MCCARE PROJECT

by

Harold Simmons
Pam Bobeng
Jerry Helder

December 1989
TABLE OF CONTENTS

EXECUTIVE SUMMARY .........................................................................................1
INTRODUCTION ......................................................................................................3
BACKGROUND .........................................................................................................4
PROJECT APPROACH............................................................................................4
METHODS ...............................................................................................................4
RESULTS .................................................................................................................5
RECOMMENDATIONS ............................................................................................6
  Chart Integrity......................................................................................................6
    Return patient chart with patient .................................................................6
    Outguide system ............................................................................................7
  Clerks pull all charts .......................................................................................7
  Provider boxes .................................................................................................7
  Job assignments ...............................................................................................7
  Referral Copies .................................................................................................8
Layout ....................................................................................................................8
  Directional System ............................................................................................8
  Clerical Area Rearrangement ..........................................................................9
    Nursing (Intake Procedure) ...........................................................................10
  Long Term Layout ............................................................................................11
Space/Storage .......................................................................................................11
  Patient Information ........................................................................................11
  Storage Strategy ...............................................................................................12
Other ...................................................................................................................12
  HMO Information ............................................................................................12
APPENDIX A
  Data/Charts
APPENDIX B
  Flowcharts
The M-Care clinic has been experiencing problems managing current staff, layout, and storage resources due to increasing patient volumes. You asked our assistance in finding solutions to these problems. This report outlines our investigation and offers recommendations to meet your current needs as well as some of your future needs.

EXECUTIVE SUMMARY

UMH census figures show daily patient volumes have increased by 50% (Figure 1) at the clinic during the past year. As a result the clinic's goal of "quality patient care" is not being regularly achieved. Therefore, we performed an audit of the total clinic with the goal of improving clinic operations and consistently achieving "quality patient care". Our audit indicated several potential problem areas which we divided into three major categories; chart integrity, layout, and space utilization.

The most important group of problems fall into the chart integrity category. Our investigation showed many complaints resulting from incomplete patient charts. Providers are directly responsible for patient care in terms of examination, diagnosis, and treatment. However, their jobs cannot be performed properly without the support of the clerks and nursing staff. If the clerks do not keep the patient charts complete, the providers cannot do a thorough job of examination, diagnosis, and treatment. Consequently, the "quality patient care" goal has not been met.
We offer several recommendations to assure chart integrity. These recommendations center around having the chart available for filing of patient information, and initiating a system which puts the clerk in control of the chart filing activity.

First, we recommend the chart outguide system be re-implemented. This allows all information for a given patient to be filed together in one location when the chart is not available. Second, patient charts should be returned to the checkout clerk at the end of a patient visit. Then, the patient information from a visit can be filed in addition to any information which might be in an outguide. Third, to keep control of patient charts with one group, we recommend the clerks pull all charts. This will reduce the amount of time spent searching for charts. Furthermore, provider boxes should be placed in clerical area 2 (Figure 3). This provides one location from which charts originate and terminate. Finally, specific job assignments should be provided for the clerks. We particularly recommend a clerk be assigned the responsibility of maintaining the chart flow system. This task involves keeping the outguide system working, coordinating charts going out with lab results, triage, and providers’ notes, and prompt filing of patient information from outguides.

The clinic layout was examined and several changes are recommended to improve patient and staff flow. First, the layout of the clinic presents patients with the problem of locating the lab for required tests and also finding checkout at the end of a visit. This results in taking nurses and providers from their jobs to guide patients. Therefore, we implemented a color and sign coding system to direct patients around the clinic. This system was very successful based on responses from patients, nurses, and providers.

Second, the clerical area (Figure 2) is very congested with equipment and exhibits many worker-equipment layout deficiencies. These deficiencies relate to equipment used, how it is used, and who uses it. Based on our analysis, we recommend moving the lab printer to the lab where it is used, thus creating more space in the clerical area. Furthermore, the computer in Area 3 is not highly utilized and could be relocated to a less congested area. Similarly, the laser printer, which is used in conjunction with the computer, should be moved next to the computer in Area 2. This equipment relocation will allow the encounter log to be moved from Area 1 to Area 3. This will eliminate the excessive walking by the checkout clerk to
transfer patient information to the log at its current location. These changes are shown in Figure 3.

