Clerical Activities Study

University of Michigan Hospitals
Management Systems Department

Project Group:
Carolyn M. Chang
Evan L. Guttman
Christine J. Hanon

April, 1988
Clerical Activities Study

University of Michigan Hospitals
Management Systems Department

Project Group:
Carolyn M. Chang
Evan L. Guttman
Christine J. Hanon

April, 1988
OUTLINE

EXECUTIVE SUMMARY ................................ Page 2
INTRODUCTION AND BACKGROUND ............... Page 4
APPROACH AND METHODOLOGY .................. Page 5
RESULTS .................................................. Page 7
CONCLUSIONS AND RECOMMENDATIONS .... Page 12
APPENDIX ............................................... Page 14
EXECUTIVE SUMMARY

The rigorous documentation provided by this report serves to provide the information needed to develop a general model of the clerical units of the University of Michigan Hospitals (UMH). This general model and the specific information provided will also be a needed resource to many other larger scale projects of UMH.

Due to the basic desire of improving the hospital system as a whole, a move toward the growth for the implementation of computers is forthcoming. Therefore, a primary focus in our study is to provide the means to assess the impact of implementing present clerical activities through computer systems. The UMH Clerical Activity Model (CAM), Figure 1, is a general model of the clerical functions in the hospital. CAM ranks the clerk activity categories in terms of frequency of performance.

Figure 1. The CAM

UMH CLERICAL ACTIVITIES MODEL (CAM)
As the chart suggests, the three most frequently performed activity categories are: Receptionist Duties, Physician/TPN Orders, and Medical Records. Therefore, when looking into improving clerical productivity as a whole, more emphasis should be placed upon these three activities. However, when focusing on computer implementation within the clerical units, the U.M.H. Clerical Computer Implementation Model (CCI), Figure 2, narrows down CAM (the more general model), into the three most important feasible categories where computer implementation should be considered.

Figure 2. The CCI Model

In addition to the CCI, the times required to perform certain clerical tasks were also studied. These approximate times can be compared to times perceived after computer implementation, thus determining how much more efficient the computers could be.

The intention of the development of these models and time studies is to aid members of the Hospital Informations Systems Department in their computer implementation decisions. More specific information is provided in the report as a resource about 1) shift differences, 2) unit differences, and 3) differences in the day, evening, and night shifts for each unit.
INTRODUCTION AND BACKGROUND

The Clerical Activities Study was performed to supply the Management Systems Department with detailed documentation on the activities of the clerks on inpatient units as part of several large-scale projects. These included:

1) The Hospital Information Systems Department will use this information to determine a focus for computer implementation of certain activities.

2) Patient Unit Support Services Department needs documentation of the full range of responsibilities of the inpatient unit clerks to evaluate their levels of productivity.

The Clerical Activities Study supplies these departments with two types of data, gathered from a representative sample of the inpatient units. All three shifts of each of each representative unit were studied in order to obtain as accurate an assessment as possible. The first type of data illustrates the frequency of functions performed by the clerks; this study was done with the use of random beepers. The second type, calculated with the use of stop watches, is a time standard for the duration of clerical functions.
APPROACH AND METHODOLOGY

Two types of tests were performed to obtain the documentation requested. One method was needed to discover how often a clerk performed a particular task during his or her shift. A method was needed that would allow a large sample to be collected in a relatively short period of time, since there was a time constraint on the project team. A work sampling methodology using random beepers was decided upon. Clerks on the units were equipped with a beeper that transmitted an auditory signal randomly, approximately two times per hour, throughout the clerks' shift.

Each time the beeper sounded, the clerks recorded the activity they were performing at the time of the signal on a data collection form. This form, based on information provided the the Patient Unit Support Services Department, was prepared by the project group. Over a period of time this data represents the clerks frequency distribution among the many activities performed (see Appendix C through G for all frequency distributions).

The units studied were 4B(neurology/neurosurgery unit), 7C (a cardiology step-down unit), and 5D, (a general intensive care unit). These units were decided upon by the Patient Support Services Department, who felt these units were a representative sample of all the inpatient units. Each unit was studied for three weeks, units 4B and 5D began on March 7, 1988, while 7C began on March 14, 1988, and all were studied continuously, twenty four hours a day.

