NURSING OPERATIONS OFFICE REVIEW

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OPERATIONS ANALYSIS
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I. EXECUTIVE SUMMARY

The Operations Analysis Department was requested by Nursing Administration to perform an operations review of the Nursing Operations Office (NOO) for productivity and systems improvements. The scope of this review centered on the two main functions of the NOO, nurse payroll and nurse schedules, along with an overview of the NOO and the feasibility of a Nursing Administrative Network. Major observations are summarized below.

A. Payroll

1. The generation of the Nursing department payroll by ANSOS, the nurse scheduling system, will improve the productivity of the NOO staff, increase the payroll accuracy, and reduce keypunching expense.

2. The current paycheck distribution process, in which the divisional payroll clerks are responsible for handing out the paychecks to their respective divisions, causes unnecessary waiting for Nursing staff and added interruptions to NOO staff.

3. Some units send representatives to the NOO to pick up paychecks for those on duty. This helps to decrease employee flow through the NOO and to improve productivity within the office.

4. The distribution of payroll checks from the NOO is a major cause for the reduced productivity and increased frustration of the NOO staff, especially the payroll clerks.

B. Schedules

5. The four-week unit schedule maintained in ANSOS and referred to on the master sheet is the most vital aspect of the NOO. Most relevant data needed for the payroll and scheduling functions are taken from these four-week schedules. As part of the scheduling process, these schedules are marked, inked, and misplaced by Nurse Administrative Managers (NAMs), the payroll coordinators, and the receptionists.

6. ANSOS's inability to match twelve hour shifts impedes the automation of four-week schedule generation and requires the tedious translation of NAM-made schedules into the ANSOS system by the payroll coordinators.

7. The acuity system is a tedious additive process that will become more burdensome when the relative value units (rvus) are updated.
C. Overview of the Nursing Operations Office

8. Located within a major Hospital hallway, the physical setup of the Nursing Operations Office is the main cause for the reduction of productive staff time.

9. The receptionist's role for the NOO is pivotal and her duties are numerous and extensive. Effectively handling this job helps all employees in the NOO to work better.

10. The divisional secretaries' duties are similarly extensive and overburdening. Due to the heavier workload, tasks accomplished in the past are no longer done (e.g., star charts for nursing units), and current tasks are commonly weeks late (e.g., VIP letters) or performed by Administration. The addition of the new secretary has helped to decrease the load and permit the divisional secretaries to catch-up and finish past work.

11. The agency clerk function is tedious and labor intensive due to the large volume of verification tasks performed.

D. Administrative Network

12. The true needs for an administrative network, at this time, do not appear to warrant the costs of implementation. The approximate costs of implementing a full scale network among the eight Nursing Administrators would range from $25,600 to $36,950. The realization of such a network would increase the availability of patient, employee, and administrative information among the nursing administrators.

The recommendations made in this report are summarized below.

A. Payroll

1. Fully assist and follow through with the implementation of the program interface that will allow for nursing payroll to be automated through the ANSOS system.

2. Utilize one payroll clerk to handle paycheck problems while the other two concentrate strictly on the distribution of the paychecks.

3. Implement a system in which all units for all three shifts send representatives to pick up paychecks for on-duty nursing staff to limit the interruptions and the people flow through the NOO.
4. Move the paycheck distribution function from the NOO to a more convenient area in the hospital. Have one payroll coordinator (or several outside employees/volunteers) hand out the checks and have paycheck problems referred back to the Nursing payroll office.

B. Schedules

5. Establish a long term goal to install the nursing scheduling system (ANSOS) at work stations to eliminate the conflicting dependency upon the master four-week unit.

6. Continue to work on automating four-week schedules, but only with units that present minor obstacles in doing so (i.e., units with no 12-hour shifts or with few 12-hour matches). Wait for Version 10 of ANSOS (scheduled for release in July of 1989) for the ability to generate schedules for all units.

7. Plan to buy and implement the Acuity Scan Module from Atwork Corporation to assist in data gathering and manipulation for the Patient Classification System (PCS).

C. Overview of Nursing Operations Office

8. Continually search for ways to isolate NOO employees from the hallway and all of its distractions. This includes the institution of new work rules, higher partitions with doors, or even major renovations.

9. Further isolate the receptionist so that she may have some control over her desk and her duties.

10. Have the divisional secretaries share phone responsibilities so that one or two of them can fully concentrate on their duties when work is urgently needed by Administration.

11. Utilize information in ANSOS to assist the Agency clerk in the verification duties.

D. Administrative Network

12. Do not implement an Administrative Network among the Nursing Administrators unless further benefits can be identified.

This report discusses the methodologies used in the study, provides a description of the Nursing Operations Office and its job classifications, and provides a detailed analysis of the recommendations, with steps for implementation and possible consequences.
II. METHODOLOGY

The following techniques were used throughout this study to obtain information and results:

1. INTERVIEWING

One-on-one interviews were held with various employees for information about job descriptions, identification of problems, and insight into the functions and tasks performed. The people interviewed are listed below:

A. Theresa Boles - NOO Receptionist  
B. Estelle Jackson - NOO Receptionist  
C. Kim Mathis - NOO Payroll Clerk  
D. Suddie Hampton - NOO Payroll Clerk  
E. Chris Rase - NOO Payroll Clerk  
F. Yvonne Brownlee - Division I Secretary  
G. Phyllis Champine - Division II Secretary  
H. Jan Lunsted - Division III Secretary  
I. Renee Gilchrist - NOO Administrative Secretary  
J. Roberta Abrams - Division I Administrator  
K. Ethylyn Rollocks - Division II Administrator  
L. Sharon Harpootlian - Administrative Manager  
M. Cheryl Beamgard - Project Director  
N. Rhonda Battle - Nurse Adm. Mgr. - H4  
O. Karen Mozal - Nurse Adm. Mgr. - Bl  
P. Kathy Marshall - HFH Main Payroll  
Q. Kathy Nalon - Sinai Hospital Nursing Office Manager  
R. Al Dallaire - Flint Osteopathic Nursing Office Manager  
S. Shirley Bonner - NOO Agency Clerk  
T. Ann Kaiser - U of M Hospital Nursing Office Manager  
Q. Marian Johnson - Atwork Corporation (ANSOS)

2. OBSERVATIONS

Careful observation of NOO staff, their tasks, and their interactions were completed to gain a full understanding of the office. The observations were divided as follows:

A. Observations in Payroll Office

1. ANSOS interaction 8 hours  
2. Payroll function 8 hours  
3. Scheduling function 11 hours  
4. Staff interaction 2 hours  
5. Office interruptions 4 hours
B. Observations in Hallway of the NOO

1. Staff interaction 3 hours
2. Secretarial function 4 hours
3. Office interruptions 6 hours

3. FLOW CHARTING

Flow charts of the functions and processes of the NOO were made to obtain complete understanding of the information flow and to determine all possible bottlenecks. These flow charts describe the schedule, payroll, acuity, agency and cost accounting processes (see Appendix B).

4. SURVEYS

Surveys were distributed to five nursing units to obtain the nursing preferences to various schedules, to nurse responsibility for coverage, and to the current scheduling system. Responses were received from 52 nurses representing units B3, B4, B5, H5, and H6 (FCMC) (Copies of the survey and summaries of the responses appear in Appendix A).

5. DATA COLLECTION

Four-week schedules from the months of September, October, November, and December, 1988 were analyzed for units F5, H6 (FCMC), I1 and H4. This was done to compare the number of schedule changes between fully staffed and understaffed units (see Appendix C).
III. ORGANIZATION OF THE NURSING OPERATIONS OFFICE

A. ORGANIZATION OF THE NURSING OPERATIONS OFFICE

The NOO employs eleven FTE's reporting to the Administrative Manager, who in turn reports to the Nursing Administrator. A detailed organization chart of Nursing Administration and the support staff appears in Figure 1 on the following page.