We have also included a long-term layout change (Figure 4). These changes should further improve the flow of the clerical tasks.

With respect to space utilization, we recommend moving all of the patient information pamphlets from the patient files and placing them on the walls in the waiting area. This will create more filing space available for patient charts (which will be needed if patient volumes continue to increase), and make more efficient use of the little used vertical space of the clinic.

We also recommend re-examination of your storage and supply ordering strategy. Specifically, if items are stored which are not used, get rid of them. Furthermore, look at how much is stored and try to decrease any unnecessarily stored items. Then, talk to unreliable suppliers to determine if orders can be obtained regularly and in the quantities you will need.

INTRODUCTION

The M-Care facility is an outpatient facility offering services in Obstetrics/Gynecology, Pediatrics and Internal Medicine. The clinic primarily services M-Care HMO patients, however, it does accept non-HMO patients on a cash basis.

The clinic has been in operation a little over three years. It is open six days a week and has an average of four Doctors staffed per day. The rest of the staff includes three RN's, one LPN, one medical assistant, two part-time radiographers, and five clerks.

The RN's are mainly responsible for phone triage. They also help out with patient flow when the clinic is busy. The LPN and MA are primarily responsible for patient flow, but they help out the clerks as well in peak periods. The clerks are responsible for patient check-in, registration, appointment scheduling, loose filing, and patient check out.
BACKGROUND

UMH census figures show patient volumes have increased from approximately 40 to 60 patients per day over the past year. This trend is predicted to continue for the next year. This increase in volume caused problems in staff, layout, and storage resources. The clinic goal of “Quality Patient Care” can only be met with a balance of these resources.

PROJECT APPROACH

As manager of the clinic you must strike a balance between two somewhat opposite goals. Your major goal as manager is “Quality patient care”. However, the clinic is a business and businesses are usually gauged by quantifiable results, in this case, the number of patients seen, the number of labs performed, etc. Therefore, the “real” goal of the clinic is to maximize the quantitative variables. Increasing the quantitative variables does not necessarily meet the qualitative goal (“Quality patient care”). Similarly, “Quality patient care” often decreases the quantitative variables.

Therefore, rather than approaching the clinic problems from the standpoint of addressing either the quantitative or qualitative aspects individually, we decided the best approach would be one which addressed both simultaneously. This approach, an Operations Audit, examines the entire clinic operation and identifies the areas which if improved, offer the maximum benefits.

METHODS

The methods we used in our Operations Audit of the clinic are:

1. Observation/Survey/Interview
2. Internal Documentation
3. Job flowchart analysis
4. Work sampling
5. Layout analysis

Observation provided actual evidence on exactly how tasks were performed, and the interactions of the various clinic personnel. This method was very helpful because it allowed us to “see” how the operation of the clinic worked. Often people do not have time to
step back and think about how they are working. Consequently, they never realize their methods could be improved.

Surveys were given to the clerks, LPN, and MA. These were used to gain insight into employee attitudes and obtain feedback in areas relating to clinic goals and procedures. Furthermore, they were used to compare to our observations to check for agreement between the stated and actual situation.

We examined the internal documentation of the clinic. We looked for job descriptions, flowcharts, and written procedures. Job flowcharts were generated to determine if any tasks contained unnecessary delays or excessive travel which could be eliminated. These flowcharts were generated based on our observations of tasks and by discussions with the particular worker(s) involved in the performance of the task.

To measure the impact of any subsequent recommendations, quantitative data was collected. This data included distribution of time required to perform clerical and flow nursing tasks. Also, we collected data on the amount of time the radiographer spends out of the lab.

The layout of the clinic was examined with respect to two criteria; flow (i.e. movement of staff and patients), and worker-equipment relationships.

**RESULTS**

Our results indicate the problems affecting patient care can be divided into three major categories; chart integrity, layout, and space. Chart integrity problems are the most serious because they can lead to incorrect diagnosis or replication of work. These problems relate to patient charts missing important information (lab results, referral reports, etc.). Clearly, without this information the providers cannot do a complete job.

