766
Taxes	0	9,400	12,280	15,744	19,883
Net Income	(6,000)	9,400	12,280	15,744	19,883

The relationships on which the model are based are:

REV=1.2 X lagged REV
CGS=0.8 X REV
EBIT=REV-CGS
INT=$30,000 in period #1, $10,000 thereafter
EBT=EBIT-INT
TAX=0.5 X EBT if EBT is >0, otherwise, TAX=0
NET=EBT-TAX

Notes: Period 0 is 1983, Period 1 is 1984 etc. All lags are one period lags. Initial revenue is assumed throughout the exercise to be $100,00. That is, REV for Period 0 =$100,000.

Exercise SS-B: Assume now that revenue growth is 30 percent in years 1984, 1985, and 1986 and 50 percent in 1987 and 1988. Retrieve the model from disk, run it, and generate a new income statement in the same report format. Save the new report to disk and print it. Label this SSB.1 Save the command file to disk and then print it. Label this SSB.2.

Exercise SS-C. Assume now that interest expenses are $20,000 per year for 1984-1988. Alter the model to reflect this new assumption (while maintaining the assumptions of exercise DB.) Run the model and generate an income statement similar to the one above. Save to disk and then print it. Label this SSC.1. Save the command file to disk and then print it. Label this SSC.2.

Exercise SS-D. This question tests the product's ability to do goal seeking, or to find the backward solution of the model. Use the model saved in Exercise SSA.1. Find out what revenue would have to have been in 1984 if the net income will be $25,000 in 1985. Run the report, save it to disk, and print it. Label these files SSD.1. Save the command file to disk and then print it. Label this SSD.2.

Appendix D: Graphics Benchmark

Exercise G-A: Utilizing the data contained in the spreadsheet developed for the Spreadsheet Benchmark (Appendix C):

Plot a pie chart of "operating revenue" by year. Save to disk.
Plot a line chart of "cost of goods sold" by year.
Plot a line chart of "operating revenue" versus "net income" by year. Print and save to disk.
Plot a bar graph of "operating revenue" versus "net income" by year.
Plot a column graph of "operating revenue" versus "net income" by year.
Plot an area graph of "operating revenue" versus "net income" by year.
Plot a scatter diagram of "cost of goods sold" by year.

Exercise G-B.
Change the operating revenue amount for each year to $200,000, plot a bar graph of "operating revenue "versus" net income" by year. Save to disk and print.

Appendix E: Data Base Benchmarks

Exercise DB-A: Create a new data base containing the following data elements:

Patient age, register number, sex, race, zip code.
Admission date (YR/MO/DA)
Admission diagnosis (ICD-CM)
Ward
Surgical procedure (ICD-CM)
Dates of surgery (YR/MO/DA)
Admitting physician
Discharge diagnosis (ICD-CM)

Exercise DB-B:

From the previous month's hospital admission records, enter the data for the first 25 admissions. Save to disk, and print register.

Modify data base to include:

Discharge date (YR/MO/DA)

Enter discharge date of each patient previously entered. Save to disk.

Exercise DB-C.

Conduct search of data base to find age, register number, zip code, physician, and discharge diagnosis of all male patients.

Compute mean and standard deviation of length of stay for all patients.

Generate list of patient register numbers and admitting physician for all patients with actual length of stay in excess of one standard deviation from the mean. Save to disk. Print.

Appendix F: Software Evaluation Summary

Software Product	Points*	BenchMark Ranking Spreadsheet	Data Base	Graphic
Lotus 1-2-3™	39	1	1	1
Multiplan™	34	2	n/a	4
Supercalc™	24	3	n/a	n/a
Peachtext 5000™	18	4	3	n/a
Condor™	24	n/a	4	n/a
dBase III™	34	n/a	5	n/a
pfs File & Report™	24	n/a	2	n/a
Chartmaster™	12	n/a	n/a	3
Microsoft Chart™	11	n/a	n/a	2

*As calculated using method defined in Appendix B: Evaluation of Potential System Software.

Appendix G: Critical Success Factors

Factor 1: To accommodate the experienced demand for inpatient and outpatient medical services.

Desired Indicators:

a. Maintain a clinical workload data base to include: admissions; outpatient visits; visits to the Emergency Room, Acute Minor Illness Clinic, and Branch Medical Clinic; average daily patient load; surgical procedures; births; laboratory procedures; radiologic procedures; prescriptions, medical boards, patients in medical hold, certificates of nonavailability, inpatient visits; outpatient surgical procedures; occupied bed days; composite work units; occupancy rate; and average length of inpatient stay. (Spreadsheet)

b. Using above data, compute current week totals, 18-week moving average and standard deviation, week to 18-week moving averages, year-to-date totals (calendar and fiscal), weekly totals one and two years ago, and comparison of past week to one year and two years ago for each indicator. (Spreadsheet)

c. Provide graphical representation of selected indicators from above. (Business graphics)

Factor 2: To maintain sufficient human resources to meet the demands for inpatient and outpatient health care services.

Desired Indicators:

a. Maintain a manpower data base to include all officer, enlisted, and civilian personnel. Data elements desired: name, rank/rate, specialty code (NOBC/NEC), specialty, report date, rotation date. (Data base)

b. Provide capability for analysis of authorized billets versus onboard count, including projected gains/losses for six months. (Data base)

c. Based on staffing and workload data, provide ability to calculate productivity rates for various clinical areas. (Spreadsheet)

Factor 3: To maintain sufficient fiscal resources to meet the demands for inpatient and outpatient health care services.

Desired Indicators:

a. Maintain a spreadsheet of the command's annual financial plan to include the budget execution phase for the current quarter and fiscal year-to-date. Data elements to be included are: workcenter, directorate, element of expense, subactivity group, funds authorized, expenditures to-date, percentage of funds expended and percentage of time elapsed.(Spreadsheet)

b. Provide graphical representation of the above. (Business graphics)

c. Maintain a spreadsheet of all command travel including the command's travel ceiling; name of traveler; rank/rate; directorate; dates of travel; destination; purpose; amounts allocated for travel, per diem, miscellaneous, and fees; amount liquidated; and funds remaining in ceiling. (Spreadsheet)

Factor 4: To maintain sufficient material resources to meet the demands for inpatient and outpatient care services.

Desired Indicators:

a. Maintain a materials data base to include value of goods in Navy Stock Fund warehouse, issues-to-date by current quarter and fiscal year, percentage of items not in stock, interest paid, and discounts lost. (Data base)

b. Maintain a facilities data base of all facilities management projects to include: project number, project level by cost, cost code, title, design cost and status, estimated cost, and remarks. (Data base)

c. Maintain an equipment data base to include each item of investment equipment, its acquisition date, price, life expectancy, condition code, and anticipated replacement year. (Data base)

Factor 5: To maintain control of all required directives, reports, and correspondence.

Desired Indicators:

a. Maintain a data base of one-time correspondence action items (including message traffic) to include action item, departmental tasking, due date, and completion date. (Data base)

b. Maintain a data base of recurring reports to include report title, report symbol, reference, departmental tasking, frequency, due date, and completion date. (Data base)

c. Maintain a directives data base to include each hospital instruction and notice by title and number, effective date, responsible department, and cancellation date. (Data base)

Factor 6: To meet standards imposed by higher authority.

Desired Indicators: Maintain a data base of all pending discrepancies resulting from surveys and inspections by the Joint Commission on Accreditation of Hospitals and the Navy Inspector General to include the finding or standard in question, the guiding directives, responsible department/directorate, suspense date, and resolution. (Data base)

Factor 7: To provide staff members with requisite training.

Desired Indicators:

a. Maintain a training data base to include each military member by name, rank/rate, department, progress toward satisfying enlisted advancement requirements, completion dates for all courses attended, requirements for continuing education credits, and continuing education credits earned to-date. (Data base)

b. Provide exception reporting to identify candidates for required training such as IV certification, safety, military rights and responsibilities, and cardiopulmonary resuscitation. (Data base)

Factor 8: To maintain designated personnel and material assets in an operationally ready status to support Mobile Medical Augmentation Readiness Team (MMART) requirements.

Desired Indicators:

a. Maintain a personnel data base to include MMART team composition requirements, names of assigned members, planned rotation dates, training required, status toward training completion, and deployments completed. (Data base)

b. Maintain a mobilization training data base to include scheduling of reserve component training and individual active duty for training plans and events. (Data base)

Appendix H: System Requirements Statement

1. The system to be developed will be a microcomputer-based executive decision support system to be located in the command suite of Naval Hospital, Millington, Tennessee.

2. The system will be capable of operating spreadsheet, data base, and business graphics application software, and also be capable of operating word processing and telecommunications software should the need arise.

3. If at all possible, the system should operate using a microcomputer configured as follows:

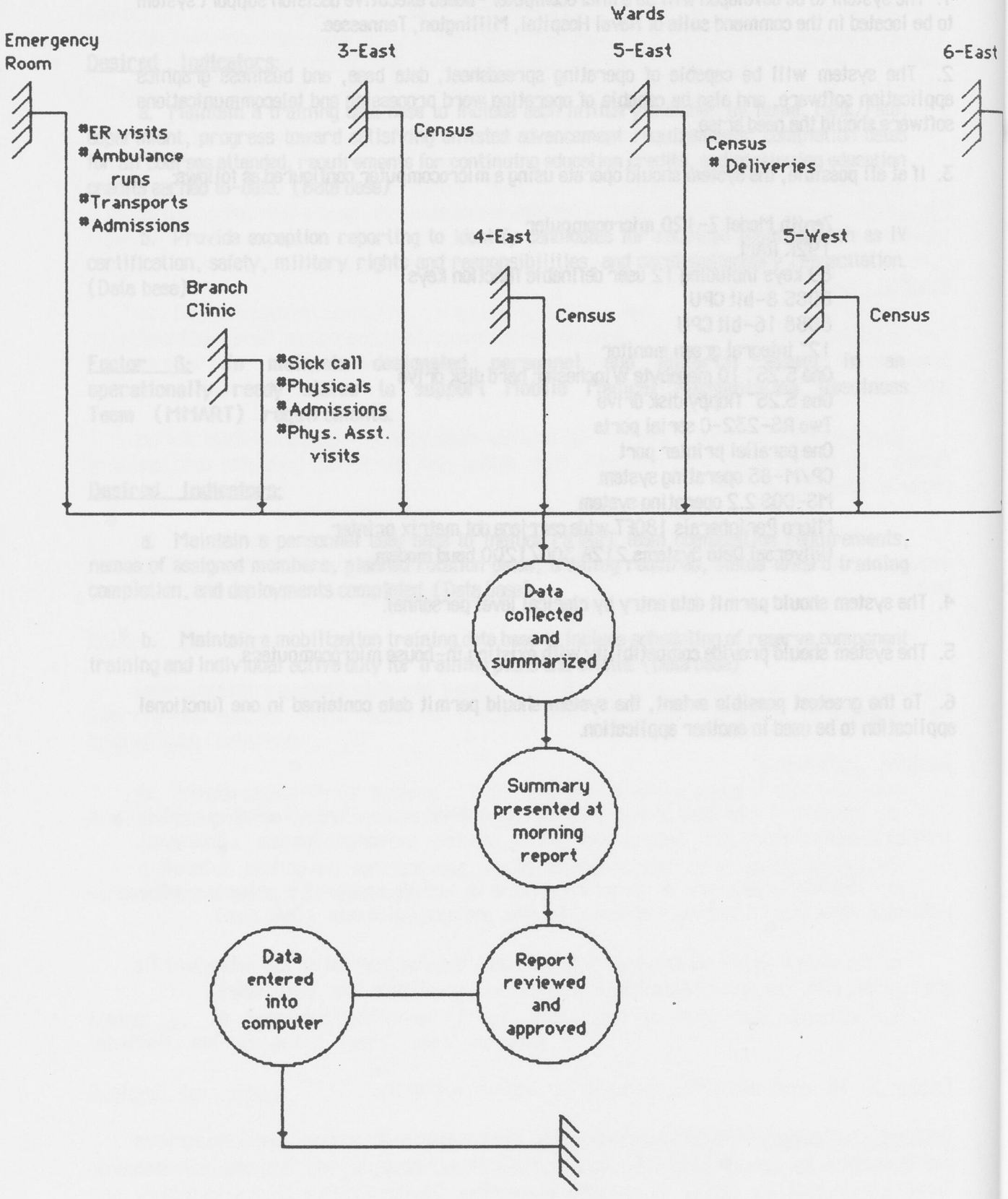
Zenith Model Z-120 microcomputer
192K RAM
89 keys including 12 user definable function keys
8085 8-bit CPU
8088 16-bit CPU
12" integral green monitor
One 5.25" 10 megabyte Winchester hard disk drive
One 5.25" floppy disk drive
Two RS-232-C serial ports
One parallel printer port
CP/M-85 operating system
MS-DOS 2.2 operating system
Micro Peripherals 180FT wide carriage dot matrix printer
Universal Data Systems 212A 300/1200 baud modem

4. The system should permit data entry by clerical level personnel.

5. The system should provide compatibility with existing in-house microcomputers.

6. To the greatest possible extent, the system should permit data contained in one functional application to be used in another application.