B. NURSING OPERATIONS FLOOR PLAN LAYOUT

The NOO is located on the second floor hallway and the surrounding offices on A-2. Since this hallway is a major thoroughfare for Nursing Administrators, Hospital Administrators, Nursing staff, patients, and visitors, distractions and interruptions are common. A detailed floor plan of the area appears in Figure 2.
Figure 1: Organization Chart of the Nursing Operations Office
Figure 2.1: Current NOO Floor Plan
C. MAJOR RESPONSIBILITIES

The responsibilities of the NOO are divided into the following categories:

1. Receptionist/Information Coordinator
   This three-shift position is the critical job that coordinates the workings for the office. These people are responsible for phone coverage for the NOO and for Greenfield Healthcare during the evening and midnight shifts, coordination of schedule changes and acuity information, and office guidance and help.

2. Divisional Secretaries
   One secretary is responsible for the secretarial duties for their respective divisional administrators, as well as the division's NAMs, Clinical Nurse Specialists (CNSs), and nursing staff. Duties range from the coordination of new-hires to the facilitation of disciplinary action.

3. NOO Secretary
   This person works in coordination with the Associate Administrator of Nursing Development and Research, the Administrative Assistant, the Administrative Manager, and the Project Director. She is also responsible for coordinating all work going to the general secretary from the divisional secretaries.

4. Payroll Coordinators
   These payroll coordinators are in charge of the Nursing schedule and payroll functions. They are responsible for all inputs and outputs to/from the ANSOS system and to/from the payroll sheets. In addition, their work requires the coordination of pertinent information with their corresponding divisional secretaries and maintaining backup coverage for the receptionist.

5. Agency Clerk
   The agency clerk accomplishes all work pertaining to the agency nurse process. This includes the hiring of agency nurses and posting of information as well as post verification of agency billings.

6. Secretary
   One general secretary performs secretarial typing duties to assist with any overflow of work from the Divisional secretary staff.
D. A REVIEW OF OTHER INSTITUTION'S OPERATIONS

1. University of Michigan Hospital/Nursing Office

The Nursing Office at the University of Michigan Hospital (UMH) functions much the same as the NOO. However, the plan for the UMH for one year from now is vastly different.

Presently, the UMH nursing office scheduling and payroll functions are very similar. Three payroll/scheduling clerks coordinate with five nursing secretaries to manually complete both functions through transcription and copying of pertinent data from the units.

They plan to install 23 ANSOS stations for Head Nurses on each medical-surgical unit to input unit schedules and update these schedules themselves throughout the period. The master ANSOS in the UMH nursing office will then be able to interface with their payroll system to generate the nursing payroll. The payroll coordinator's activities will be maintaining the ANSOS personnel database, generating ANSOS reports and insuring the system accuracy. UMH Nursing Administration is planning to cut one FTE from the Nursing office as soon as full implementation is realized.

2. Flint Osteopathic Hospital/Nursing Office

Flint Osteopathic Hospital's (FOH) plans for the future are to automate much of the Nursing Office through the full utilization of the mainframe and its connection to ANSOS. This will be accomplished by having each unit send all pertinent information (acuity data, schedule changes, status changes, etc.) to the FOH nursing office via the message editor on the unit computer terminal. This data will be interfaced into the ANSOS system so that schedules, acuities and status information in ANSOS will be updated automatically.

3. Sinai Hospital/Nursing Office

Sinai's Nursing Office is also very similar to HFH's current NOO. A Nursing Office Manager is in charge of the secretarial function and the payroll/scheduling function. The payroll/scheduling function is very dependent upon nursing unit input and ANSOS output. They currently have no plans to optimize their productivity through enhancements to ANSOS.
IV. DISCUSSION AND RECOMMENDATIONS

1. PAYROLL FUNCTION

The payroll function of the Nursing Operations Office is simply a mini-payroll department within Henry Ford Hospital for the Nursing Department (see Figure 1 in Appendix B). This payroll office uses data from the four-week schedules to fill out the payroll sheets and continually refer back to these sheets to make changes from schedule changes and employee exception time slips. The sheets are submitted to the Hospital's payroll in Northfield every other Monday before 1:00 PM via cab.

Paychecks are picked up early Thursday morning from HFH payroll by a payroll coordinator, sorted by unit, and alphabetized. Nursing staff drops by the payroll office in the NOO throughout that day and the following Friday to pick up their paychecks from their divisional payroll coordinator. Incorrect checks are brought to the coordinators attention by nursing staff and handled by the coordinators during the paycheck handout process.

Two major problems detract from the productivity and the efficiency of the payroll process. First, the repetitive transcriptions of schedule changes from one source to another can cause errors. Although many of these errors are caught before they cause any true problems, the ones that result in erroneous paychecks require verification, correction, and over-correction in the form of added pay in the next paycheck or the generation of a new check.

Secondly, the distribution of paychecks is laborious and disruptive to all staff involved. The current system has each divisional payroll coordinator responsible for the paychecks for the division. When a paycheck problem arises, those waiting for their checks in that line must wait until the problem is solved, usually taking 2-5 minutes. Furthermore, the numerous nurses waiting in the lines and coming and going from the office are very disruptive to the NOO as a whole.

Recommendation #1:

Support and assist in the implementation of the interface program that will enable the ANSOS system to generate a Nursing payroll.

Discussion:

A nursing payroll generated by ANSOS, the nurse scheduling system, will create tremendous benefits for the NOO. The deletion of the double and triple work the payroll coordinators are currently doing with pay sheets and the ANSOS system will be the major benefit.
From this deletion of extra work, the NOO can realize a rather large labor savings. The time each payroll/scheduling coordinator spends filling out the pay sheets, making changes, and verifying them comes to about two hours per day. For the three coordinators, this would be a labor savings of approximately 30 hours per week.

The Nursing staff averages about 30 special check requests per pay period due to the payroll errors and keypunching errors. Through an ANSOS generated payroll, these errors can be reduced by about 67%, saving the Department about twenty special check requests per pay period. Also, the Hospital payroll will save approximately $10,000 per year in payments to the payroll keypunching firm of CDT because an ANSOS generated payroll will completely by-pass this keypunching activity.

Qualitatively, morale in the Nursing payroll office can definitely increase. The payroll coordinators will no longer be doing the same work over and over again. Increased paycheck accuracy will reduce the conflict between the payroll coordinators and the Nursing staff. Reporting functions will be enhanced and overall nurse satisfaction with the payroll function could enhance better employee relations.

As was done with the former interface, an auditing system to test the accuracy and efficiency of the process needs to be implemented after the program is complete. The process also needs to be test run at least twice and a back-up system (copies of the data on other disks and an ability to use the current manual payroll process) should be maintained in case of system failure.

Recommendation #2

Use only one payroll coordinator to handle paycheck problems while the other two clerks can handle paycheck distribution. This will increase the flow of nurses through the office and increase the efficiency of the paycheck-handout process. If only two clerks are working, then have one clerk hand out checks and the other one deal with the erroneous paychecks.

Discussion:

The current paycheck distribution process involves the three divisional payroll coordinators handing out paychecks to the respective divisional Nursing staff on a first-come/first-serve basis. When a paycheck problem arises, the coordinator works with the employee until they arrive at a solution. Those in that line must wait until the problem is cleared before they are able to get their check. If one divisional queue is empty while the other two have several employees, the idle clerk will usually help the other clerks to speed up the process.
By having one clerk solely responsible for the problem paychecks, the waiting times for all Nursing staff to pick-up their paychecks should be greatly reduced. Lines that run into the hallway will either be shortened in a timely manner or will not get the chance to become long in the first place. Interruptions for NOO staff outside the payroll office will decrease with the improved flow of Nursing employees in and out of the office.