Each member of the project group was in charge of a specific unit. That team member was responsible for introducing the clerks on that unit to the beepers along with any problems that might have arisen during any of the shifts. The clerks were responsible for equipping themselves with one of the beepers at the beginning of their shift. The data collection forms were kept in a folder in the clerks work place. Team members gathered these forms on a regular basis.

The other type of study conducted was a time study. Time studies were performed by each team member on their assigned unit. These studies
consisted of using a stop watch to time specific clerical activities. These activities were decided upon by the Patient Support Services Department, and had to do with the future implementation of computerized order entry systems. This study supplies a documented time standard of clerical activities, which can be used as a guideline when these systems are to be implemented.

During the time study sessions, the team members were also making observations and discussing matters of interest with the clerks. These observations provided the group with valuable insight needed to make recommendations.
RESULTS

Using the data collections forms (see Appendix A), we totalled all the checks made by the clerks for each activity, and calculated the percentage of each activity per unit, per shift, and combinations of the two. This enabled us to form distributions of the frequency of performance for clerical duties. We formulated distributions of: 1) each shift for all units, which produced Day, Evening, and Night Shift Models, 2) a combination of all shifts for each unit, which produced the ICU and General Care Unit Models, and 3) made a general model of all shifts and units combined to produce an overall view of clerks' activities; this model is called the Clerical Activities Model (CAM) (see Figure 1). From the CAM, we determined the three most important feasible categories to consider computer implementation in, thus forming the Clerical Computer Implementation Model (CCI). These categories are processing orders, medical records, and ordering supplies (see Figure 2).

Figures 3 and 4 show the General and Intensive Care Unit Models. Although the frequencies between units are quite similar, the biggest differences include greater receptionist duties in the ICU and a greater processing of orders in the General Care Unit. Figures 6, 7, and 8 respectively show the Day, Evening, and Midnight Shift Models. The biggest differences between shifts include greater receptionist duties during the day and evening, and much greater processing of medical records during the midnight shift.
Figure 3. General Care Unit Model.

Figure 4. Intensive Care Unit Model.
Figure 5. **Day Shift Model.**

![Bar Chart for Day Shift Model](chart1)

Figure 6. **Evening Shift Model.**

![Bar Chart for Evening Shift Model](chart2)

Figure 7. **Midnight Shift Model.**

![Bar Chart for Midnight Shift Model](chart3)
The second part of our study included observing the clerks while they performed their jobs in order to determine times for certain functions. The functions we focused on were processing orders, processing medical records, and ordering supplies (categories from the Clerical Computer Implementation Model). Table 1 shows these approximate times which can be compared to durations obtained of the same functions after the implementation of computers. Table 2 displays activities that were simultaneously performed.

Table 1. Observation times.

<table>
<thead>
<tr>
<th>PROCESS ORDERS.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LABS:</td>
<td></td>
</tr>
<tr>
<td>Choose and Complete Form:</td>
<td>35 sec.</td>
</tr>
<tr>
<td>Place in Box:</td>
<td>4 sec.</td>
</tr>
<tr>
<td>ORDERS:</td>
<td></td>
</tr>
<tr>
<td>Sign Off And Pull:</td>
<td>13 sec.</td>
</tr>
<tr>
<td>Distribute:</td>
<td>22 sec.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEDICAL RECORDS.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BEDSIDE CHART STUFFING:</td>
<td></td>
</tr>
<tr>
<td>Identify and Collect:</td>
<td></td>
</tr>
<tr>
<td>Stamp Forms:</td>
<td>17 sec.</td>
</tr>
<tr>
<td>Return:</td>
<td></td>
</tr>
<tr>
<td>CLOSE CHART:</td>
<td>5 - 45 min.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ORDER SUPPLIES.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Supplier:</td>
<td>5 sec. - 1 min.</td>
</tr>
<tr>
<td>Request Supply:</td>
<td>15 sec.</td>
</tr>
<tr>
<td>SIMULTANEOUS ACTIVITIES PERFORMED BY CLERKS</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>On Phone / Pulling Orders</td>
<td></td>
</tr>
<tr>
<td>On Phone / Closing Patient Chart</td>
<td></td>
</tr>
<tr>
<td>On Phone / Probing Computer</td>
<td></td>
</tr>
<tr>
<td>Pulling Orders / Answering Nurse Requests</td>
<td></td>
</tr>
<tr>
<td>Closing Chart / Answering Nurse Requests</td>
<td></td>
</tr>
<tr>
<td>Transfer Process / Notify R.N. of Inpatient Appts.</td>
<td></td>
</tr>
</tbody>
</table>
CONCLUSIONS AND RECOMMENDATIONS

As was stated in the Executive Summary, overall improvement in clerical units should focus on the most frequently performed activities which were 1) receptionist duties, 2) physicians'/TPN orders, and 3) medical medical orders.