Appendix I: Structured Design for Daily Reporting of Nursing Workload



Appendix J: Sample Nursing Workload Summary

DATE: 15 April 86

TOTAL PATIENTS 53 + 2 SDS

3E/NP 1

4E/ICU 2

5E/OB 5

5E/NSY 5

5W/ARS 18

6E/M-S 22

NURSING SERVICE

CORPSMEN 68

MILITARY RN's 57

CIVILIAN RN's 7

CIVILIAN LPN's 6

BRANCH CLINIC

	AM	PM	NOC	= TOTAL
EMERGENCY ROOM VISITS	13	17	9	39
AMBULANCE RUNS	1			
TRANSPORTS	0			
ADMISSIONS	3			
AMIC VISITS	22			
PEDS CLINIC	16			

DELIVERIES

24° 0

MONTH 24

YEAR 145

SICK CALL 161

PHYSICALS flight - 13 / non - 14

NAVHOSP ADMISSIONS 0

CORPSMEN 63

PHYSICIAN ASSISTANTS 5

MILITARY RN's 1 6 nonacute

PA BURSON 62

PA MOODY 29

PA LYLE 2

PA FORBES 28

PA HAMM 21

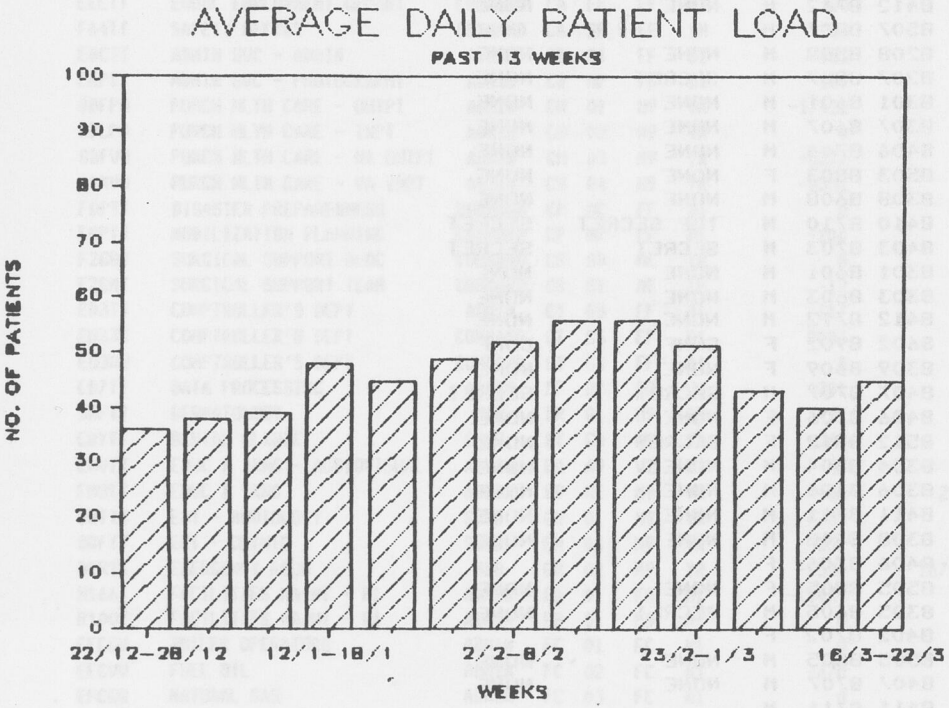
DR. ANDERSON 10

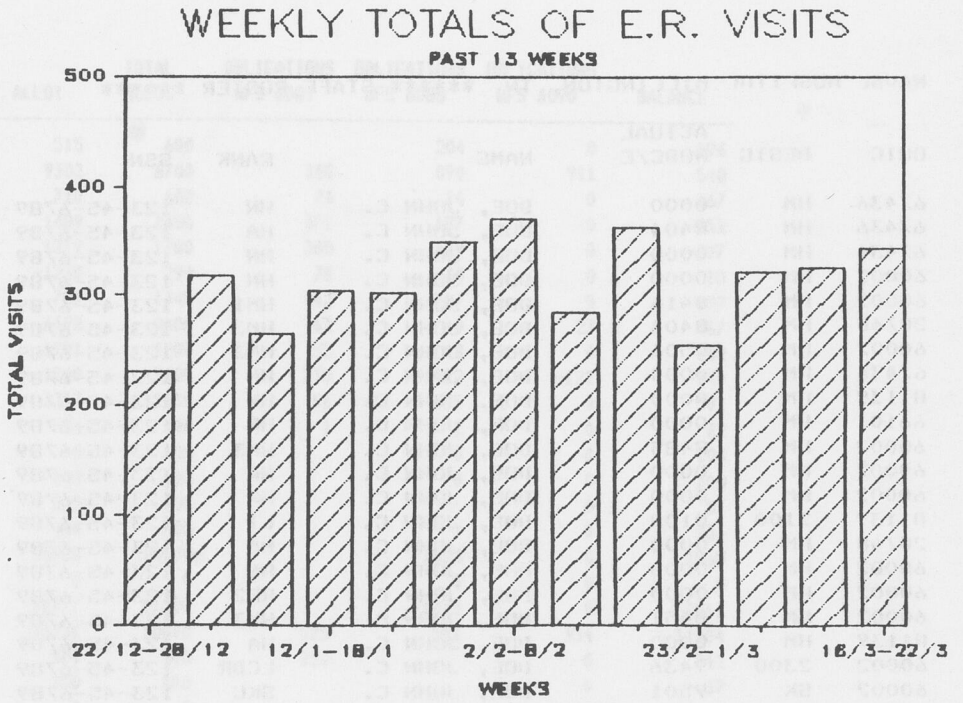
DR SEATON 3

NAVAL HOSPITAL, MILLINGTON, WEEKLY WORKLOAD STATUS REPORT FOR THE WEEK OF: 16-Mar-86 TO 22-Mar-86

	OPV	ADM	ADPL	SURG	BIRTH	LAB	X-RAY	SCRIP	BOARD	MHOLD	CNA	IPV	OPSURG	OCCBDDAYS	CWU	ALOS	E. R.	AMIC	BR CL
CURRENT WEEK TOTAL	N/A	78	49	33	9	11696	2396	7388	2	4	34	N/A	40	323	N/A	N/A	342	203	792
18WK MOVING AVG	3877.50	66.61	46.17	26.67	9.33	11380.56	2044.17	8033.44	3.44	6.61	19.22	38.56	42.83	310.28	2232.97		310.39	194.72	703.22
WEEK TO 18 WK AVG (%)		117%	106%	124%	96%	103%	117%	92%	58%	61%	177%		93%	104%			110%	104%	113%
STD DEVIATION (18WKS)	614.76	17.40	5.80	10.99	3.21	2175.12	451.09	1007.58	2.93	2.03	5.06	19.64	10.65	46.79	360.48		42.54	24.01	202.13
YR TO DATE TOTAL (CY)	N/A	945		388	129	159014	27514	105622	50	91	268	N/A	558	4031	28138.5		4149	2596	9549
YR TO DATE TOTAL (FY)	N/A	1762		723	239	289178	56865	206678	82	147	561	N/A	1161	8141	56175		8277	5087	18564
ONE YEAR AGO	4033	76	60	58	12	7281	1731	7500	4	5	19	1	64	348	2437.9				
TWO YEARS AGO	3392	92	61	31	17	4475	1516	6662	11	5	9	23	101						
WEEK TO ONE YEAR AGO	100%	103%	82%	57%	75%	161%	138%	99%	50%	80%	179%		63%	93%					
WEEK TO TWO YEARS AGO	113%	85%	80%	106%	53%	261%	158%	111%	18%	80%	378%		40%						
23-Mar-86 31-Mar-86	N/A	78	49	33	9	11696	2396	7388	2	4	34		40	323	N/A	N/A	342	203	792
16-Mar-86 22-Mar-86	3840	81	45	27	13	13115	2215	8273	5	7	14	7	46	281	2373	N/A	343	222	750
09-Mar-86 15-Mar-86	4329	66	40	23	8	13768	2070	8128	11	10	23	9	44	268	2306.7	N/A	326	222	828
02-Mar-86 08-Mar-86	4237	68	43	29	8	12390	1923	9332	8	10	17	19	34	294	2325.1	N/A	322	224	758
23-Feb-86 01-Mar-86	4613	104	51	48	10	12897	1980	8611	0	9	16	29	37	383	2906.9	N/A	256	208	807
16-Feb-86 22-Feb-86	3577	85	56	31	14	13636	1932	8665	6	6	18	53	56	360	2423.1	N/A	363	185	762
09-Feb-86 15-Feb-86	3836	90	56	50	7	12048	1848	7898	2	6	14	42	34	372	2492.8	N/A	286	166	699
02-Feb-86 08-Feb-86	4524	74	52	35	9	12737	1806	9088	6	6	18	26	39	341	2528.2	N/A	371	235	851
26-Jan-86 01-Feb-86	4295	80	49	30	15	12848	2712	7715	4	5	31	23	55	313	2551.5	N/A	350	189	856
19-Jan-86 25-Jan-86	3607	58	45	25	8	12834	2350	7865	0	6	23	23	61	295	2037.1	N/A	303	206	701
12-Jan-86 18-Jan-86	4101	55	48	29	3	13362	2518	8057	2	6	22	54	43	328	2138.3	N/A	304	185	775
05-Jan-86 11-Jan-86	3751	63	39	16	10	10295	2593	8392	3	11	25		44	246	2101.3	N/A	266	190	782
29-Dec-85 04-Jan-86	3825	43	38	12	15	7388	1171	6210	1	5	13	47	25	227	1954.5	4.7	317	161	188
22-Dec-85 28-Dec-85	1733	30	36	2	7	5956	887	5088	0	3	14	65	17	234	1123.9		231	148	131
15-Dec-85 21-Dec-85	3684	43	42	17	7	10110	2122	9409	5	5	14	63	50	274	1879.2		229	176	738
08-Dec-85 14-Dec-85	3992	69	46	23	11	10741	2286	8337	1	7	17	71	43	328	2325.6		303	180	793
01-Dec-85 07-Dec-85	4019	65	48	28	10	11983	2486	8221	4	5	28	55	43	335	2290.7		312	190	781
24-Nov-85 30-Nov-85	3453	61	44	27	8	8841	1773	7438	1	6	21	50	46	335	2060.9	5	331	228	598
17-Nov-85 23-Nov-85	4379	64	53	28	5	9901	2123	7875	3	6	18	58	54	371	2374.7		374	190	860
10-Nov-85 16-Nov-85	3818	52	41	23	8	11179	2179	7317	3	6	31	65	50	300	2045.4		402	207	725
03-Nov-85 09-Nov-85	4158	74	49	37	7	9147	2587	8482	5	5	29	74	49	314	2371.4		315	162	822