One possible drawback to centralizing the paycheck handout is that the divisional payroll coordinators may lose touch with the employees of their division to some degree. They may also not always be able to see the mistakes made that caused the paycheck problem. But by rotating the 'troubleshooter' position among the three clerks per pay period, they will be able to see all the mistakes made by all three clerks and learn from everybody's mistakes.

Recommendation #3:

Implement a system in which unit representatives for each shift pick up paychecks for all working nurses. In other words, a representative from each unit for the night shift will pick up the unit paychecks around 6:30 am. A representative from each unit on the day shift will pick up the unit paychecks at some prescribed time during the day and a representative from each unit on the evening shift will pick up the unit paychecks during the beginning of their shift (e.g., 4:00 pm).

Discussion:

Currently, many of the units do indeed pickup their paychecks on a batch basis. This reduces the people flow through the NOO and leads to a higher productivity of NOO staff. If all units per shift were to pick up their paychecks, the people flow would be further reduced as would the lines in the payroll office.

The system would have to be supported by Nurse Administrative Managers and Nursing Administration and followed by each shift. Nursing staff should also be told how such a process would aid the NOO and improve its overall performance.

Recommendation #4:

Remove the paycheck handout process from the payroll office and put in an area of hospital that would not adversely affect employee productivity (e.g., the cafeteria). Rotate the payroll coordinators as supervisors during the payday Thursdays for the handing out of the checks with the assistance of an additional employee and the other two coordinators as problem solvers to erroneous paychecks back in the payroll office.
Discussion:

By removing the routine distribution of paychecks from the NOO, each payroll coordinator can save approximately three labor hours per pay week. Currently, the paycheck distribution process requires the three payroll clerks to continually deal with the Nursing staff for two days -- constantly being interrupted from their duties. Paycheck hand-out outside of the office would allow the payroll clerks to deal with only the employees with erroneous paychecks without the waiting lines and confusion that accompanies the payroll process.

2. SCHEDULING FUNCTION

The scheduling function in the NOO revolves around the ANSOS system and the four-week unit schedules (see Figure 4 in Appendix B). The four-week schedules are manually completed by the assistant Nurse Manager. These are then given to the payroll clerks for manual entry into ANSOS, which prints out a hard-copy unit schedule. These schedules are then referred back to daily by Head Nurses, receptionists, and the payroll clerks to make changes. The payroll clerks then input these changes on a daily basis into ANSOS for accurate reporting and reference purposes.

One of the major problems regarding the scheduling system is the conflicting dependency the nursing staff and the NOO staff have on the four-week schedules. Head Nurses and NOO staff manually update the scheduling sheets throughout the four-week period. The single largest reason for interruptions coming into the NOO is due to the changing of schedules by NAM's either in person or by telephone. This mutual dependency can also create endless double and triple transcription work and employee frustration.

Another area of concern is the extent of the utilization of ANSOS. The current use of the system is limited due to several factors. First, the current version of ANSOS does not reflect today's flexible scheduling options. Twelve hour shifts cannot be handled by ANSOS for the generation of four-week schedules. Thus, the current manual and transitional schedule generation system continues. Second, modules such as the FTE Control, the Budget Planner, and the Graph module that are available for ANSOS are too costly and can be more easily accommodated through other computer management programs.

The Acuity Scan Module, on the other hand, provides for an effective PCS system, but it would require a renovation of HFH's current acuity system to be implemented.
Recommendation #5:

Further utilize the capabilities of ANSOS and eliminate mutual staff dependency upon schedules by planning to install ANSOS on each unit or in work stations for the Head Nurse and NAM staff.

Discussion:

As mentioned above, the nursing staff and NOO staff's dependency upon the four-week schedules creates confusion, more work, and frustration. Setting up ANSOS work stations would streamline the scheduling process so that the payroll clerk's involvement in the process would be limited. Nursing Staff would be directly responsible for schedule generation and making all necessary changes to the schedules through the ANSOS work stations.

Until work stations are installed, the multiple transcription process will have to continue. There currently appears to be no better, feasible way that schedules and the changes made to them can be facilitated.

Setting up of these work stations will initially require a substantial effort, appropriate space, the capital for the initial investment, and system reliability testing. The University of Michigan Hospitals is currently setting up ANSOS stations on each unit and can be referenced to as a test site prior to implementation.

However, these work stations in the long run will change the NOO dramatically. The conflicting dependency that the NAM's and the scheduling coordinators have on the four-week schedules will cease as will the manual, transitional process of relaying schedule information back and forth between the units and the NOO. No longer will NAM's need to bother the coordinators or the receptionist for the schedules. Furthermore, these work stations will allow for labor savings of at least twenty hours in the payroll office per week and for increased accuracy in the scheduling and payroll functions.

Recommendation #6:

Plan ahead for Version 10 of ANSOS, which will be able match twelve hour shifts and generate four-week unit schedules for all HFH units (Version 10 is scheduled for release in July of 1989).

Discussion:

The current version of ANSOS is unable to match the twelve-hour shifts and therefore unable to generate unit schedules. The upcoming Version 10 will be able to simultaneously schedule all three shifts together so that twelve hour shifts can be mixed and matched appropriately. This will allow ANSOS to utilize the
current information stored in the Staffer and Controller and generate unit schedules automatically.

Currently, programming is being done to allow ANSOS to generate schedules for various mixed units. Since Version 10 of ANSOS accomplishes the same thing automatically, it is recommended that further programming efforts be put on hold until the new release is implemented.

In the meantime, Nursing Administration should keep in touch with Atwork Corporation about Version 10 to remain up-to-date about the progress and capabilities of the new release.

Recommendation #7:

Plan to purchase and implement ANSOS's Acuity Scan Module.

Discussion:

Through the ANSOS Acuity Scan Module, the Nursing Department will be able to correctly and automatically total the Relative Value Units (RVUs) of each attribute for every patient on the unit. This data can then be interfaced with ANSOS to produce efficient and accurate staffing plans and management reports.

Currently, ANSOS cannot accept individual attribute values for each patient, so these values must be summed before being entered in the system. The Acuity Scan Module would streamline this tedious additive process and directly input the data into the ANSOS system. Thus, staffing for upcoming shifts, budgeting for future care-hours, and comparing HFH's Nursing Care to the National Nursing care standards will be accomplished more efficiently and accurately.

The costs for this module and for the scan machine offered by National Computer Systems can be seen in Appendix E. There is a possibility that the scan machine could be purchased from Flint Osteopathic Hospital for a lower cost since FOH does not currently use their scan machine for the Acuity Scan module.

The purchase of this module depends upon Nursing Administration's priority for an accurate and effective PCS system upon which to base management decisions.
3. OVERVIEW OF NURSING OPERATIONS OFFICE

The overall NOO productivity is greatly affected by the location of the office and its setup. Many hospital employees, patients, and visitors pass through the office each day. When these people know a NOO staff member, they will usually interrupt them to greet them on their day. Through observations, it was noted that interruptions, whether for business (77%) or conversation (23%), were commonplace and frequent. Furthermore, many of the business interruptions (37% of them) turned into idle conversations and became mixed interruptions (see Table 1).

The blame for most of these interruptions must be placed on the office setup and the atmosphere that persists in the hallway. The cubicles in the NOO are poor barriers against outside noise and people due to the low height of the walls and the lack of cubicle doors. Furthermore, NOO employees and outsiders do not consider the interruptions as a wrongdoing. They more so consider them as part of the job and expected when working in a hallway.