Since a great deal of time is dealt with receptionist duties, a possible staffing change could be allocating receptionist duties to a separate person who would man the phones and would have "face-to-face" interactions with people. This recommendation is supported by the fact that clerks were continuously being interrupted by receptionist's duties. Since clerks are often being interrupted, they have to remember what they were doing before the distraction. This, in effect, takes time and makes the clerks less efficient. For newer, unfamiliar clerks, this would be even more time consuming.

Processing physicians'/TPN orders and medical records, and ordering supplies/equipment/services make up the CCI model, but the first two activities are actually more significant. The activities of processing orders and medical records are centered around the patients' charts and require a great deal of paperwork. By spending time observing and speaking to the clerical staff, the project team was able to discover that the most prevalent difficulty observed was the clerks' management of these patient charts. These charts contain almost every document a patient could possibly need during his or her stay at the hospital; they can become quite large depending on the patient's length of stay. The clerks spend a great deal of time closing old charts and opening new ones. Because the charts are also used by doctors and nurses, they are often left accidentally all over the unit. Therefore, in addition to processing orders and dealing with medical records, the clerks have to spend time locating them.

It is this group's recommendation that the patient charts eventually be implemented into a computer system in order to enable the clerks to work more productively. A system that places the patient charts in the computer would greatly reduce the paperwork required, as well as increasing efficiency.
by having all the information conveniently accessible in one compact area (i.e. the computer terminal).

However, in order to ensure the success of computer implementation, the operators should be well educated in the aspects of basic computer software and hardware. This could also in affect decrease the amount of clerical dependence for technical assistance and computer hardware and software maintenance because they would be better able to trouble shoot problems on their own with their extended knowledge.

Changing the clerks' environment, which they are familiar with and already rather efficient in, has already resulted in some resentment and fear after the installation of the new diet software packages within the units. When dealing with a major expansion in computer implementation, a delicate social issue could be the result. Therefore, providing the necessary information and training for clerks is again recommended; this would not only enable clerks to be more productive with computers, but it would also help clerks feel more comfortable with them.

Another point of concern is that the number of activities being performing simultaneously will probably decline with further computer implementation, the reason being that work on a computer demands a great deal of attention. An increase in the amount of time it takes to perform these activities could be the result, as well as a greater staffing requirement. These are issues that would be evaluated in later studies that would use this report's information to effectively analyze the benefits and costs of computer implementation.

It should also be noted that there is a project presently being conducted, dealing with the installation of bedside computer terminals which would be used by doctors and nurses to request appropriate actions. The terminals that the clerks would have access to would be part of this same system. All orders would be processed through the computer. This emphasizes the growing importance of taking advantage of high technology. Thus, in the long term scope of hospital patient care units, we feel that computerized patient charts would prove to be a great asset.
When the beeper signals, please mark the appropriate column of activity. The beeps are random, but they should go off about 16 times per shift, so there will be at least one mark (or more) per column. Thank you for your help with this project.

* Circle appropriate shift

<table>
<thead>
<tr>
<th>Time:</th>
<th>MIDNIGHT/DAY/EVENING SHIFT</th>
<th>TIME:</th>
<th>MIDNIGHT/DAY/EVENING SHIFT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

APPENDIX A  Data Collection Form.
APPENDIX B. **Reference Sheet.**

REFERENCE SHEET TO CHECKLIST:

**Receptionist:**
Face to Face Contact (Patients/Visitors)
Answer Phones
Receive/Transmit Messages
Distribute Mail/Flowers

**Admission Process:**
Bed Assignment Arranged
Provide ID for Bed & Patient
Notify Appropriate Staff

**Transfer Process:**
For Inter and Intra Services, Arrange Transfer
With Admitting Via PM System
Prepare Necessary Paperwork
Notify Appropriate Staff of Transfer (Housekeeping, Phys., Dietetics)
Collect Patient Charts, Meds, etc.