Appendix K: Patient Workload Data Base for CSF#1





Appendix L: Sample Graphics Output for CSF#1

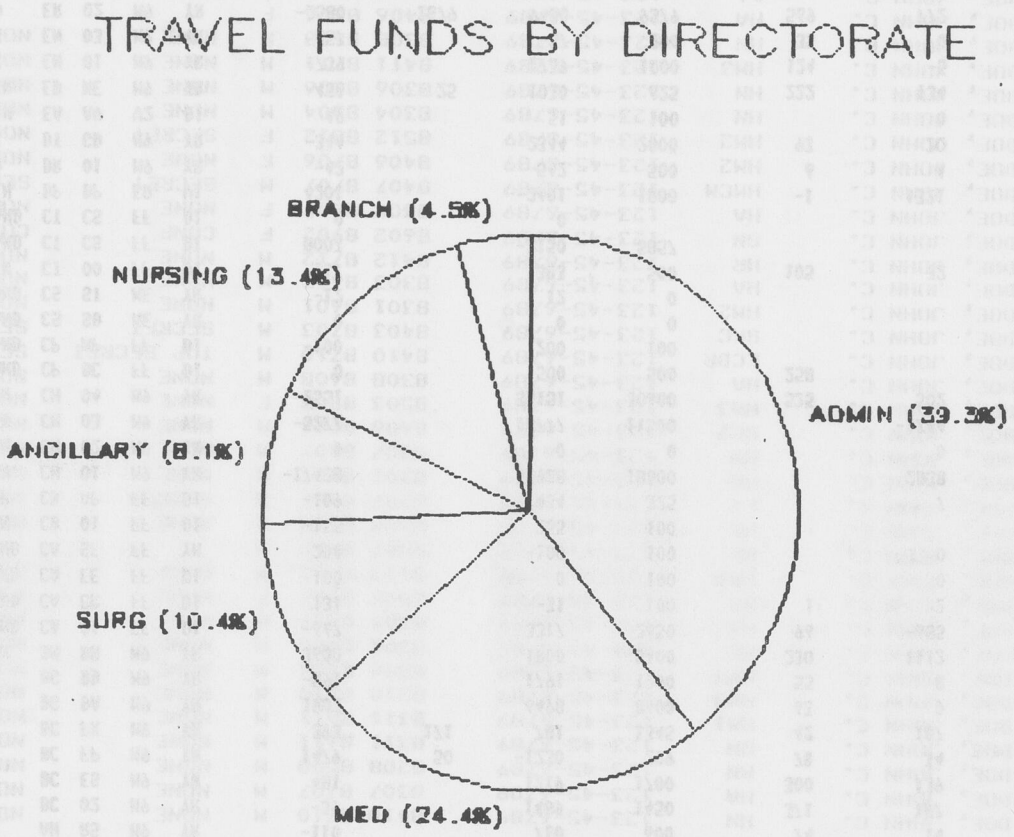
NAVAL HOSPITAL MILLINGTON, TN ****** STAFF ROSTER ******

OUIC	DESIG	ACTUAL NOBC/E	NAME	RANK	SSN	RPT	PRD	SEX	CLEARANCE	ACCESS
67436	HM	0000	DOE, JOHN C.	HN	123-45-6789	8410	8710	M	NONE	NONE
67436	HM	8404	DOE, JOHN C.	HA	123-45-6789	8307	8707	M	NONE	NONE
67436	HM	0000	DOE, JOHN C.	HN	123-45-6789	8208	8508	M	NONE	NONE
60002	HM	0000	DOE, JOHN C.	HN	123-45-6789	8311	8611	M	NONE	NONE
60002	HM	8416	DOE, JOHN C.	HM1	123-45-6789	8311	8611	M	NONE	NONE
20748	HM	8404	DOE, JOHN C.	HM3	123-45-6789	8210	8610	M	NONE	NONE
60002	HM	8506	DOE, JOHN C.	HM3	123-45-6789	8306	8606	M	NONE	NONE
67436	HM	0000	DOE, JOHN C.	HN	123-45-6789	8308	8608	M	NONE	NONE
81139	HM	0000	DOE, JOHN C.	HN	123-45-6789	8309	8609	M	NONE	NONE
66101	HM	0000	DOE, JOHN C.	HR	123-45-6789	8407	8707	F	NONE	NONE
60002	HM	8485	DOE, JOHN C.	HM3	123-45-6789	8412	8712	M	NONE	NONE
60002	HM	0000	DOE, JOHN C.	HA	123-45-6789	8507	8807	M		
60002	HM	0000	DOE, JOHN C.	HN	123-45-6789	8208	8508	M	NONE	NONE
81139	2100	0108	DOE, JOHN C.	LT	123-45-6789	8207	8507	M	SECRET	NONE
20748	HM	0000	DOE, JOHN C.	HA	123-45-6789	8301	8601	M	NONE	NONE
60002	HM	0000	DOE, JOHN C.	HN	123-45-6789	8307	8607	M	NONE	NONE
60002	HM	0000	DOE, JOHN C.	RP2	123-45-6789	8406	8706	M	NONE	NONE
60002	HM	8451	DOE, JOHN C.	HM3	123-45-6789	8503	8803	F	NONE	NONE
81139	HM	0000	DOE, JOHN C.	HA	123-45-6789	8308	8608	M	NONE	NONE
60002	2300	9436	DOE, JOHN C.	LCDR	123-45-6789	8410	8710	M	TOP SECRET	SECRET
60002	SK	9501	DOE, JOHN C.	SKC	123-45-6789	8403	8703	M	SECRET	SECRET
60002	HM	8444	DOE, JOHN C.	HM2	123-45-6789	8301	8601	M	NONE	NONE
67436	HM	0000	DOE, JOHN C.	HA	123-45-6789	8303	8603	M	NONE	NONE
67436	HM	0000	DOE, JOHN C.	HR	123-45-6789	8412	8712	M	NONE	NONE
60002	SN	0000	DOE, JOHN C.	SN	123-45-6789	8602	8902	F	CONF	CONF
60002	HM	0000	DOE, JOHN C.	HA	123-45-6789	8309	8609	F	NONE	NONE
60002	HM	8404	DOE, JOHN C.	HMCM	123-45-6789	8407	8707	M	SECRET	SECRET
81139	HM	8483	DOE, JOHN C.	HM2	123-45-6789	8406	8706	F	NONE	NONE
60002	HM	8501	DOE, JOHN C.	HM2	123-45-6789	8512	8812	F	SECRET	NONE
60002	HM	0000	DOE, JOHN C.	HN	123-45-6789	8304	8604	M	NONE	NONE
60002	HM	0000	DOE, JOHN C.	HN	123-45-6789	8306	8606	M	NONE	NONE
67436	HM	0000	DOE, JOHN C.	HM3	123-45-6789	8411	8711	M	NONE	NONE
20748	HM	8485	DOE, JOHN C.	HN	123-45-6789	8308	8608	M	NONE	NONE
60002	HM	0000	DOE, JOHN C.	HA	123-45-6789	8406	8706	F		
60002	HM	000	DOE, JOHN C.	DA	123-45-6789	8505	8805	F	NONE	NONE
60002	HM	8444	DOE, JOHN C.	HM3	123-45-6789	8305	8605	M	SECRET	NONE
60002	HM	0000	DOE, JOHN C.	HN	123-45-6789	8402	8702	F		
67436	HM	8404	DOE, JOHN C.	HM2	123-45-6789	8505	8805	M	NONE	NONE
60002	2900	0940	DOE, JOHN C.	LT	123-45-6789	8407	8707	M	NONE	NONE
60002	HM	8404	DOE, JOHN C.	HM3	123-45-6789	8411	8711	M		
60002	HM	8510	DOE, JOHN C.	HM3	123-45-6789	8411	8611	F		
67436	HM	0000	DOE, JOHN C.	HN	123-45-6789	8306	8606	M	NONE	NONE