Table 1. Interruption Results based on 4 hour observation period

<table>
<thead>
<tr>
<th></th>
<th>Receptionist</th>
<th>Payroll Coordinators</th>
<th>Division Manager</th>
<th>NOO General Manager</th>
<th>Agency Clerk</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Interruptions</td>
<td>44</td>
<td>15</td>
<td>19</td>
<td>12</td>
<td>23</td>
<td>40.00</td>
</tr>
<tr>
<td>Non-business Interruptions</td>
<td>23</td>
<td>12</td>
<td>5</td>
<td>2</td>
<td>23</td>
<td>22.90</td>
</tr>
<tr>
<td>Mixed Interruptions</td>
<td>20</td>
<td>36</td>
<td>12</td>
<td>8</td>
<td>30</td>
<td>37.10</td>
</tr>
<tr>
<td>Total Interruptions</td>
<td>87</td>
<td>63</td>
<td>36</td>
<td>22</td>
<td>76</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Classification of Business (Mixed) Interruptions

1. Receptionist: 32 Questions for Location (9)
2. Payroll Coordinators: 40 Questions for Location (21)
3. Divisional Secretary: 22 NAM (12)
4. NOO Admin. Secretary: 15 NOO Staff Interaction (1)
5. Agency Clerk: 8 Questions by Nurse (3)
6. NAM (3)
7. Miscellaneous (2)
8. Nurse Administrator (1) 3 Acuity Dealings (10)
9. 3 Miscellaneous (2)
10. Delivery (3)
11. 2 Miscellaneous (1)
Ideally, the secretarial staff and payroll and agency clerks would work in isolation from the outside, only being interrupted by employees who had already been screened by the receptionist. For this to happen, though, the hallway would have to be widened by five or six feet would mean renovation to the main lobby below A-2 and the removal of the center wall in the hallway (see Figure 2.2).

Tasks that are delayed or unfinished by the NOO staff is summarized in Appendix F.

Recommendation #8:
Continually search for improvements that will further separate the NOO employees from the hallway and all of its distractions.

Discussion:
This recommendation can be realized through various methods. For example, one method would be to increase the wall partition height and add doors to the Division I secretary's, the NOO secretary's, and the agency clerk's cubicles to further remove them from possible interruptions.

In Table 1, the numbers and types of interruptions upon the NOO staff over a six hour period were reviewed. There appears to be a definite correlation between the location and atmosphere of the NOO and the number of distractions. By creating barriers, both physical (as in taller cubicles with doors) and mental (as in work rules and norms against idle conversation and a more stricter atmosphere), the NOO staff can work more productively within the hallway.

Recommendation #9:
Search for possibilities to increase each receptionist's control over her work and desk.

Discussion:
The receptionist's work area is right in the hallway with no walls for separation from outsider's. Her desk is continually approached by various employees to use materials she is working on or to use her phone when she is not using it. This situation interferes with her duties and with the flow of the NOO. When an outside phone call comes into the office and some outside employee is on the phone, the receptionist must run into the payroll office to answer the call. When she comes back to her desk, she may find that the schedule that she was working with is gone and the phone is still being used. This type of scenario is not uncommon and thoroughly disrupts the productivity of the receptionist.
One way to reduce these problems would be to have a new desk with protecting walls above the desk to shield from intruders. These desks are common among receptionists and would give the NOO Receptionist a domain she could call her own and enforce upon others.

Recommendation #10:

The divisional secretaries should work with each other in sharing phone duties, so they can each have opportunities to finish other work without phone interruptions.

Discussion:

This recommendation evolves from the fact that handling phones can disrupt the tasks that are being worked on. By setting up a system where one of the divisional secretaries can count on a fellow divisional secretary to handle her phones for several hours, then other management work can be given her full concentration without interruption. It may even be helpful to establish set "phone-answering" times, which could vary on a day to day basis (if necessary) so that all secretaries can begin to balance their workload into phone vs. non-phone activities.

Further consolidation of the secretaries activities is not, at this time, practical, primarily because the divisional work depends upon the respective secretary's knowledge of that division. The recently added secretary to handle the divisional typing overflow and cover for absent secretaries has helped to relieve some of the overburdening work and frustrations of the divisional staff.

Recommendation #11:

Utilize the information that is maintained in ANSOS for verification purposes for the Agency clerk.

Discussion:

Currently, the verification duties performed by the Agency clerk take much of her time and are frustratingly tedious work. The information that the Agency clerk needs for verification is stored in the ANSOS system and can be utilized to improve the efficiency of the verification process.

However, there are currently not enough ANSOS systems within the NOO to allow the Agency clerk to routinely utilize the system. To overcome this, the Agency clerk would either have to use the ANSOS system after the payroll clerks are finished for the day or set a time during the day during which the Agency clerk could work on ANSOS.
4. NURSING ADMINISTRATIVE NETWORK

The implementation of a network among the eight Nursing Administrators would give them easy access to valuable information. But the costs to implement such a network are rather high and need to be considered before an Administrative Network is implemented.

Recommendation #12:

Do not implement a Nursing Administrative Network unless further benefits can be realized from the required computer equipment needed.

Discussion:

The benefits that a network would provide include the ability to obtain admitting figures, access to employee files, and access to a computer mail system to streamline inter-administrative information needs. Administrative staff could relay information back and forth without the usual paperwork and without delays. Management information that currently must be searched for in files, such as personnel records, or requested through other departments, such as the Admitting statistics, could be accessed when needed without asking secretaries or clerks for assistance.

The estimated costs to set up the network are shown in Table 2. A complete system with the basic software package would cost $25,600.00. With the Novell software package and a file server CPU, the estimated costs for a network is approximately $36,950.00.

Administrative Network Participants:

1. Nursing Administrator
2. Senior Associate Administrator
3. Associate Administrator
4. Associate Administrator
5. Associate Administrator
6. Administrative Assistant
7. Administrative Director
8. Project Director

The extensive costs for the network are because four of the eight Nursing Administrators have no computer hardware at all. If four IBM personal computers could be purchased less expensively through the hospital, and if the four Nursing Administrators had additional needs for the use of these personal computers, the implementation of a Nursing Network would definitely be a more attractive decision.
Table 2. Administrative Network Costs

<table>
<thead>
<tr>
<th>Administrative Hardware/Software Needs:</th>
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<tr>
<td>4 Work Stations (IBM PS/2) at $3200.00 each</td>
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<tr>
<td>8 Network Controller Cards at $600.00 each</td>
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<td>8 Network Software Packages at $300.00 each</td>
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<td>1 Multi-Station Access Unit at $600.00 each</td>
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<tr>
<td>Cabling, Installation, and Training Costs</td>
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<td><strong>Total Costs for Network</strong></td>
<td><strong>$25,600.00</strong></td>
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If Novell Network Package is Chosen:

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<tr>
<td>1 Operating System Software</td>
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<td>1 File Sever CPU</td>
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<tr>
<td><strong>Total Costs for Network with Novell</strong></td>
<td><strong>$36,950.00</strong></td>
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Discussion of Survey and Data Collection Results:

Several conclusions can be drawn from the surveys and the data collected about past schedule changes. First, based on the surveys, the nurses prefer the current variable scheduling system (rated 8.3 on a scale of 10) compared to a set two-week schedule (3.3 on a scale of 10) or three rotating set schedules (2.5 on a scale of 10). They also appear to feel strongly that the NAM's should continue to bear the responsibility for covering for absent nurses at all times (see Appendix A).

Data from past schedules reflect that there is a rather large difference in schedule change volume between fully staffed and understaffed units. Units H4 and H6 (FCMC) were the fully staffed units tested and units I and F5 were the understaffed units tested. The schedule change volume rates were 4.4 and 4.1 changes per employee for H6 and H4 respectively, and 7.7 and 6.9 changes per employee for I and F5 respectively (see Appendix C).

The effect of large numbers of schedule changes is to detract from the accuracy and capability of both the payroll and the scheduling functions. Each time a schedule change occurs, the NAM has to relay the information to the receptionist and/or the payroll coordinators, who in turn use this information to input into ANSOS or the payroll sheets. The more the schedule changes, the more the work and chance for error come into play.