**Discharge Process:**
Obtain Discharge Notice
Transportation Arrangement
Schedule Follow-up Appointments at UMH
Obtain Discharge Dressings, Medications, etc.
Prepare & Complete Discharge Paperwork
Notify Appropriate Staff

**Process Physician/TPN Orders:**
Pull Orders
Follow Through on Equipment, Supplies, Medications
Procedures, Diets, Lab Tests by:
Phone, PM System/Order Entry, Lab Requests
Notify Nursing of Orders

**Referral Processing:**
Process Referrals
Phone/Tube System-Mail
Record on MAS
(APPENDIX B. Reference Sheet. continued)

Inpatient Appointments:
Schedule Appts
Notify Nurse of Appts.
Arrange Transportation
Order Prep. Diet, Portable O2 When Applicable
Cancel/Reschedule Appts.

Medical Records:
Assemble Chart
File Refers & Reports
Obtain Old Chart From Medical Records
Add New Sheets in Record
Thin Medical Records
Audit Medical Record
Prepare Pre-op Chart
Close Discharged Patient's Chart
Chart Maintenance
Coordinate Xeroxing of Patient Info.

Order Supplies/Equip/Services:
Check Supplies, Equip., and Order Forms (UARCO)
Clerical Supplies
Chart Supplies
Treatment Supplies
Patient Articles
Admission Packets
Call Maintenance
Follow Through on Requests from Nursing
Dietetic Call Backs (Phone/Send Message)

Off Unit Errands:
Obtaining Narcotics
Xeroxing
Pharmacy Satellite Runs

Fixed Activities:
AM Bed Check
Drug Renewals
Nurse Call Pocket Page Programming Beginning of Shift
Order Narcotics (M,W,F, am.)
APPENDIX C. General Care Unit Models for all shifts.

GENERAL CARE UNIT, DAY SHIFT MODEL

<table>
<thead>
<tr>
<th>Activities</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptionist</td>
<td>35.1</td>
</tr>
<tr>
<td>Admission Process</td>
<td>9.69</td>
</tr>
<tr>
<td>Transfer Process</td>
<td>8.52</td>
</tr>
<tr>
<td>Discharge Process</td>
<td>7.05</td>
</tr>
<tr>
<td>Physicians/TPN Orders</td>
<td>14.83</td>
</tr>
<tr>
<td>Referral Process</td>
<td>3.23</td>
</tr>
<tr>
<td>Inpatient Appointments Process</td>
<td>5.73</td>
</tr>
<tr>
<td>Medical Records</td>
<td>12.92</td>
</tr>
<tr>
<td>Order Supplies/Equipment/Serv.</td>
<td>4.65</td>
</tr>
<tr>
<td>Off Unit Errands</td>
<td>3.23</td>
</tr>
<tr>
<td>Meal/Break</td>
<td>6.02</td>
</tr>
<tr>
<td>Fixed</td>
<td>4.99</td>
</tr>
</tbody>
</table>

GENERAL CARE UNIT, MIDNIGHT SHIFT MODEL

<table>
<thead>
<tr>
<th>Activities</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptionist</td>
<td>35.1</td>
</tr>
<tr>
<td>Admission Process</td>
<td>9.69</td>
</tr>
<tr>
<td>Transfer Process</td>
<td>8.52</td>
</tr>
<tr>
<td>Discharge Process</td>
<td>7.05</td>
</tr>
<tr>
<td>Physicians/TPN Orders</td>
<td>14.83</td>
</tr>
<tr>
<td>Referral Process</td>
<td>3.23</td>
</tr>
<tr>
<td>Inpatient Appointments Process</td>
<td>5.73</td>
</tr>
<tr>
<td>Medical Records</td>
<td>12.92</td>
</tr>
<tr>
<td>Order Supplies/Equipment/Serv.</td>
<td>4.65</td>
</tr>
<tr>
<td>Off Unit Errands</td>
<td>3.23</td>
</tr>
<tr>
<td>Meal/Break</td>
<td>6.02</td>
</tr>
<tr>
<td>Fixed</td>
<td>4.99</td>
</tr>
</tbody>
</table>