2NDQTRFY86

JON	DESCRIPTION	DIR	CC	SCC	SAG	SFC	12-31-85 BALANCE	REIMB	ALLOT	TOTAL ALLOC	OBLIGATIONS WFS 6081	OBLIGATIONS WFS 6088	OBLIGATIONS WFS 6090	BALANCE
FALTT	ARS	MED	AL	AL	M9	YK	85		515	600		204	0	196
DANTT	ANESTHESIOLOGY	SURG	AN	01	M9	YR	-2602		9302	6700	110	890	911	548
DRCTT	RESPIRATORY THERAPY	SURG	AN	RS	M9	YR	-110		710	600	74	14	0	467
EAATT	BC - ADMIN	BC	BC	02	M9	YR	-39		1489	1450	371	187	0	-353
BESTT	BC - PRIMARY CARE	BC	BC	ES	M9	YR	481		1219	1700	300	139	0	-397
FPZBT	BC - IMMUNIZATIONS	BC	BC	FP	M9	YR	1479	50	-1230	299	78	34	0	10
BPXTT	BC - PHYS EXAM	BC	BC	PX	M9	YR	393	171	781	1345	42	107	0	197
AHATT	DELIVERY ROOM	SURG	BG	BA	M9	YR	1902		6498	8400	63	0	23	467
BHTTT	OB/GYN CLINIC	SURG	BG	BB	M9	YR	-591		1791	1200	55	8	0	662
EA4TT	BIOMEDICAL REPAIR	ADMIN	BM	BM	M9	YR	3600		1800	5400	230	1112	-122	-940
EBATT	CO'S OFFICE	COMMAND	CA	01	FF	D1	-667		3317	2650	96	-655	0	591
EB3ST	INTERNAL REVIEW	COMMAND	CA	CR	FF	D1	131		-31	100	1	2	0	62
EEETT	EQUAL EMPLOYMENT OPPORT	COMMAND	CA	EE	FF	D1	100		0	100		0	0	100
F64TT	SAFETY OFFICE	COMMAND	CA	SF	FF	YM	200		-100	100		0	0	100
EBCTT	ADMIN SVC - ADMIN	ADMIN	CB	01	FF	D1	-155		255	100			0	57
EAPTT	ADMIN SVC - PHOTOGRAPHY	ADMIN	CB	AP	FF	D1	-109		434	325		7	0	236
BBFPQ	PURCH HLTH CARE - OUTPT	ADMIN	CH	01	M9	YR	-17428		35928	18500		2838	0	1068
ABLPQ	PURCH HLTH CARE - INPT	ADMIN	CH	02	M9	YR	0		0	0		0	0	0
BBFVQ	PURCH HLTH CARE - VA OUTPT	ADMIN	CH	03	M9	YR	-5277		16777	11500		-1744	0	7811
ABKVQ	PURCH HLTH CARE - VA INPT	ADMIN	CH	04	M9	YR	-2551		33151	30600	525	502	354	14804
FDPTT	DISASTER PREPAREDNESS	COMMAND	CP	DC	FF	D1	0		500	500	258		0	242
FMPTT	MOBILIZATION PLANNING	COMMAND	CP	MP	FF	D1	-100		200	100			0	89
F2GBT	SURGICAL SUPPORT BLOC	COMMAND	CS	SB	ME	YR	0		0	0			0	0
F2GMT	SURGICAL SUPPORT TEAM	COMMAND	CS	ST	ME	YR	-12		12	0			0	0
EB3TT	COMPTROLLER'S DEPT	ADMIN	CT	00	FF	D1	117		383	500	105	32	0	-166
EU33X	COMPTROLLER'S DEPT	COMMAND	CT	CS	FF	D1	8007		-2150	5857			0	5857
EU3RU	COMPTROLLER'S DEPT	COMMAND	CT	CS	FF	D1	0		0				0	0
EB7TT	DATA PROCESSING	ADMIN	DP	DP	FQ	V1	4201		-2401	1800	-1	1321	1851	-2805
BDFTT	DERMATOLOGY	MED	DR	01	M9	YR	-42		542	500	6	4	0	8
CDYTT	DENTAL CLINIC	SURG	DT	GD	M9	YR	-344		2344	2000	93	20	248	-290
EAVTT	EDUC & TRNG - AUDIOVISUAL	ADMIN	EA	AV	V2	D1	49		51	100		0	0	-26
FHUTT	EDUC & TRNG	ADMIN	ED	NE	M9	YR	-430	25	1030	625	222	134	-263	-316
BQTTT	ENT - AUDIOLOGY	SURG	EN	01	M9	YR	-739		1739	1000	124	-5	0	393
BQFTT	ENT - CLINIC	SURG	EN	03	M9	YR	257		-57	200	35	0	0	112
BERTT	EMERGENCY ROOM	MED	ER	02	M9	YR	-2580	2679	9480	9579	569	772	0	-1700
M166T	FACILITIES MAINT - M1	ADMIN	FA	01	FA	M1	-15439		45439	30000	2107	1175	723	3489
R1001	FACILITIES MAINT - R1	ADMIN	FB	01	FB	R1	0		0	0		0	6300	-6300
EFCGU	BOILER OPERATORS	ADMIN	FC	01	FC	N1	0		0	0		0	0	0
EFCVV	FUEL OIL	ADMIN	FC	02	FC	N1	-470		1300	830		0	0	830
EFCGQ	NATURAL GAS	ADMIN	FC	03	FC	N1	0		53000	53000		0	0	0
EFCTQ	STEAM	ADMIN	FC	04	FC	N1	0		5900	5900		0	0	0
EFCEQ	ELECTRICITY	ADMIN	FC	05	FC	N1	0		105000	105000		0	0	0
EFCWQ	WATER	ADMIN	FC	06	FC	N1	0		3950	3950		0	0	0
EFCSQ	SEWAGE	ADMIN	FC	07	FC	N1	0		2300	2300		0	0	0

Appendix N: Budget Data Base for CSF#3



Appendix O: Sample Graphical Representation for CSF#3

NAVAL HOSPITAL, MILLINGTON

TRAVEL

TANGO	NAME	RANK	J/O #	SAG	DEPART	RETURN	DAYS	DESTINATION	PURPOSE	DIR	TRAVEL AND PER DIEM	FEES	REQUIREMENT
1	JONES, JOHN P.	CDR	FAJDE	MAYB	04-OCT-85	07-OCT-85	3		CME	SURG	$375.00	$75.00	$450.00
2	JONES, JOHN P.	LCDR	FAJMQ	MAYB	04-OCT-85	06-OCT-85	2		CME	SURG		$350.00	$350.00
3	JONES, JOHN P.	LCDR	FAJMQ	MAYB	10-NOV-85	14-NOV-85	4	ATLANTA	CME	MED	$459.29	$125.00	$584.29
4	JONES, JOHN P.	LCDR	FAJME	MAYB	08-OCT-85	13-OCT-85	5	ANAHEIM, CA	CME	MED	$815.55	$240.00	$1,055.55
5	JONES, JOHN P.	LT	FAJEE	M9YR	03-NOV-85	08-NOV-85	6	JACKSONVILLE,FL	GOVT	ADMIN	803.15		$803.15
6	JONES, JOHN P.	LT	FAJNQ	MAYB	10-OCT-85	20-OCT-85	2	MEMPHIS	CME	NURS		$60.00	$60.00
7	JONES, JOHN P.	LT	FAJMQ	MAYB	24-OCT-85	25-OCT-85	2	MEMPHIS	CME	MED		$150.00	$150.00
8	JONES, JOHN P.	LTJG	FAJNE	MAYB	07-NOV-85	08-NOV-85	2	NASHVILLE	CME	NURS	$213.40	$76.00	$289.40
9	JONES, JOHN P.		CANCELL										$0.00
10	JONES, JOHN P.	HN	FAJBE	FFD1	17-SEP-85	07-OCT-85	21	CHICAGO	GOVT	COM	$206.00		$206.00
11	JONES, JOHN P.	LT	FAJMQ	MAYB	19 OCT 85	20-OCT 85	2	MEMPHIS	CME	MED		$60.00	$60.00
12	JONES, JOHN P.	HN	FAJHQ	MAYB	19-OCT-85	20-OCT-85	2	MEMPHIS	CME	NURS		$60.00	$60.00
13	JONES, JOHN P.	HMCS	FAJEE	M9YR	28 OCT 85	29-OCT-85	2	ST LOUIS	GOVT	ADMIN	$75.44		$75.44
14	JONES, JOHN P.	GS11	FAJTE	M9YR	28-OCT-85	29-OCT-85	2	ST LOUIS	GOVT	ADMIN	$206.56		$206.56
15	JONES, JOHN P.	HMC	FAJEQ	M9YR	13-NOV-85	13-NOV-85	1	MEMPHIS	GOVT	COM		$235.00	$235.00
16	JONES, JOHN P.	GS11	FAJCQ	MAYB	03-NOV-85	04-NOV-85	7	CHICAGO	GOVT	ANC	$619.86	$188.00	$807.86
17	JONES, JOHN P.	HM2	FAJEQ	M9YR	22-NOV-85	22-NOV-85	1	MEMPHIS	GOVT	ADMIN		$44.00	$44.00
18	JONES, JOHN P.	GS9	FAJCQ	MAYB	29-OCT-85	29-OCT-85	1	MEMPHIS	GOVT	COM		$60.00	$60.00
19	JONES, JOHN P.	GS7	FAJTQ	M9YR	22-NOV-85	22-NOV-85	1	MEMPHIS	GOVT	ADMIN		$44.00	$44.00
20	JONES, JOHN P.	LCDR	FAJEE	M9YR	14-NOV-85	15-NOV-85	2	JACKSON,MS	GOVT	COM	$164.06	$210.00	$374.06
21	JONES, JOHN P.	HM2	FAJEE	M9YR	04-NOV-85	07-NOV-85	3	SCOTT AFB	GOVT	ADMIN	$246.22		$246.22
22	JONES, JOHN P.	LT	FAJME	MAYB	15-NOV-85	23-NOV-85	9	CHICAGO	CME	ANC	$711.00	$150.00	$861.00
23	JONES, JOHN P.	LT	FAJDE	MAYB	12-JAN-86	18-JAN-86	6	BETHESDA	CME	SURG	$625.27		$625.27
24	JONES, JOHN P.	LCDR	FAJNE	MAYB	02-NOV-85	07-NOC-85	6	SAN ANTONIO TX	CME	NURS	$765.22	$300.00	$1,065.22
93	JONES, JOHN P.	GS9	FAJCQ	MAYB	17-APR-86	18-APR-86	2	MEMPHIS	CME	NURS		$75.00	$75.00
											$6,286.02	$2,502.00	$8,788.02

NAVAL HOSPITAL. MILLINGTON TN SUPPLY WORKLOAD SUMMARY
FROM 16FEB86 TO 22MAR86

REPORT ITEM	LINE NO	***PART I-VOLUME*** MEDICAL ITEMS	OTHER ITEMS	TOTAL	***PART II-DOLLAR VALUE*** MEDICAL ITEMS	OTHER ITEMS	TOTAL
STANDARD STOCK ITEMS CARRIED	1	840	60	900	$256,791.00	$4,493.44	$261,284.44
NONSTANDARD STOCK ITEMS CARRIED	2	166	214	380	$94,086.40	$25,952.66	$120,039.06
TOTAL ACTIVE STOCK CARRIED	3	1006	274	1280	$350,877.40	$30,446.10	$381,323.50
LINE ITEMS ISSUED FROM STOCK: (COMMAND SUPPORT)							
STANDARD	4	1987	136	2123	$97,329.69	$1,284.83	$98,614.52
NONSTANDARD	5	448	776	1224	$34,126.23	$9,449.28	$43,575.51
LINE ITEMS ISSUED FROM STOCK: (OTHER SUPPLY SUPPORT)							
STANDARD	6	0	0	0	$0.00	$0.00	$0.00
NONSTANDARD	7	0	0	0	$0.00	$0.00	$0.00
TOTAL LINE ITEMS ISSUED FROM STOCK:	8	2435	912	3347	$131,455.92	$10,734.11	$142,190.03
LINE ITEMS NOT IN STOCK:							
STANDARD	9	401	165	566			$0.00
NONSTANDARD	10	56	53	109			$0.00
TOTAL ITEMS NOT IN STOCK:	11	457	218	675	$0.00	$0.00	$0.00
RECEIPTS FROM GOVERNMENT SOURCES OF SUPPLY (STOCK):	12	371	20	391	$146,218.74	$1,305.89	$147,524.63
RECEIPTS FROM COMMERCIAL SOURCES OF SUPPLY (STOCK):	13	69	72	141	$36,934.43	$9,016.61	$45,951.04
TOTAL RECEIPTS (STOCK):	14	440	92	532	$183,153.17	$10,322.50	$193,475.67
RECEIPTS FROM GOVERNMENT SOURCES OF SUPPLY (ENDUSE):	15	109	125	234	$10,621.12	$2,045.16	$12,666.28
RECEIPTS FROM COMMERCIAL SOURCES OF SUPPLY (ENDUSE):	16	292	40	332	$57,620.56	$2,530.82	$60,151.38
TOTAL RECEIPTS (ENDUSE):	17	401	165	566	$68,241.68	$4,575.98	$72,817.66