Schedule changes can also affect the Nursing Hours of Care (NHC) given to patients if coverage for an absent nurse cannot be realized. In these cases, the overall NHC for that unit decreases.
Because the sample size is rather small (4 units), the evidence that the staffing of the units is the sole reason for the difference in schedule change volume is not conclusive. Another reason for the difference may be the ability of the NAM or Assistant NAM to effectively plan and schedule the unit staff.
V. SUMMARY

The review of the Nursing Operations Office (NOO) found that there are two overriding factors impeding the progress of NOO employee efforts. The first factor revolves around the capabilities of the Nurse Scheduling System, ANSOS. By fully implementing ANSOS's capabilities -- the generation of payroll, the Acuity Scan Module, the automation of the schedule generation process, and the use of ANSOS work stations -- the NOO would be able to perform its two main functions, payroll and scheduling, much more efficiently and accurately (see Figure 4 in Appendix B).

The second factor affecting the NOO's efficiency is its physical situation within a main hospital hallway. Interruptions, distractions, idle conversations, and an unproductive atmosphere are the results of the office's current location. Seeking ways to limit these distractions and create a more productive atmosphere will definitely improve the productivity and effectiveness of the NOO.

The expected increase of 200 FTE's in nursing staff will increase the workload of several functions within the NOO. (see Appendix D). Through an automated payroll and the distribution of paychecks taken outside the NOO, the NOO can realize an hourly labor savings of 35 hours per week. Further investments in implementing the Acuity Scan module, ANSOS work stations, and the NOO physical setup will increase the labor savings to possibly 60 hours per week. The NOO's ability to handle the upcoming work increase and to effectively accomplish its current activities depends upon its investment in ANSOS and in the physical office setup.
Figure 2.2: NOO Possible Future Floor Plan
APPENDIX A

Scheduling Preference Survey and Results

1. Survey Copy
2. Table 1: Summary of Nurse Preferences
3. Section 2: Summary Questions 2, 4, 5, and 6
Henry Ford Hospital
Nursing Department Staff Scheduling System
Nurse Opinion Survey

Please take a few minutes of your time to answer the following questions regarding our current nurse staff scheduling system. This survey is intended to give you an opportunity to express your opinions and preferences on this matter. Results of this survey will assist the nursing department management in making future staff scheduling system decisions.

1. Please rank the following scheduling system alternatives for your preference. (1 = Low Preference, 10 = High Preference)

   A. Variable Scheduling - Staff schedules are allowed to vary from week to week during each 28 day schedule. (Current Method)
      RANK ___

   B. Fixed Scheduling - Staff schedules are based on a fixed 14 day pattern which repeats every 14 days.
      RANK ___

   C. Cyclic Scheduling - Staff schedules are based on a fixed 28 day pattern which are designed to rotate every 28 days.
      RANK ___

2. Please circle the letter preceding the correct response:

   a. My HN or NAM is always responsible for having someone to cover for me when I request a day off.
   b. My HN or NAM is usually responsible for having someone cover for me when I request a day off.
   c. I am usually responsible for having someone to cover for me when I ask for a day off.
   d. I am always responsible to get a fellow nurse to cover for me when I request for a day off.
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Question # 2 Comments:

Unit: B5
- I wouldn't want the responsibility to cover for myself.
- I have no problem with this. When you have ? days off you can plan in advance for appt? ech?

Unit: H6
- I prefer the responsibility to stay like it is, I don't want the responsibility.
- I don't think it would work, there are times after the schedule is out that something came up and everyone already had plans and often can't cover for you.
- Sometime people are more cooperative if the head nurse confronts them with the schedule.
- No.
- I would not.
- I would not want to.
- I could live with it.
Unit: B3
- I don't know.
- I would agree.
- No, I would not like to have that responsibility. It can be quite inconvenient.
- This would be very inconvenient and it would be very confusing. I would not like having this responsibility.
- Not good.
- I would not. I don't see half of the staff due to my working 12 hour shifts. It would be difficult to cover myself.
- I would not like the responsibility for covering.
- I would prefer to have the NAM to schedule coverage.
- No.
- I think we should attempt to cover our own days off first then if a problem arises bring it to the attention of the HN or NAM.

Unit: B4
- I would not like to have to cover for requested days off. HN, NAM would receive all requests at the same time, this would make it much easier to make schedule. People will except change if the head of the department has made the schedule, better than someone asking to change your day.
- Would not like it, because you can't get people to switch especially if it means working more days for them.
- I would like to have full responsibility in covering me because then I would know that i was covered and my staff wouldn't have to be short.
- Basically doing this on my own nurses, somewhat - management is still fill the gaps.
- Wouldn't mind.
- OK.
- NO.
Unit: H5

- I would not like full responsibility for covering my schedule.

- Not good, because of rotation. This would be feasible if permanent staffing were number 1 priority.

- No - it would be too much of a hassle.

- That would be very hard.

- I feel my head nurse is usually more successful in finding someone to work for me should I need a day off. I wish I would not have full responsibility to cover for myself.
Question # 4 Comments:

Unit: B5
- Never work five days straight. However this doesn't happen often.
- Someone other than a clerk to make out the schedule, sometimes it gets very nasty. Starting 1/1/89 I will let the SUC on I5 make my summer vacation schedule. Thanks.

--------

Unit: H6
- None.
- It would be nice if the scheduling could be changed to give us, on some weekends a three day weekend if possible. Otherwise the system is ok as it is.
- If you work extra time during a holiday pay week that you are reimbursed.
- Working 12 hours, I do not like working days for a few, then a night 7p-7a the next day back working days again with only 1 day to rest.
- None.
- I feel that we should not have to make up weekends that fall within our vacation time.
- Nothing.
Unit: B3

- Constant rotating of some staff persons, permanent afternoon staff.
- Rotating shifts. I would like to see permanent shifts, especially for 10 years or more.
- More permanent afternoon staff.
- More permanent staff on afternoons.
- More 4 day weekends off, more 8 hour on one weekend day.
- I would appreciate scheduling either a monday after working a weekend as an off day or the friday off, before working the weekend, so I will not have such a heavy four days.
- Nothing.
- I prefer 8 hour shifts.
- Rotating schedule.

Unit: B4

- Staff should have a little more input on their schedules before it is final.
- If you have worked the weekend, you should defines be off monday, no later than tuesday.
- None.
- Final (schedule) out two weeks ahead. Two month scheduling.
- OK, fixed days.
- Schedules should be more flexible and out earlier.
Unit: H5

- I would like to see my schedule change each month.
- None.
- Do not count bodies for med passers, but look at necessity of patient care first. We need good nursing care and we need more nurses in management.
- Shift differential for weekends plus a bonus and shift differential for working an extra weekend.
- I would like to see staff working specific shifts i.e. being lined for shift of choice. I strongly believe rotating shifts are unnecessary.
Question # 5 Comments:

Unit: B5
- None. She takes vacation all the time. <Mrs. White SUC I5>
- Our NAM works well with our requests.

Unit: H6
- I like the different days off from week to week.
- Every other weekend off.
- The flexibility !!!
- The flexibility.
- I like working 12 hour shifts and having a few days off in a row.
- Knowing 1 month in advance what the schedule is going to be, CTO when available (depending on staffing and acuity), flexibility in advanced time off.
- 12 hour shifts, trying to give longer weekends, the cooperation shown for school days, flexibility of it.
- Variability.
- I like the variability of the schedule.
Unit: B3

- Variable, there's always a lot of team effort on everyone's part.
- 12 hour shifts.
- Variable.
- Variable scheduling and 12 hour shifts.
- All.
- The rotation of days. Getting extra weekends off.
- More days off, etc, 3 and 4 off.
- Having the flexibility to change the schedule when possible to fit our own needs and schedule.
- I have no objection to the present scheduling, except mention above.
- The flexibility.
- I like knowing what weekends I have off for long range planning.
- Flexible shift preference.