GENERAL CARE UNIT MODEL, EVENING SHIFT MODEL

<table>
<thead>
<tr>
<th>Activities</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptionist</td>
<td>35.1</td>
</tr>
<tr>
<td>Admission Process</td>
<td>9.69</td>
</tr>
<tr>
<td>Transfer Process</td>
<td>8.52</td>
</tr>
<tr>
<td>Discharge Process</td>
<td>7.05</td>
</tr>
<tr>
<td>Physicians/TPN Orders</td>
<td>14.83</td>
</tr>
<tr>
<td>Referral Process</td>
<td>3.23</td>
</tr>
<tr>
<td>Inpatient Appointments Process</td>
<td>5.73</td>
</tr>
<tr>
<td>Medical Records</td>
<td>12.92</td>
</tr>
<tr>
<td>Order Supplies/Equipment/Serv.</td>
<td>4.65</td>
</tr>
<tr>
<td>Off Unit Errands</td>
<td>3.23</td>
</tr>
<tr>
<td>Meal/Break</td>
<td>6.02</td>
</tr>
<tr>
<td>Fixed</td>
<td>4.99</td>
</tr>
</tbody>
</table>
APPENDIX D. Unit 5D (ICU) Models for all shifts.

UNIT 5D, DAY SHIFT

Activities
- Receptionist: 3.25%
- Admission Process: 8.21%
- Transfer Process: 0.34%
- Discharge Process: 16.07%
- Physicians/TPN Order: 12.65%
- Referral Process: 5.13%
- Inpatient Appointments Process: 8.72%
- Medical Record: 0.85%
- Order Supplies/Equipment/Serv.: 10.09%
- Off Unit Errands: 2.05%
- Meal/Break: 2.05%
- Fixed Activities: 0.34%

UNIT 5D, EVENING SHIFT

Activities
- Receptionist: 3.32%
- Admission Process: 8.4%
- Transfer Process: 1.95%
- Discharge Process: 10.35%
- Physicians/TPN Order: 12.3%
- Referral Process: 1.95%
- Inpatient Appointments Process: 0.39%
- Medical Record: 7.81%
- Order Supplies/Equipment/Serv.: 7.03%
- Off Unit Errands: 1.76%
- Meal/Break: 7.81%
- Fixed Activities: 7.81%

UNIT 5D, MIDNIGHT SHIFT

Activities
- Receptionist: 0.96%
- Admission Process: 2.88%
- Transfer Process: 0.96%
- Discharge Process: 14.42%
- Physicians/TPN Order: 18.27%
- Referral Process: 14.5%
- Inpatient Appointments Process: 4.88%
- Medical Record: 9.62%
- Order Supplies/Equipment/Serv.: 11.54%
- Off Unit Errands: 1.92%
- Meal/Break: 9.62%
- Fixed Activities: 11.54%
APPENDIX E. Unit Models.

UNIT 4B MODEL

Activities
- Receptionist
- Admission Process
- Transfer Process
- Discharge Process
- Physicians/TPN Orders
- Referral Process
- Inpatient Appointments Process
- Medical Records
- Order Supplies/Equipment/Serv.
- Off Unit Errands
- Meal/Break
- Fixed

Frequency (%)

UNIT 5D MODEL

Activities
- Receptionist
- Admission Process
- Transfer Process
- Discharge Process
- Physicians/TPN Orders
- Referral Process
- Inpatient Appointments Process
- Medical Records
- Order Supplies/Equipment/Serv.
- Off Unit Errands
- Meal/Break
- Fixed

Frequency (%)

UNIT 7C MODEL

Activities
- Receptionist
- Admission Process
- Transfer Process
- Discharge Process
- Physicians/TPN Orders
- Referral Process
- Inpatient Appointments Process
- Medical Records
- Order Supplies/Equipment/Serv.
- Off Unit Errands
- Meal/Break
- Fixed

Frequency (%)

19
APPENDIX F.  Unit 4B Models for all shifts.

UNIT 4B, DAY SHIFT

UNIT 4B, EVENING SHIFT

UNIT 4B, MIDNIGHT SHIFT