CLASS 6505:	16	$80,362.75
TOTAL ORDERS:	17	614

	NUMBER	PERCENT
PRIORITY 1 ISSUES:	0	0
PRIORITY 6 ISSUES:	6	1.1
PRIORITY 13 ISSUES:	536	98.9

NAVAL HOSPITAL
MILLINGTON, TN

FACILITIES MANAGEMENT SPECIAL PROJECTS

Project No.	Cost Code	Title	Design Cost ($K)	Design Status	Current Est Cost ($K)	Contract No.	FY	Remarks
RC2-82	M2/R2	Overhaul, retrofit of elevator controls	7.80	100%	144.90	N62427-84-C-4533	85	Contracted awarded 6-20-85 to Morris Wallace Elev. Co.
C10-81	M2/R2	Upgrade fire protection and retrofit computer rm	19.50	100%	252.10	N62467-84-C-4561	85	Awarded Sep 85 to Boone & Son
R5-82	M2	Repair tile walls, conductive floors of OR/Del Rm	16.00	100%	158.00		86	30% design compl. Bids on indef hold
C1-84	R2	Alternate H20 storage	8.00	100%	111.00	N62467-85-C-4652	86	JCAH/Disaster plan req. Design awarded. Plans complete. Bids on hold.
R6-82	M2/R2	Repair patient nurse call system.	12.10	100%	160.00		86	Bids on indefinite hold.
RE1-84	M2/R2	Retrofit security cameras, alarm & radio dispatch.	5.00	0%	65.00	unprogrammed		Req by JCAH/NFPA. Step II submitted 18Sep84.Await design funding.
C4-82	R2	Upgrade medical repair shop	6.70	100%	133.30		85	Work in progress.
C2-82	R2	Alterations to ER entrance/ambulance drive	7.20	100%	76.80		85	Work in progress.
RA1-81	M2/R2	Improve HVAC system UPEH 98.	4.00	0%	85.00		87	Step II submitted 18Sep84. A/E awarded.
RC1-83	R2	Repair/modernize OR suites.	14.30	100%	97.00		86	Plans & specs ready to advertise. Bids on hld.
RC2-83	M2/R2	Repair/modernize ER	14.30	100%	238.00		85	Plans & specs ready to advertise. Bids on hold.
RC4-82	R2/M2	Repair/construct pt rooms & nurse station.	22.40	100%	542.50		85	Plans & specs ready to advertise. Bids on hold.
RC3-82	R2	Repair & modernize ICU	10.10	100%	116.00		86	JCAH Req. To provide privacy/monitoring. Bids on hold.
R3-82	M2	Repair roof. Bldg. 100	10.27	100%	276.60		85	Install additional deck insulation, energy efficient. Bid 3/5/86.
C2-84	R2	Alternate energy source from pub. utility.	10.50	100%	175.00		87	Step II sub to MEDCOM 8/30/84. Site approv granted by NAVFAC;pend A/E.
C4-84	R2	Sinage system for inter/exter hosp.	unfunded		45.00	unprogrammed		Step I sub 7/20/83; pending approval.
C2-83	R2	Renovate mail lobby/command center.	unfunded		45.00	unprogrammed		Step I sub 3/31/83; pending approval.
C3-81	R2	Modify space A/C equip. Bldgs 100,98,114,771.		100%	57.50		85	ETAP requirement. Contract awarded. Work in progress.
C3-83		Provide weld/paint booth;dust collect system.	NAVOSH fund.		44.00	unprogrammed		NAVOSH req. Step II subm. 10/7/83;site approv. Design/bids on hold.
C5-84	R2	Construct helipad.	15.00		186.70		86	Step II 3/20/85. Site approv;await design approv. Bids on hold.
CR5-85	R2	Provide C-section capability to del suite.	22.20		190.00	unprogrammed		CNMC ltr 5200 Ser 311/405093.D 5/10/84. Step II sub;design/bids on hld.
C1-85	R2	Install emerg pwr circuts to dental operatories.	21.00		175.00	unprogrammed		Pt safety. Step I sub 8/13/84. Step II sub 11/85. Design/bids on hold.
C2-85	R2	Install emerg pwr circuts to x-ray equip.	18.00		150.00	unprogrammed		Pt safety. Step I sub 8/13/84. Step II sub 11/85. Design/bids on hold.
CE3-85	R2	Retrofit x-ray rm #3 for new equipment.	21.00		175.00	unprogrammed		Step I sub 8/13/84. Step II sub 12/85. Design/bids on hold.
RC4-84	M2/R2	Upgrade galley/dining rm.	11.00		180.00		87	Repair due to deterioration. Step I sub 7/2/82.Design/bids on hold.
R1-85	M2	Repair condensate return piping.	15.40	100%	102.00		86	Repair due to deterioration. Step I sub 9/20/84.Specs compl.Bids on hld
C5-85	R2	Rehab Outpatient Department	6.00		75.00	unprogrammed		To enhance pt care/inprov space util Step I sub 9/20/84.
R2-85	M2	Repair masonary exterior Bldg. 100	10.50		130.00	unprogrammed		Repair due to deterioration. Step I sub 9/20/84.
CE4-85	R2	Add NOHIMS computer room to Brcnh Clin.	9.50		96.00		89	Step I sub 1/23/86; held in abeyance.
C6-85	R2	Modify heads for handicapped.	9.70		81.00		87	JCAH requirement. Step II sub 10/25/85.
CE7-85	R2	Install nurse call system at Brnch Clin.	6.00		50.00		87	Step II sub 10/25/85.
P-603	R2	HVAC & Facilities energy improvements.	30.00	100%	369.00	unprogrammed		Awared to Wells Mech. 6/14/85. Work in progress.
P-180	R2	Electrical corrections of facil discrepancies.	180.00	0%	3000.00	POM 88/89		Correct electr. deficiencies iaw NEC,NFPA,JCAH,NAVOSH. Pend cong app.

SITUATIONAL ACTION LIST

REPORT NO.	RESPONSIBLE DEPT	SUBJECT	REFERENCE	DUE TO XO	DUE TO SOURCE	EXTENSION	DATE TO XO	COMMENTS
0040	PHARMACY	FILLING AND REFILLING OF PRESCRIPTIONS AT MEDICAL TREATMENT FACILITIES	CNMCSEREG 6570 03/0700 OF 28 FEB,1986	11-Mar-86	15-Mar-86		11-Mar-86	
0014	MANPOWER	AWARD PROGRAM FOR OUTSTANDING HANDICAPPED FEDERAL EMPLOYEES OF THE YEAR FOR 1986	CNMCWASH 12306 522/0189 OF 27 JAN,1986	15-Apr-86	25-Apr-86		NONE	NO RESPONSE. NEGATIVE REPLIES NOT REQUIRED
0050	PT ADMIN	NOMINATION FOR HEALTH BENEFITS ADVISOR (HBA) OF THE YEAR FOR 1985	MSG 131955ZMAR86 RCVD 14 MAR,1986	19-Mar-86	24-Mar-86		18-Mar-86	
0054	OPD	FACILITY SUMMARY REPORT	CNMC SEREG 6320 03/0805 OF 13 MAR,1986	25-Mar-86	01-Apr-86		25-Mar-86	
0061	FACILITIES	FACILITIES SPECIAL PROJECT PROGRAM	CNMC SEREG 11000 21/0853 DTD 21MAR,86 RCVD 24 MAR,86	31-Mar-86	03-Apr-86		31-Mar-86	
0068	DENTAL	PANORAMIC DUPLICATING	NMC SEREG MSG271341ZMAR86 RCVD 28 MAR,1986	31-Mar-86	01-Apr-86		31-Mar-86	VIA MSG 311350ZMAR86
0078	COMPTROLLER	FY-85 & FY-86 TRI-SERVICE MEDICAL INFO SYSTEM (TRIMIS) O&M,N OBLIGATIONS	NMC MSG 031301ZAPR86 RCVD 4 APR,1986	09-Apr-86	11-Apr-86		07-Apr-86	VIA MSG 071620ZAPR86
0064	QUAL ASSURANCE	REPORTING REQUIREMENT UNDER DOD DIRECTIVE 6025.1,STANDARDS FOR DOD HEALTH CARE PROVIDERS	CNMC 6025 351M/0012 RCVD 24 MAR,1986	10-Apr-86	23-Apr-86	YES		DUE DATE CHANGED BY CNMCSEREG MSG 311531ZMAR86
0073	PT ADMIN	SUBMISSION OF CORRECTED DATA FOR INPATIENT DISPOSITION ERRORS	CNMC SEREG 6320 03/0911 DTD 21 MAR,86 RCVD 31 MAR,86	15-Apr-86	28-Apr-86			
0083	OPS MGT	PERIODICALS & PAMPHLETS REVIEW	CNMC WASH MSG 082010ZAPR86 RCVD 9 APR,1986	16-Apr-86	19-Apr-86			
0087	OPD	FACILITIES SUMMARY REPORT FOR FEBRUARY 1986	CNMCSEREG 6320 03/1008 DTD 9 APR86 RCVD 11 APR86	16-Apr-86	21-Apr-86			