Unit: B4

- The unit makes it own schedule and covers itself at all possible. Then check cross coverage. But the basis is each floor being responsible for its own unit.
- The way it is.
- Like the idea of people making own schedule.
- Able to make out my own schedule.
- I get most of my requested days off.
- Predictability.
- Cadrey.
Unit: H5

- Split days in a week.
- Having different days off in a week.
- The schedule is out in time to make plans or require changes. You can see at a glance what nights are short, but why not also make arrangements to cover those shortages.
- Every other weekend off.
- Not being forced to work overtime (mandatory OT).
- I like every other weekend off and the fact you are not forced to work OT. Also that our head nurse really tries to give us vacation and time off as requested.
- I like to have 2 or 3 days off together whenever I work 12 hour shifts.
Question #6 Comments:

Unit: B5

- I feel the head nurse or NAM should make the clerks schedule or have someone else to do it. I feel it is very wrong to have another clerk to make clerks schedule. It will never be fair. And the head nurse do not look at the clerk schedule, so she never knows if it is unfair until her attention is called to the schedule, then it is too late. I hate to ask for a vacation or a day off.

-------

Unit: H6

- When one asks for a CTO as U day, why would you have to call back at 9 or 10 to see if it's granted. Staying up or having to call, you may as well come in.
- Would like scheduling the way it is now.
- I am not worried, I am happy.
- Would like scheduling to remain the same (variable).

-------

Unit: B3

- Each floor covering itself to eliminate pulling so much.
- No changes.
- Move 12 hour staff to cover afternoon shortages.
- Please hire more permanent afternoon staff.
- More even coverage, that is, same amount coming @ 7 pm as leaving @ 7 pm.
- Lets all of us share Wednesday as an off day.

-------

Unit: B4

- We should not have to work two weekends in a row for vacation, that is time that is our's and we earned it.
- None.
- Trying (to have) everyone do their own schedule.
Unit: H5

- I would like to see my days off together.

- Jane Solomn is an excellent assistant head nurse and she needs support as we all do. But she is excellent — and I would hope to be here for her to fill some needs.

- I think weekend differential payment would help weekend coverage (15%) for all nursing personnel.

- Since I am a 12 hour day and afternoon rotator, I would much prefer to work (3- 12 hour shifts and 1 - 8 hour day) allowing me to have 3 days off per week without being short, i.e. 80 - 86 hours instead of 76 hours per pay period.
APPENDIX B

NOO Function Flow Charts

1. Payroll/Schedule
2. Agency Nurse/Cost Accounting
3. Acuity Process
Current Schedule/Payroll Function

Schedules are created by Unit NAM or Assistant NAM.

Schedules are sent to NOO.

Schedules are input into ANSOS by Coordinators.

Need for Schedule change is instituted by Nurse, who informs NAM.

NAM goes to NOO to mark schedule change on 4-week schedule.

NOO coordinator highlights change on schedule as the change is input into ANSOS.

ANSOS utilizes updated data for management reporting functions.

Future* Schedule/Payroll Function

ANSOS generates a 4-week schedule.

NAM picks up generated schedule.

Schedule change or exception time slip need is realized.

NAM goes to ANSOS station and inputs information.

ANSOS utilizes interface program to transform data into readable data for payroll system.

Readable data on tape is sent to Northfield.

ANSOS utilizes updated data for management reporting functions.

Paychecks are made in Rochester.

Paychecks are returned to NOO for handout.

* Through implementation of ANSOS work stations, automation of the scheduling/payroll, and automation of the four-week schedules.

Comparison of current scheduling/payroll process to future possibility.
START

Four week schedule is generated.

Need for extra nurse help is identified by NAM or Ass't NAM.

Current unit nurse staff can't handle the identified need.

Outside unit nurse available?

NO

HFH contingency nurse available?

NO

Agency nurse is considered.

Agency nurse sheet sent to HN and division head for approval.

Sheet sent to NOO agency clerk.

YES

Agency nurse is notified.

NO

Agency is notified of hiring and sheet is posted in agency binder.

Need for agency nurse still exist?

NO

Agency is notified of cancellation.

YES

Agency is notified of hiring and sheet is posted in agency binder.

Need for agency nurse still exist?

NO

Agency nurse works and agency is paid in batch per month.

YES

Agency cost accounting unit sheet is completed weekly and referred to for ANSOS input.

END

Figure B2: Cost Accounting and Agency Nurse Process
PCS forms in triplicate are stationed in NOO at beginning of day in a unit file.

Unit clerk picks up PCS forms at start of day shift.

Relevant acuity information is logged on forms (1 form/shift) and sent to NOO two hours before shift is over.

NOO receptionist logs acuities onto unit log sheet and into ANSOS and prints out shift coverage sheet of working nurses, patient census, and float pool.

Division coverage sheet is referred to by NAM for unit census figures.

Data on printout is used by NAM to determine staff ability to handle current patient load.

Day and evening PCS forms are thrown out while the night form (having all three shifts' data) is sent to Troy for data entry.

START

END

Figure B3: The Acuity Process
APPENDIX C

Schedule Change Data and Charts

1. Table C1: Schedule Change Rates
2. Figure C1: Total Schedule Change Rates
3. Figure C2: September Change Rates
4. Figure C3: October Change Rates
5. Figure C4: November Change Rates
6. Figure C5: December Change Rates
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Table C1: Schedule Change Volume (Rates) per Unit

![Total Schedule Change Rates](image)

Figure C1
Schedule Change Rates - September, 1988

Schedule Change Rates - October, 1988
APPENDIX D

Effects Upon NOO by 200 new FTE's

1. Payroll/Scheduling Coordinators
2. Divisional Secretaries
3. Agency Clerk
4. Receptionist
APPENDIX D

Effects of 200 additional Nursing personnel on the effectiveness of the Nursing Operation office.

The Payroll/Scheduling Coordinators:

As can be seen from Table 1D, the percentage of work completed by the coordinators with direct interaction with the individual nursing staff is approximately 87%. An additional 200 FTE's (16.7% increase) will burden the staff with an additional 14.3% increase in work per day. This translates into an additional one hour and ten minutes of work per coordinator per day. These figures do not consider the labor effort entailed in initiating the 200 FTE's into the payroll/scheduling system.

Through the labor reduction projected with the automatic generation of the nursing payroll, staff should be able to handle the expected increase. But the intention for reducing the coordinator's workload through an automated payroll was so that they would be able to concentrate on management reporting functions and to insure the accuracy of what they are currently doing. The extra 105.0 projected hours the coordinators will have available can be invaluable in helping them complete their tasks as well as facilitate the workings of the rest of the office.

The Divisional Secretaries:

The divisional secretaries are also currently having difficulty completing their prescribed work without overtime labor or help from the NOO secretary or their administrators. An additional 200 nursing FTE's would increase each divisional secretary's workload by approximately 4% or twenty minutes per day.

The Agency Clerk:

The Agency Clerk's role will change in the near future due to the additional 200 FTE's. The position workload is expected to increase with the addition of new responsibilities (supporting a larger HFH contingency nurse pool) as well as continuing to deal with the four outside nurse agencies. Without systems improvements to handle this increased workload, the Agency clerk may also require additional help.
The Receptionist:

The primary duties of the receptionist that would be affected by the additional 200 FTE's are answering the phone calls, making schedule changes and providing office guidance/assistance. These duties are approximately 40% of her job, and therefore she would have an approximate labor increase of 10% (one half hour per day). Through the utilization of the Acuity Scan Module, the receptionist should be able to handle the FTE increase.