ACTION LIST

DUE TO SOURCE	REPORT NO.	DUE TO XO	RESPONSIBLE DEPT	SUBJECT	REFERENCE	FREQUENCY	RCS	
15 JAN	A-02		MANPOWER MNGT	ANNUAL CIV POSITION SENSITIVITY REPORT	NCPCINST 5521.1	ANNUAL	NCPC 5521.1	
15 NOV	A-03		DIR MED SVCS	ANNUAL EVAL OF CREDENTIALS PROGRAM	NAVMEDCOMINST 6320.8	ANNUAL		
10 JAN	A-04		PATIENT ADMIN	ANNUAL FREEDOM OF INFO ACT REPORT	SECNAVINST 5720.42CF	ANNUAL	DD-PA(TRA&A)1365 5720	
15 OCT	A-05		FACILITIES ENG	ANNUAL INSPECTION SUMMARY	OPNAVINST 11010.34	ANNUAL		
25 OCT	A-08		ED & TRAINING	AUDIOVISUAL ANNUAL REPORT	OPNAVNOTE 5290 27 JUN 84	ANNUAL		
20 OCT	A-09		MANPOWER MNGT	BENEFICIAL SUGGESTIONS ANNUAL REPORT	NAVMEDCOM 12451 522/4091950	ANNUAL		
01 DEC	A-10		COMPTROLLER	CLINICAL INVESTIGATION BUDGET REPORT	BUMEDINST 6000.4D	ANNUAL		
01 MAR	A-13		C.O.'S SECRETARY	COMMAND HISTORY	OPNAVINST 5750.12	ANNUAL	OPNAV 5750-1	
31 JAN	A-15		RADIOLOGY	EXPOSURE TO IONIZING RADIATION	NAVMED P-5055	ANNUAL	MED-6470-1	
25 NOV	A-16		MANPOWER MNGT	FED CIV PHYS COMP ALLOW PROG REPORT	BUMEDINST 12530.2	ANNUAL		
25 JUL (SEREG)	A-17		INTERNAL REVIEW	INTERNAL CONTROL STATEMENT	SECNAVINST 5200.35	ANNUAL	NAVCOMPT 5200-2	ALSO: OPNAVINST 5200.25A
FEB	A-18		INTERNAL REVIEW	INTERNAL REVIEW ON TIMEKEEPING	NAVMEDCOMSEREGINST 7510.1	ANNUAL	.	
31 OCT	A-19		OPERATING MNGT	INV REPORT OF MILITARY OWNED VEHICLES	FORSCOM REG 500-1	ANNUAL	MTMC-82(MIN)	
31 JAN	A-20		PATIENT ADMIN	JOINT ANNUAL REPORT OF HOSPITALS	TENN DEPT OF HEALTH	ANNUAL		
15 FEB	A-21		FACILITIES MNGT	ANNUAL ENERGY ASSESSMENT REPORT	NAVMEDCOMINST 4100.1	ANNUAL	MED 4100-2	
15 JAN	A-22		QUALITY ASSURANCE	MORTALITY REPORTING	DODINST 6025.1	ANNUAL		
30 JUN	A-23		SAFETY MANAGER	NAVY SAFETY & OCCUPA HLTH PROG EVAL	NMC LTR 04C 30323013 11MAY83	ANNUAL	MED-5100-1	
31 MAR	A-24		SUPPLY DEPT	NSO & CYLINDER POOL REQUIREMENTS	FMSOINST 4400.12H	ANNUAL	FMSO 7113/10	
15 JAN	A-26		OPERATING MNGT	PHYSICAL SEC & LOSS PREVENTION	OPNAVINST 5530.14	ANNUAL		
01 NOV	A-28		OPERATING MNGT	REPLACEMENT JUST ANNUAL REQ REVIEW	NAVFACINST 11200.12G	ANNUAL	NAVFAC 11200/29	
30 JUN	A-29		OPERATING MNGT	REPORT OF VEHICLES CHARTERED OR RENTED	NAVFAC P300 1.2.2.8	ANNUAL	NAVFAC 11240-7	
21 OCT	A-32		MED MOB PLANNER	SHORE BASE MANPOWER/PERSONNEL WKSHT	OPNAVINST 3501.167	ANNUAL		
15 AUG	A-33		MED MOB PLANNER	SHORE BASE READINESS REPORT (BASEREP)	OPNAVINST 3501.167	ANNUAL	OPNAV 3501-11	
22 OCT	A-34		ED & TRAINING	STATISTICAL LIBRARY REPORT (ANNUAL)	NAVEDTRA 38021	ANNUAL		
09 AUG	A-35		OPERATING MNGT	UFH INVENTORY & UTIL DATA	OPNAVINST 11102.2	ANNUAL	DD-M(A)1470(11103)	
	A-37		MED MOB PLANNER	LOGISTIC SUPPORT ANDMOB PLAN (LSMP)	NAVMEDCOMINST S4812.1	ANNUAL	MED 4812-1	
30 JUN	A-39		PATIENT ADMIN	REPORT OF OCCUPATIONAL HEALTH SERVICES	BUMEDINST 6260.7	ANNUAL	MED 6260-1	
	A-40		DENTAL DEPT	DENTAL SERVICE REP, EQUIP AND FAC	NAVMEDCOMINST 6750.1	ANNUAL	MED 6750-1	
	A-43		OPERATING MNGT	REQ. EVAL. COST TRANSP. EQUIPMENT	NAVFACINST 11200.19	ANNUAL	NAVFAC 11200-3A	
30 OCT	A-44		MED MOB PLANNER	DISASTER CONTROL DRILL REPORT	NMCINST 3440.2	ANNUAL	MED 3440-3	ALSO: CNMC 242111ZFEB86
10TH	M-001		ALL DEPARTMENTS	STAFF RECALL BILL	NAVHOSPMILLINST 3440.3	MONTHLY		
13TH	M-002	08 APR	COMPTROLLER	FUNDED ACCOUNTS (NAVCOMPT 2029)	NAVCOMPTMAN 039503	MONTHLY	NAVCOMPT 7330-11	
13TH	M-003	08 APR	COMPTROLLER	UNFUNDED ACCTS (NAVCOMPT 2027)	NAVCOMPTMAN 083304, 039504	MONTHLY	NAVCOMPT 7330-10	
15TH	M-004		PATIENT ADMIN	MONTHLY STATISTICAL REPORT	NMCSEREG 6322 03/0914 24MAR86	MONTHLY		MAY BE PHONED TO SEREG
10TH	M-005	03 APR	PATIENT ADMIN	BIRTH LISTING	MFS-SHELBY CO HEALTH DEPT	MONTHLY		
10TH WD	M-007	08 APR	MANPOWER MNGT	CURRENT OFFICER ASSIGNMENT	NMCSEREG 1000 12/4708 5JUL84	MONTHLY		
9TH	M-009	03 APR	COMPTROLLER	FINANCIAL INVENTORY REPORT	NSSCMAN	MONTHLY		
30TH	M-010	22 APR	OPERATING MNGT	FIRE DRILL REPORT		MONTHLY		
9TH	M-011	03 APR	FOOD SERVICE DEPT	FOOD SERVICE ANALYSIS REPORT	RCS:MED-10110-2	MONTHLY		
10TH	M-014	03 APR	PATIENT ADMIN	INST REPORT OF DEATHS & FETAL DEATHS	STATE OF TENNESSEE	MONTHLY		
1ST WD	M-015	01 APR	PATIENT ADMIN	MED HOLD COMPANY DATA TRANS RECORD	NMPC/NMCINST 1306.72D	MONTHLY	MED 1306-2	
6TH CD	M-016	03 APR	PATIENT ADMIN	MED SERV AND OUTPT MORBIDITY REPORT	BUMEDINST 6300.2B	MONTHLY		
5TH WD	M-017	03 APR	RADIOLOGY	MONTHLY PHOTODOSIMETRY REPORT	NAVMED P-5055	MONTHLY		
9TH	M-019	03 APR	COMPTROLLER	NAVCOMPT 145	NAVCOMPTMAN 034401	MONTHLY	NAVCOMPT 7323-2	
9TH	M-020	03 APR	COMPTROLLER	NAVCOMPT 146	NAVCOMPTMAN 034426	MONTHLY	NAVCOMPT 7323-3	
10TH	M-021	03 APR	COMPTROLLER	NAVCOMPT 148	NAVCOMPTMAN 039505, 032504	MONTHLY	NAVCOMPT 7300-1,7403-31	
4TH	M-022	01 APR	COMPTROLLER	LABOR ROLL SUMMARY (NAVCOMPT 2051)	NAVCOMPTMAN 033902	MONTHLY	NAVCOMPT 7410-1	
9TH	M-023	03 APR	COMPTROLLER	NAVCOMPT 2129	NAVCOMPTMAN 032306, 039501	MONTHLY		
9TH	M-024	03 APR	COMPTROLLER	NAVCOMPT 2154	NAVCOMPTMAN 034101	MONTHLY	NAVCOMPT 7323-28	

NAVAL HOSPITAL, MILLINGTON, TN ***COMMAND DIRECTIVES***

NUMBER	DATE	CODE	SUBJECT
1000.1S	19MAY83	128	REGULATIONS FOR PATIENTS
1000.2C	23APR84	125	REEP PLAN, ESTABLISHMENT OF
1000.3	12DEC83	2	REPORTING AND DETACHING REQUIREMENTS FOR STAFF
1001.1	28DEC83	125	RESERVE LIAISON
1001.1 CH 1	20DEC83	125	RESERVE LIAISON
1020.5L	17MAY84	127	UNIFORMS, PROFESSIONAL CLOTHING AND GROOMING
1050.1S	04SEP84	125	LEAVE, LIBERTY AND REG WORKING HOURS FOR STAFF OFFICERS AND ENLISTED PERSONEL
1100.1	28SEP84	125	HOMETWON AREA RECRUITING PROGRAM
1300.1	22MAR84		OVERSEAS ASSIGNMENT SCREENING
1301.1C	28OCT82	128	PHYSICIANS ASSTS; GUIDANCE FOR UTILIZATION OF
1301.1C CH 1	23JAN84	128	PHYSICIANS ASSTS; GUIDANCE FOR UTILIZATION OF
1301.2	29APR80	155	PHYSICAL THERAPISTS, GUIDANCE FOR UTILIZATION OF
1301.3A	04APR83	157	OPTOMETRISTS, GUIDANCE FOR UTILIZATION OF
1306.2B	27JUL82	128	MEDICAL HOLDING CO; POLICY & PROCEDURE
1306.2B CH 1	29MAR83	128	MEDICAL HOLDING CO; POLICY & PROCEDURE
1430.1A	03AUG82	125	ENLISTED ADVANCEMENT POLICY
1510.2K	01SEP82	129	INSERVICE TRAINING PROGRAM FOR STAFF ENLISTED
1520.1K	23NOV84	129	INDOCTRINATION FOR ALL STAFF PERSONNEL REPORTING FOR DUTY
1520.2	04JUN75	125	INDOCTRINATION OF NEWLY REPORTING ACTIVE DUTY PHYSICIANS AND DENTISTS
1520.2 CH 1	18JUN75	125	INDOCTRINATION OF NEWLY REPORTING ACTIVE DUTY PHYSICIANS AND DENTISTS
1600.1F	09MAR84	127	WATCH OFFICERS
1600.6J	25MAR82	125	DUTIES AND WATCHES OF ENLISTED PERSONNEL
1600.6J CH 1	21MAR83	125	DUTIES AND WATCHES OF ENLISTED PERSONNEL
1610.2F	09MAR84	125	PART-TIME OFF-DUTY EMPLOYMENT
1616.1	20DEC83	125	ENLISTED PERFORMANCE EVALUATIONS
1616.2A	09MAR84	127	EXTRA MILITARY INSTRUCTION
1640.1K	22JAN81	127	PRISONER PATIENTS, REGULATIONS CONCERNING
1640.1K CH 1	05AUG82	127	PRISONER PATIENTS, REGULATIONS CONCERNING
1640.2A	15JUN79	127	CONFINEMENT; PHYSICAL EXAMS RELATED TO
1650.2	01JUL84		SAILOR OF THE QUARTER
1700.4C	06DEC84	128	LIAISON FOR VISITING GROUPS
1710.1A	03AUG82	127	RECREATION COMMITTEE; ESTABLISHMENT OF
1730.1B	09JAN81	A	PASTORAL CARE SERVICE
2110.1J	23DEC83	C	INSTRUCTIONS FOR PREPARATION OF DD 173 (OCR) JOINT MESSAGE FORMS
2305.1M	17MAY83	127	OFFICIAL TELEPHONES, USE OF
2740.1G	08FEB84	C	NAVAL HOSPITAL MAILROOM REGULATIONS
3100.1C	10AUG82	127	UNUSUAL OCCURRENCES; REPORTING OF
3141.1F	01MAR84	127	DESTRUCTIVE/HAZARDOUS WEATHER BILL
3440.1K	01MAR84	153	DISASTER PREPAREDNESS PLAN
3440.2B	01MAR84	127	BOMB THREATS
3500.1D	01MAR84	127	INTERNAL DISASTER EVACUATION PLAN
4010.1D	21MAR83	126	PRECIOUS METALS RECOVERY AND DISPOSITION
4101.1A	12AUG82		ENERGY CONSERVATION RESOURCE MANAGEMENT COMMITTEE; ESTABL OF
4200.1	28SEP82	126	UNAUTHORIZED COMITMENTS
4200.2	02MAY84	126	RELATIONSHIP BETWEEN STAFF PERSONNEL AND VENDORS/SALES REPRESENTATIVES
4235.1G	18MAY83	126	REQUISITIONING SUPPLIES AND EQUIPMENT
4630.1B	04AUG82	128	SCREENING OF PASSENGERS AND BAGGAGE IN MEDICAL AIR EVACUATIONSYSTEM

NAVAL HOSPITAL MILLINGTON JCAH/IG DISCREPANCIES

FUNCTIONAL AREA	TYPE	PROBLEM	SUSPENSE	REMARKS
ANESTHESIA	J	FAILURE TO DOCUMENT ANNUAL REVIEW OF POLICIES & PROCEDURES	30JUL86	DEPARTMENTAL MANUAL HAS BEEN REVISED, BUT REVIEW NOT PERFORMED.
EMERGENCY SERVICES		INADEQUATE WRITTEN POLICIES TO COVER:		
	J	A. CIRCUMSTANCES FOR NOTIFICATION OF PATIENT'S PERSONNEL PHYSICIAN.	30JUL86	POLICIES PROPOSED; REVIEW OF IMPLEMENTATION REQ.
	J	B. DISPENSING OF MEDICATIONS IAW JCAH PHARMACEUTICAL SERVICES STANDARD.	30JUL86	POLICIES PROPOSED; REVIEW OF IMPLEMENTATION REQ.
	J	C. SYSTEM FOR EXCHANGE OF HOSPITAL PROPERTY WHEN TRANSPORTING PATIENTS TO ANOTHER HOSP.	30JUL86	POLICIES PROPOSED; REVIEW OF IMPLEMENTATION REQ.
	J	D. USE OF ER OBSERVATION BEDS.	30JUL86	TO COVER TYPES OF PATIENT OBSERVED, MAX PERIOD OF TIME, PT CALL SYSTEM AND TYPE OF OBERSVATION.
GOVERNING BODY	J	BY-LAWS DO NOT SPECIFY PROCEDURES & REQUIRED FREQUENCY FOR MEETINGS.	30JUL86	NAVHOSPMIL INSTR 5450.1 NEEDS REVISION.
	J	BY-LAWS DO NOT ADDRESS RELATIONSHIP OF RESPONSIBILITIES BETWEEN GOVERN BODY AND HIGHER AUTHORITY.	30JUL86	ADDRESSED BY NAVMEDCOMINST 6000.2XX (DRAFT).
	J	BY-LAWS DO NOT DELINEATE RESPONSIBILITY FOR PERFORMANCE OF BASELINE HISTORY AND PHYSICAL ON NEWLY ADMITTED PATIENTS.	30JUL86	NAVHOSP 5000.1A DOES NOT DEFINE WHO WILL PERFORM PHYSICAL EXAM.
AMBULTORY CARE	J	RESPONSIBILITY FOR MEDICAL DIRECTION OF HOSPITAL SPONSORED AMBULATORY CARE SERVICES NOT DEFINED IN WRITTING.	30JUL86	EACH CLINICAL DIRECTOR HAS RESPONSIBILITY.
	J	WRITTEN POLICIES ADRESSING SURGICAL SERVICES PERFORMED IN AMBULATORY SETTING NOT DEFINED.	30JUL86	NHMILLINST 6460.5B COVERS ONLY SAME DAY SURGERY PERFORMED IN SURGICAL SUITE.
	J	NO WRITTEN POLICY COVERING FOLLOW-UP OF BROKEN APPOINTMENTS, NOR EVALUATION OF SYSTEM EFFECTIVENESS.	30JUL86	POLICY AND RECURRING EVALUATION REQUIRED.
MEDICAL STAFF	J	MED STAFF BY-LAWS HAVE NOT BEEN REVIEWED ACCORDING TO FREQUENCY SPECIFIED.	30JUL86	LAST DOCUMENTED REVIEW DEC 1983.
NUCLEAR MEDICINE	J	RADIATION PROTECTION SURVEYS ARE NOT PERFORMED EVERY SIX MONTHS AS REQUIRED.	30JUL86	AMH REQUIRES EVALS EVERY SIX MONTHS. NAVMED P-5055 REQUIRES EVERY TWO YRS.

ALPHA
(((*)))
X = Not required for SNM.
A blank space will indicate SNM is required for item but has not performed the qualifications.

LAST NAME	FIRST NAME	INT	SSN	RANK	DEPARTMENT	CPR EXPIRE	INFECT CONTROL EXPIRE	ELEC SAFETY EXPIRE	FIRE SAFETY EXPIRE	SAFETY OA EXPIRE	LITTER BEARING EXPIRE	MILITARY K&R DATE
AAMODT	JOE	A	123456789	HN	OR	MAR 86	MAR 86	MAR 86	MAR 86		MAR 86	
ACEY	JOE	A	123456789	HA	LAB	MAR 86	MAR 86	MAR 86	MAR 86		MAR 86	
ADAMS	JOE	A	123456789	HM3	PHY THERAPY	JUN 85	JUN 86	JUN 86	JUN 86		JUN 86	
ADAMS	JOE	A	123456789	HN	CO's OFF	JUN 87	AUG 86	AUG 86	AUG 86		AUG 86	
AGUIGAM	JOE	A	123456789	HM1	CO' OFF	SEP 85	MAR 85	MAR 85	MAY 85		MAY 85	
ALEXANDER	JOE	A	123456789	HM2	LAB	AUG 85	AUG 85	SEP 85	SEP 85		SEP 85	
ALEXANDER	JOE	A	123456789	HM3	ER	OCT 85	APR 85	APR 85	APR 85		APR 85	
ALEXANDER	JOE	A	123456789	HN	FAMILY PRAC	JUL 83	NOV 84	NOV 84	NOV 84		NOV 84	
ALEXANDER	JOE	A	123456789	HR	NURSERY 5E	NOV 86	DEC 86	DEC 86	DEC 86		DEC 86	
ALLEN	JOE	A	123456789	HM3	MED REPAIR	OCT 85	JAN 85	JAN 85	JAN 85		JAN 85	
ALLEN	JOE	A	123456789	HA	GENERAL SUG 6E	DEC 86	FEB 87	FEB 87	FEB 87		FEB 87	
ALMONDVAR	JOE	A	123456789	HN	PHARM	APR 84	MAY 85	JUN 85	JUN 85		JUN 85	
ANDERSON	JOE	A	123456789	HN	NURSERY 5E	DEC 85	DEC 85	DEC 85	DEC 85		DEC 85	
ANTONE	JOE	A	123456789	HN	GENERAL SUG 6E		MAY 86	MAY 86	MAY 86		MAY 86	
APPLEWHITE	JOE	A	123456789	HP2	CHAPLIN'S OFF	MAR 86	MAR 85	MAR 85	MAR 85		MAR 85	CURRENT
APPLEWHITE	JOE	A	123456789	HM3	X-RAY	MAR 85	MAR 85	APR 85	APR 85		APR 85	
ARNOLD	JOE	A	123456789	HN	OPS MANAGEMENT	MAR 86	MAR 85	MAR 85	MAR 85		MAR 85	
ASHLEY	JOE	A	123456789	SNCS	ARS CLINIC							
ASPELL	JOE	A	123456789	HM2	OPTHOMOLOGY		NOV 84		NOV 84		NOV 84	
BACH	JOE	A	123456789	HN	ER	MAY 86	MAY 86	MAY 86	MAY 86		MAY 86	
BAER	JOE	A	123456789	SN	RECORDS/BR	JUN 87	JUN 86	JUN 86	OCY 86		JUN 86	
BAILEY	JOE	A	123456789	HN	OB 5E	MAR 86	JUN 86	JUN 86	JUN 86		JUN 86	
BAILEY	JOE	A	123456789	HMCM	MANPOWER			OCT 86			X	
BAILEY	JOE	A	123456789	HM2	SURG CLINIC	DEC 84	AUG 84	NOV 84	NOV 84			
BAKER	JOE	A	123456789	HM2	LAB	MAR 86	DEC 85	DEC 85	DEC 85		DEC 85	
BALDWIN	JOE	A	123456789	HN	X-RAY	MAR 86	MAR 86	MAR 86	MAR 86		MAR 86	OCT 85
BALL	JOE	A	123456789	HN	PPC	NOV 86	FEB 86	FEB 86	FEB 86		FEB 86	
BARELA	JOE	A	123456789	DA	DENTAL	SEP 86	NOV 86	NOV 86	NOV 86		NOV 86	
BARNES	JOE	A	123456789	HM3	OPTHOMOLOGY/BR	AUG 84	AUG 85	APR 85	OCT 86		OCT 85	
BARNETT	JOE	A	123456789	HN	SICK CALL/BR	SEP 86	OCT 86	OCT 86	OCT 86		OCT 86	
BASHAM	JOE	A	123456789	HM2	EDUCATION	JUN 87	JUN 86	JUN 86	OCT 86		JUN 86	
BATEMAN	JOE	A	123456789	LT	ER	AUG 86	AUG 86	AUG 86	AUG 86		X	
BAYS	JOE	A	123456789	HM3	PEDS	APR 86	DEC 86	DEC 86	DEC 86		DEC 86	
BAZINET	JOE	A	123456789	HM3	LAB	FEB 87	FEB 87	FEB 87	FEB 87		FEB 87	
BEACH	JOE	A	123456789	HN	SICK CALL/BR	MAR 86	MAR 86	MAR 86	MAR 86		MAR 86	
BEARDEN	JOE	A	123456789	HM3	ARS	MAY 86	MAY 86	MAY 86	MAY 86		MAY 86	
BEHLER	JOE	A	123456789	HN	ER	JAN 85	FEB 85	FEB 85	FEB 85		FEB 85	OCT 85
BELL	JOE	A	123456789	HR	FAMILY PRAC	OCT 86	JAN 87	JAN 87	JAN 87		JAN 87	
BELL	JOE	A	123456789	HM3	X-RAY	DEC 84	DEC 84					
BENFORD	JOE	A	123456789	HN	MANPOWER	MAY 87	JUN 86	JUN 86	JUN 86		JUN 86	OCT 85
BERNARD	JOE	A	123456789	RN		OCT 85	NOV 85	OCT 85	OCT 85		OCT 85	X
BETO	JOE	A	123456789	LCDR	LABOR 5E	AUG 84	AUG 84	AUG 85	AUG 84		AUG 84	
BILLUE	JOE	A	123456789	LCDR	OR CLINIC	MAY 86	JUL 86	JUL 86	JUL 86		JUL 86	
BIZZELL	JOE	A	123456789	HA	UROLOGY	NOV 86	JAN 87	JAN 87	JAN 87		JAN 87	
BLACK	JOE	A	123456789	HA	GENERAL SUR 6E	FEB 86	MAY 86	MAY 86	MAY 86		MAY 86	
BLANKENSHIP	JOE	A	123456789	HA	GENERAL SUR 6E	APR 86	APR 86	APR 86	APR 86		APR 86	
BLOCKER	JOE	A	123456789	HN	OPD	FEB 87	MAR 86	MAR 86	MAR 86		MAR 86	OCT 85

PHILADELPHIA2
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X - Not required for SNM.
A blank space will indicated SNM is required for item but has not performed the qualifications.