Overall, the NOO will be affected quite a bit through the addition of 200 nursing FTE's. Not only will the NOO service staff have more work, but the Nursing Administration, especially the Divisional Administrators, will see their daily workload increase. Without some type of planning to handle this influx of nursing personnel, the NOO will eventually see itself bogged down by the increased workload.
The following tables compare the current hours worked for each task by the NOO staff to the hours that will need to be worked with the addition of 200 nursing employees. The data was obtained through both observation and interviews with the NOO staff. Since the payroll coordinators will be affected with the additional employees, a four part analysis follows with the current situation, with the implementation of recommendations, with the addition of 200 employees, and with both the addition of 200 employees and with implementation recommendation.

### Table 1D
**WITHOUT ADDITIONAL 200 NURSES**

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<tr>
<td><strong>Fixed Total</strong></td>
<td>57.0 (13%)</td>
<td>57.0 (19%)</td>
<td>147.0</td>
</tr>
</tbody>
</table>
If the 200 nursing employees are added, the total number of hours the three payroll coordinators will have to work will be approximately 522.5 hours per four weeks, an additional 66.5 hours.

As you can see, through the implementation of recommendations (Automated nursing payroll, automated schedule generation, and removal of paycheck distribution), the payroll office staff will still have an additional 105.0 labor hours per month in the payroll office even with the extra nursing staff. A 105.0 labor hour reduction is approximately a 0.6 FTE reduction.

Much of this estimated extra time (45%) can be utilized through having the payroll coordinators work on tasks currently accomplished by the administrative manager. This will allow the administrative manager to concentrate on the budget and other financial matters and relieve her of many clerical duties.
The divisional secretaries, the daytime receptionist, and the agency clerk will not be as greatly affected by the additional staff as the payroll coordinators. The tables that follow show, for each employee, the additional labor hours and the additional hours per nurse that is needed to maintain the current levels of performance for the secretaries and receptionist.

**Table 3D**

**DIVISIONAL SECRETARIES**

<table>
<thead>
<tr>
<th>VARIABLE TASKS</th>
<th>Current Hours/Month</th>
<th>Needed Hours/Month</th>
<th>Difference</th>
<th>Current Hours/Nurse</th>
<th>Future Hours/Nurse</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discip. Actions</td>
<td>12.0</td>
<td>14.00</td>
<td>2.0</td>
<td>0.010</td>
<td>0.009</td>
<td>0.001</td>
</tr>
<tr>
<td>Status Changes</td>
<td>36.0</td>
<td>42.00</td>
<td>6.0</td>
<td>0.030</td>
<td>0.026</td>
<td>0.004</td>
</tr>
<tr>
<td>Tuition Reimbst</td>
<td>6.0</td>
<td>7.00</td>
<td>1.0</td>
<td>0.005</td>
<td>0.004</td>
<td>0.001</td>
</tr>
<tr>
<td>Employee Warn.</td>
<td>12.0</td>
<td>14.00</td>
<td>2.0</td>
<td>0.010</td>
<td>0.009</td>
<td>0.001</td>
</tr>
<tr>
<td>Filing</td>
<td>24.0</td>
<td>28.00</td>
<td>4.0</td>
<td>0.020</td>
<td>0.017</td>
<td>0.003</td>
</tr>
<tr>
<td>Paycheck Reimb.</td>
<td>6.0</td>
<td>7.00</td>
<td>1.0</td>
<td>0.005</td>
<td>0.004</td>
<td>0.001</td>
</tr>
<tr>
<td>FIXED TASKS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Duties</td>
<td>48.0</td>
<td>48.00</td>
<td>0.0</td>
<td>0.040</td>
<td>0.040</td>
<td>0.000</td>
</tr>
<tr>
<td>Admin. Duties</td>
<td>48.0</td>
<td>48.00</td>
<td>0.0</td>
<td>0.040</td>
<td>0.040</td>
<td>0.000</td>
</tr>
<tr>
<td>Bookings</td>
<td>6.0</td>
<td>6.00</td>
<td>0.0</td>
<td>0.005</td>
<td>0.005</td>
<td>0.000</td>
</tr>
<tr>
<td>Typing</td>
<td>144.0</td>
<td>144.00</td>
<td>0.0</td>
<td>0.120</td>
<td>0.120</td>
<td>0.000</td>
</tr>
<tr>
<td>VIP Letters</td>
<td>36.0</td>
<td>36.00</td>
<td>0.0</td>
<td>0.030</td>
<td>0.030</td>
<td>0.000</td>
</tr>
<tr>
<td>Reports</td>
<td>6.0</td>
<td>6.00</td>
<td>0.0</td>
<td>0.005</td>
<td>0.005</td>
<td>0.000</td>
</tr>
<tr>
<td>Staff meetings</td>
<td>12.0</td>
<td>12.00</td>
<td>0.0</td>
<td>0.010</td>
<td>0.010</td>
<td>0.000</td>
</tr>
<tr>
<td>Other</td>
<td>74.0</td>
<td>74.00</td>
<td>0.0</td>
<td>0.062</td>
<td>0.062</td>
<td>0.000</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>470.0</td>
<td>486.00</td>
<td>16.0 (3.4%)</td>
<td>0.392</td>
<td>0.380</td>
<td>0.011</td>
</tr>
</tbody>
</table>

The extra 16 hours for a four week period means an additional 16 minutes of work per day for each secretary.
Table 4D

**RECEPTIONIST**

<table>
<thead>
<tr>
<th>VARIABLE TASKS</th>
<th>Current Hours/Month</th>
<th>Needed Hours/Month</th>
<th>Difference Hours/Month</th>
<th>Current Nurse Hours</th>
<th>Future Nurse Hours</th>
<th>Difference Nurse Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse Calls</td>
<td>24.0</td>
<td>28.00</td>
<td>4.0</td>
<td>0.020</td>
<td>0.017</td>
<td>0.003</td>
</tr>
<tr>
<td>Cost Accounting</td>
<td>15.0</td>
<td>18.67</td>
<td>2.7</td>
<td>0.013</td>
<td>0.011</td>
<td>0.002</td>
</tr>
<tr>
<td>Schedule Chgs</td>
<td>24.0</td>
<td>28.00</td>
<td>4.0</td>
<td>0.020</td>
<td>0.017</td>
<td>0.003</td>
</tr>
<tr>
<td>Nurse Interrupt</td>
<td>6.0</td>
<td>7.00</td>
<td>1.0</td>
<td>0.005</td>
<td>0.004</td>
<td>0.001</td>
</tr>
<tr>
<td>Office Help/Info</td>
<td>20.0</td>
<td>23.33</td>
<td>3.3</td>
<td>0.017</td>
<td>0.014</td>
<td>0.002</td>
</tr>
<tr>
<td><strong>FIXED TASKS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expirations</td>
<td>1.0</td>
<td>1.00</td>
<td>0.0</td>
<td>0.001</td>
<td>0.001</td>
<td>0.000</td>
</tr>
<tr>
<td>Blue Alerts</td>
<td>1.0</td>
<td>1.00</td>
<td>0.0</td>
<td>0.001</td>
<td>0.001</td>
<td>0.000</td>
</tr>
<tr>
<td>Misc. Calls</td>
<td>20.0</td>
<td>20.00</td>
<td>0.0</td>
<td>0.017</td>
<td>0.017</td>
<td>0.000</td>
</tr>
<tr>
<td>Acuity Process</td>
<td>10.0</td>
<td>10.00</td>
<td>0.0</td>
<td>0.008</td>
<td>0.008</td>
<td>0.000</td>
</tr>
<tr>
<td>Other Duties</td>
<td>30.0</td>
<td>30.00</td>
<td>0.0</td>
<td>0.025</td>
<td>0.025</td>
<td>0.000</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>152.0</td>
<td>167.00</td>
<td>15.0 (10%)</td>
<td>0.127</td>
<td>0.116</td>
<td>0.011</td>
</tr>
</tbody>
</table>

The additional 15 hours for a four week period translates into an additional 45 minutes of work per day for the day receptionist.