LAST NAME	INT	SSN	RANK	DEPARTMENT	ACLS EXPIRE DATE	CUR CARE EXPIRE DATE	ATLS EXPIRE DATE	ANC EXPIRE DATE	IV 1 EXPIRE DATE	IV 2 EXPIRE DATE	IV 3 EXPIRE DATE	EMT EXPIRE DATE
AAMODT	JC	123456789	HN	OR	X	X	X	X	X	X	X	X
ALLY	JC	123456789	HA	LAB	X	X	X	X	X	X	X	X
ADAMS	JC	123456789	HM3	PHYSICAL THER	X	X	X	X	X	X	X	X
ADAMS	JC	123456789	HN	CO' OFF	X	X	X	X	X	X	X	X
AGUIGAM	JC	123456789	HM1	DA	X	X	X	X	X	X	X	X
ALEXANDER	JC	123456789	HM2	LAB	X	X	X	X	X	X	X	X
ALEXANDER	JC	123456789	HM3	ER	X	X	X	X		X	X	DEC 85
ALEXANDER	JC	123456789	HN	FAMILY PRAC	X	X	X	X	X	X	X	X
ALEXANDER	JC	123456789	HR	NURSERY SE	X	X	X	X	X	X	X	X
ALLEN	JC	123456789	HM3	MED REPAIR	X	X	X	X	X	X	X	X
ALLEN	JC	123456789	HA	GENERAL SURG 6E	X	X	X	X	X	X	X	X
ALMODOVAR	JC	123456789	HN	PHARMACY	X	X	X	X	X	X	X	X
ANDERSON	JC	123456789	HN	NURSERY SE	X	X	X	X	X	X	X	X
ANTOINE	JC	123456789	HN	GENERAL SURG 6E	X	X	X	X	X	X	X	X
APPLEWHITE	JC	123456789	FR2	CHAPLIN'S OFF	X	X	X	X	X	X	X	X
APPLEWHITE	JC	123456789	HM3	X-RAY	X	X	X	X		X	X	X
ARNOLD	JC	123456789	HN	OPS MANAGEMENT	X	X	X	X	SEP 86	X	X	DEC 85
ASBURY	JC	123456789	SKCS	ARS	X	X	X	X	X	X	X	X
ASPELL	JC	123456789	HM2	OPTHOMOLOGY	X	X	X	X	X	X	X	X
BACH	JC	123456789	HN	ER	X	X	X	X		X	X	DEC 87
BAUR	JC	123456789	SN	MED RECORDS/BR,	X	X	X	X	X	X	X	X
BAILEY	JC	123456789	HN	OR 5E	X	X	X	X	X	X	X	X
BAILEY	JC	123456789	HMCM	MANPOWER	X	X	X	X	X	X	X	X
BAILEY	JC	123456789	HM2	SURG CLINIC	X	X	X	X	X	X	X	X
BAKER	JC	123456789	HM2	LAB	X	X	X	X	X	X	X	X
BALDWIN	JC	123456789	HN	X-RAY	X	X	X	X	X	X	X	X
BALL	JC	123456789	HN	PCC	X	X	X	X	X	X	X	X
BARILLA	JC	123456789	DA	DENTAL	X	X	X	X	X	X	X	X
BARNES	JC	123456789	HM3	OPTHOMOLOGY	X	X	X	X	X	X	X	DEC 86
BARRELL	JC	123456789	HN	SICK CALL/BR	X	X	X	X	X	X	X	X
BASHAM	JC	123456789	HM2	EDUCATION	FEB 86	X	FEB 86	X	APR 86	X	X	DEC 87
BATEMAN	JC	123456789	LT	ER								X
BATS	JC	123456789	HM3	PEDS	X	X	X	X	APR 87	X	X	X
BAZINET	JC	123456789	HM3	LAB	X	X	X	X	X	X	X	X
BEACH	JC	123456789	HN	SICK CALL/BR	X	X	X	X	X	X	X	X
BEARDEN	JC	123456789	HM3	ARS	X	X	X	X	X	X	X	X
BEBELER	JC	123456789	HN	ER	X	X	X	NOV 87	APR 87	X	X	DEC 86
BELL	JC	123456789	HA	FAMILY PRAC	X	X	X	X	X	X	X	X
BELL	JC	123456789	HM3	X-RAY	X	X	X	X		X	X	X
BENFORD	JC	123456789	HN	MANPOWER	X	X	X	X	X	X	X	DEC 87
BERNARD	JC	123456789	RN	ER	X	X	X	X	JUL 86	MAR86	NOV 86	X
BETO	JC	123456789	LCDR	LABOR 5E	X	X	X	X	SEP 85	SEP 85	AUG 85	X
BIFFLE	JC	123456789	LCDR	OB CLINIC								X
BIZZELL	JC	123456789	HA	UROLOGY	X	X	X	X	X	X	X	X
BLACK	JC	123456789	HA	GENERAL SUR 6E	X	X	X	X	DEC 87	X	X	X
BLANKENSHIP	JC	123456789	HA	GENERAL SUR 6E	X	X	X	X	X	X	X	X
BLOCKER	JC	123456789	HN	OPD	X	X	X	X	X	X	X	X

Appendix X: Certification Data Base for CSF#7

NAVAL HOSPITAL MILLINGTON TN. SURGICAL SUPPORT TEAM (MMART) #13

99.00 PRIMARY TEAM:	RANK	SSN	CORPS	BILLET	NOBC/NEC	PRD	OF READY TRAINING
JONES, J. R.	LCDR	999-99-9999	2100	GMO	0108	8607	COMPL
SMITH, J.C.	LT	222-22-2222	2900	ICU NURSE	0944	8612	COMPL
DOE, J.W.	HM2	000-00-0000	HM	GEN SVCS	8404	8610	COMPL
DOE, J.W.	HM2	000-00-0000	HM	GEN SVCS	8404	8705	COMPL
DOE, J.W.	HM2	000-00-0000	HM	GEN SVCS	0000	8706	COMPL
DOE, J.W.	HM3	000-00-0000	HM	GEN SVCS	8404	8609	COMPL
DOE, J.W.	HM2	000-00-0000	HM	GEN SVCS	8404	8710	COMPL
DOE, J.W.	HM3	000-00-0000	HM	GEN SVCS	8404	8609	COMPL
DOE, J.W.	HM3	000-00-0000	HM	GEN SVCS	8404	8708	COMPL
DOE, J.W.	HM3	000-00-0000	HM	GEN SVCS	8404	8707	COMPL
DOE, J.W.	HM3	000-00-0000	HM	GEN SVCS	0000	8702	COMPL
DOE, J.W.	HN	000-00-0000	HM	GEN SVCS	0000	8608	COMPL
SECONDARY TEAM:							
SEA, A.B.	LT	777-77-7777	2900	ICU NURSE	0944	8605	COMPL
BURNS, F.A.	HM3	123-45-6789	HM	GEN SVCS	8485	8701	COMPL
BURNS, F.A.	HM2	123-45-6789	HM	GEN SVCS	8404	8711	COMPL
BURNS, F.A.	HN	123-45-6789	HM	GEN SVCS	0000	8703	COMPL
BURNS, F.A.	HN	123-45-6789	HM	GEN SVCS	0000	8706	COMPL
BURNS, F.A.	HN	123-45-6789	HM	GEN SVCS	0000	8705	COMPL
BURNS, F.A.	HN	123-45-6789	HM	GEN SVCS	0000	8601	COMPL
BURNS, F.A.	HM3	123-45-6789	HM	GEN SVCS	0000	8706	COMPL
SOUTHEAST REGION SURG		CADRE	UNIT				
JONES. F.R.	HM3	222-33-4444	HM	GEN SVCS	0000	8609	
JONES, F.R.	HN	333-44-5555	HM	GEN SVCS	0000	8709	

NAVAL HOSPITAL, MILLINGTON, TN ***** RESERVIST TRAINING SCHEDULE *****

SCHED DATES	NAME	RANK/ RATE	NEC/NOBC	HOME UNIT	MOB BILLET	TRAINING NEEDS	TYPE DUTY	WHERE ASSIGNED	CONTACT PHONE#	REPORT DATE	DEPART DATE	HOURS WORKED
850821-23	JONES, B. W.	MAJ		306TH ARMY FH	GMO		ACDT	ER/FP	5921	850821	850823	48
850826-0906	JONES, B. W.	HM1	0000	NRNH CHRYPT 10	0000		ACDT	OPD	5841	850826	850906	80
850826-0920	JONES, B. W.	CAPT	2105	NRFH CZ7A DET	0158		TMC	LAB	5832	850826	850920	80
850903-13	JONES, B. W.	LCDR	2105	NR MED IMA809	0254		ACDT	SURGCL	5918	850903	850913	72
850909-20	JONES, B. W.	HM3	8496	NR NAVMEDCLSEA12	0000	PREVMED	ACDT	BRCL	5652	850909	850920	80
850916-27	JONES, B. W.	MSSN	9730	NRFH CZ HQ18	SK	SUPPLY	ACDT	MATMGT	5814	850916	850927	80
850916-17	JONES, B. W.	HM1	0000	NRFH CZ HQ18	0000	SICKCALL	ACDT	BRCL	5652	850916	850927	80
850916-27	JONES, B. W.	CDR	2905	NRNH CHRYPT 10	2905		ACDT	NRSERV	5808	850916	850927	
850916-27	JONES, B. W.	CAPT	2105	NRNH MILL 109	0214		ACDT	SURGCL	5918	850916	850927	94
851019-20	JONES, B. W.	LT	0851	NRNH MILL 109	0851		WED	PSYCH	5979	851019	851020	16
851019-20	JONES, B. W.	CAPT	2105	NRNH MILL 109	0214		WED	BRCL	5652	851019	851020	16
851019-20	JONES, B. W.	HM3	0000	NRNH CHAS DET209	0000	WARD	WET	NRSERV	5808	851019	851020	16
851019-20	JONES, B. W.	HM2	0000	NRNH CHAS DET209	0000	WARD	WET	NRSERV	5808	851019	851020	16
851019-20	JONES, B. W.	HM2	0000	NRNH CHAS DET209	0000	X-RAY	WET	RAD	5923	851019	851020	16
851019-20	JONES, B. W.	HM2	0000	NRNH CHAS DET209	0000	ADMIN	WET	COD/OOD	5801	851019	851020	16
851019-20	JONES, B. W.	HM3	0000	NRNH CHAS DET209	0000	WARD	WET	NRSERV	5808	851019	851020	16
851021-1101	JONES, B. W.	CAPT	2105	NRNH JAX 109	0115		ACDT	PSYCH	5979	851021	851101	80
851104-15	JONES, B. W.	HM2	8501	NRNH MILL 109	8501	LAB	ACDT	LAB	5832	851104	851115	80
851104-15	JONES, B. W.	DT3	0000	NRNH CHRYPT 10	0000	DT TECH	ACDT	DENTAL	5927	851104	851115	80
851111-22	JONES, B. W.	HM2	8452	NRNH GRTLK 213	8452	X-RAY	ACDT	RAD	5923	851111	851122	80
851111-22	JONES, B. W.	LCDR	2905	CO,FLH CZ 18C	CO	NURS	ACDT	NRSERV	5808	851111	851122	80
851116-17	JONES, B. W.			NAVRESCENMFS		UNIT	WED		5801	851116	851117	16
851116-17	JONES, B. W.			NAVRESCENMFS		UNIT	WED		5801	851116	851117	16
851125-1206	JONES, B. W.	HM3	8451	NRFH COMMZ18	8451	X-RAY	ACDT	RAD	5923	851125	851206	80
851202-1213	JONES, B. W.	HM3	0000	NAS CHAS FIELD	0000	WARD	ACDT	NRSERV	5808	851202	851213	80
851216-27	JONES, B. W.	HM1	8432	4TH FSSG MED BN	8432	FMT	ACDT	BRCL	5654	851216	851227	80
851230-860110	JONES, B. W.	HM2	8452	NRNH MILL 109	8452	X-RAY	ACDT	RAD	5923	851230	860110	80
860106-17	JONES, B. W.	HM1	8404	4TH FSSG MED E	8404	EMT	ACDT	ER	5926	860106	860117	80
860120-31	JONES, B. W.	HM2	0000	NRNH MIL 109	0000	CSR	ACDT	NRSERV	5836	860120	860131	80
860203-0214	JONES, B. W.	CDR	2105	NRNH CHAS 101	0101		ACDT	INTMED	5915	860203		
860203-0214	JONES, B. W.	HN	0000	NRNH MILL 109	0000	EMT	ACDT	ER	5926	860203		
860224-0308	JONES, B. W.	HM2	0000	NRFH COMMZ HQ 18	0000	ADMIN	ACDT	BRCL	5652	860224		
860331-0411	JONES, B. W.	LT	2905	NR CMCHS TM 109	2905		ACDT	MEDMOB	5970	860331		
860407-0418	JONES, B. W.	LT	2905	NRNH CAMPLEJ	2905		ACDT	ANESTH	5914	860407		

Appendix Z: Naval Reserve Training Data Base for CSF#8

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