**AGENCY CLERK**

The Agency Clerk's job will be affected by the addition of 200 nursing employees due to the reorganization of her job. She will have to handle a larger hospital contingency pool and continue to deal with the four nursing agencies. The measure of work increase/decrease due to this reorganization can not be quantified at this time.
APPENDIX E

Costs for the Acuity Scan Module

1. Listing of Costs, Explanation for Optional Items.
2. Possible Courses of Action and Associated Costs
**Acuity Scan Module Costs**

Acuity Scan software  
(includes one day of on-site installation) ........... $ 9,000.00

Out of pocket travel expenses ......................... $ extra

Sentry 3000 scan machine  
(from National Computer Systems) .................... $ 3,780.00  
(from Flint Osteopathic Hospital) .................... $ 1,400.00  
(installation/training) ................................ $ 200.00  
(freight) ................................................. $ 70.00

Scan machine sheet feeder (50 page) .................... $ 1,000.00
Scan machine sheet feeder (250 page) .................... $ 1,750.00

Transport Printer ......................................... $ 750.00

On-site maintenance (Sentry 3000 scan machine) ...... $ 360.00/yr
On-site maintenance (50 page sheet feeder) ........... $ 96.00/yr
On-site maintenance (250 page sheet feeder) .......... $ 120.00/yr
On-site maintenance (Transport printer) ............... $ 160.00/yr

Page feeders are to handle the quantity of scan sheets that would be run per shift. If we would want to use one scan sheet per patient then we would need the 250 page feeder. If we want to use one scan sheet per unit, then the 50 page feeder would suffice. These feeders are for batch processing and are not needed if the process time (the time to run the sheets through the machine) is quick.

The transport printer would print the batch number, date, and serial number on each form for easy and efficient filing and recovery access.

The sheet feeder, transport printer, and on-site maintenance are all optional. The freight and installation/training costs are not optional.
Possible Courses of Action and the Associated Costs

1. Basic Plan

   This plan would be to buy only what is necessary for acuity tracking purposes. The components would include the Acuity software, travel expenses, and the Sentry scan machine with on site maintenance. The total costs are as follows:

   (Through National Computer Systems Corp.) ........ $ 13,610.00
   (Through Flint Osteopathic Hospital) ........ $ 11,230.00.

2. Moderate Plan

   Through additional investment in the Sentry scan machine with the purchase of the 50 page sheet feeder, the acuity process can be further automated. The sheet feeder will allow up to 50 acuity unit sheets to be handled by the Sentry scan machine at once instead of the sheets manually being fed individually through the machine. The total costs are as follows:

   (Through National Computer Systems Corp.) ........ $ 14,706.00
   (Through Flint Osteopathic Hospital) ........ $ 12,326.00.

3. Extensive Plan

   With the purchasing of the sheet feeder and the transport printer, management tracking and cataloging of the sheets for future purposes can be easy and efficient. The added costs for the printer are seen in the total costs below:

   (Through National Computer Systems Corp.) ........ $ 15,616.00
   (Through Flint Osteopathic Hospital) ........ $ 13,236.00.
APPENDIX F

Delayed or Unfinished Task Analysis

1. Discussion of All NOO Job Functions
2. Table 1F: Delayed or Unfinished Tasks Analysis
Currently, as in the past, the payroll coordinators, the divisional secretaries, and the agency clerk have to delay the completion of certain activities due to the lack of time. Table 1F shows both these current and past duties and lists the actions that have been taken and that are needed to lessen the work overload. The Table also points out the percentage of added labor that is needed to properly cover this current work overload.

The Payroll Coordinators are currently not completing three tasks in a timely manner. First, the input of cost accounting data into ANSOS is not done at all by one of the coordinators. To rectify the situation, the coordinator will either have to work more efficiently, if possible, or will need to cut back on other activities to concentrate on this task.

Secondly, the updating of the four-week schedules causes all three coordinators to delay other duties because this task must be done in the same week that the paysheets are due. If the NAM's were to submit the draft schedules three weeks in advance of schedule generation instead of one week in advance, the problem could be rectified. The automation of the schedule generation through ANSOS's upcoming version 10 would also rectify this situation.

Finally, the paysheets (which are due every other Monday at 11:00 am) are not completed in time and must be sent to Northfield via cab two hours later. The automation of the payroll function through ANSOS will ensure that the payroll will be completed by the 11:00 am deadline.

In the months ahead, with an automated payroll, the coordinators should be able to accomplish all of their duties on time.

The Divisional Secretaries are currently delaying the completion of VIP letters, the filing of papers, and the processing of new hire letters. These activities are eventually completed but only by delaying other tasks that are not as urgent at the time.

To facilitate the divisional secretaries in completing their work, an increase in performance or labor hours will be required. As can be seen from Table 1F, about a 3% (15 minutes/day) labor increase will be needed so that the secretaries can accomplish their work on time.

The Agency Clerk currently is experiencing difficulty in completing the bill reverification process, filing, and identifying the nursing care need for the upcoming four-week period. She will require about one hour of additional labor effort per week to complete the bill reverification and filing tasks and will need the four-week schedules to be completed prior to the week they are generated to identify contingency needs.
This can happen if the NAMs could hand the draft schedules into the payroll coordinators two to three weeks before the schedules are generated or if the schedule generation could be automated through version 10 of ANSOS.

The Receptionist and the NOO Secretary currently complete all of their tasks in a timely manner and do not have to delay their duties for any long period of time.
# Delayed or Unfinished Task Analysis

<table>
<thead>
<tr>
<th>PAST</th>
<th>Payroll Coordinators</th>
<th>Divisional Secretaries</th>
<th>Agency Clerk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past Duties Not Accomplished/Delayed</td>
<td>1-Attendance Sheets</td>
<td>1-JCAH Reports (Stand)</td>
<td>1-Reverifying Bills</td>
</tr>
<tr>
<td></td>
<td>2-Reporting Functions</td>
<td>2-VIP Letters</td>
<td>2-Filing</td>
</tr>
<tr>
<td></td>
<td>3-Payroll Sheets</td>
<td>3-Filing</td>
<td>3-Contingency ID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4-New Hire Letters</td>
<td></td>
</tr>
</tbody>
</table>

| Past Actions Taken to Complete Duties | 1-Printer Modifications | 1-Hired Full-Time Sect’ry |
| | 2-Use of 2nd Computer | |
| | 2-Version 9 Install’n | |

<table>
<thead>
<tr>
<th>CURRENTLY</th>
<th>Cost Acc’nting Input</th>
<th>VIP Letters</th>
<th>1-Bill Reverification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Duties Not Accomplished/Delayed</td>
<td>2-Schedule Updating</td>
<td>Filing</td>
<td>2-Filing</td>
</tr>
<tr>
<td></td>
<td>3-Paysheets Delivery</td>
<td>New Hire Letters</td>
<td>3-Contingency ID</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Actions Needed to Complete Tasks</th>
<th>More Labor Hours or Increase Productivity</th>
<th>More Labor Hours or Increase Productivity</th>
<th>ANSOS Access</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-Automate Generation of Schedules</td>
<td>2-More Labor Hours or Increase Productivity</td>
<td>3-Automate Generation of Schedules</td>
</tr>
<tr>
<td></td>
<td>2-NAM Deliver Schedules Three Weeks Before</td>
<td>3-More Labor Hours or Increase Productivity</td>
<td>3-NAM Deliver Schedules Three Weeks Before</td>
</tr>
<tr>
<td></td>
<td>ANSOS Generation</td>
<td></td>
<td>ANSOS Generation</td>
</tr>
<tr>
<td></td>
<td>3-Payroll Automation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Percentage of Extra Labor Needed to Complete Tasks | 3% | 3% | 3% |

* Numbers preceding "Actions Taken..." and "Actions Needed..." relate to the preceding numbers for the prior categories.