The layout problems, although not serious in terms of patient health, do affect “patient care” since they can improve patient satisfaction. This category includes improvements affecting patient flow through the clinic and methods improvements which can reduce the time a patient spends in the clinic.
The space problems relate to the use of available space in the clinic. Because the clinic has limited storage space, this space must be used efficiently.

RECOMMENDATIONS

Our recommendations are divided into three categories: chart integrity, layout, and space/storage. The recommendations in each category relate primarily to that particular category, however, they may have implications on other categories. Patient chart integrity is the most important, so we discuss the recommendations related to it first. We then discuss layout, and end with space/storage related recommendations.

Chart Integrity

To improve chart integrity we suggest several measures be implemented. These measures should insure a much higher percentage of patient information being in the chart when it is needed by the provider. Furthermore, some of these recommendations will result in the clerk spending less time filing and looking for patient charts. Our data indicates the clerks spend 11% of their time filing (Figure 5). The recommendations follow:

Return patient chart with patient

A major cause of incomplete charts result from not having the charts when this information is ready to be filed. Currently, several providers keep the patient charts after examining the patient to include any pertinent notes of the visit. It is necessary for this information to be in the charts, however, because many providers are part-time, it often takes several days for the charts to return to the file. Meanwhile, lab results and other patient information cannot be filed. We suggest implementation of a system whereby the provider returns the chart with the patient after each visit and requests any charts he or she needs to include the necessary notes.

An added benefit of this recommendation is the reduction of time spent loose filing by the clerk. Figure 6 shows that 25% of the loose filing is encounter forms which did not get filed because the patient charts were kept by the providers.
Outguide system

Since charts being out is unavoidable, the outguide system, which was previously used, can improve chart integrity by keeping all information for a given patient in one location, this location being the outguide. The outguide form was revised to reduce the amount of writing necessary to complete the form. Figure 7 shows this revised form.

Clerks pull all charts

Interviews with providers and employee surveys show the providers and nurses are spending time searching the clinic for the radiographer when a patient needs lab work performed or an x-ray. We charted the radiographer activities for two weeks to determine why and how long the radiographer was not in the lab. We found the radiographer spends at least two hours out of the lab. Of the two hours, more than an hour is spent pulling patient charts for lab results. We recommend the radiographer designate the charts necessary for lab results, but the clerks actually pull these charts. This would keep the radiographer in the lab and also keep control of the charts with the clerks. To reduce the volume of charts pulled, we suggest only pulling abnormal charts (if agreed upon by the providers).

Provider boxes

This recommendation is linked to the returning of charts with the patient, and clerks pulling all chart recommendations. We recommend installing boxes in clerical area four for all providers. The clerks would then place any charts requested by the providers in the respective providers’ box. These boxes could also be used for mail disbursement, and correspondence from drug and supply representatives.

Job assignments

Observations and employee surveys indicate the distribution of work in the clerical area may not be equitable. This inequity particularly affects filing. Since the clerks are not specifically designated to file, this work is often not completed. Therefore, we suggest specific job assignments, with filing as one of the major assignments. With implementation of the outguides, providers’
requiring charts for notation and lab results, this is a full-time task which will require constant attention and coordination.

Referral Copies

Results of lab tests and referrals being present in patient files was expressed as a problem by providers, nurses and clerks. It is imperative results be present for a patient's next visit. Checking for these results can be a lengthy and complex process.

After conversations with the clerks, the Nurse Manager, and the flowcharting the activity it was apparent repetitive checking is occuring. In other words, from one visit to the next the chart must be fully checked. This means looking for the same results every time a patient visits the clinic. This is most apparent for referral results. Clinic procedure states the original can be thrown away once results have been received, however, this is not currently being done because of patients' later requests for referral numbers (for insurance purposes). It is possible to make this task shorter and easier by throwing away the originals upon receiving results. If the results are not sent on a duplicate of the referral form, the referral number should be recorded on the result letter. This would eliminate repetition while still keeping the information needed by patients.

Layout

Directional System

Our observations, verbal interviews and written surveys indicated there was a problem with directing patients through the clinic. Several methods to eliminate the escorting of patients around were discussed. The main objective was simplicity for staff and patients alike. A system consisting of colored tape and signs was devised and then tested. The tape was placed on the wall three feet from the floor. Signs were located at intersections to complement the color coding. (Figure 8)

Feedback from providers and nurses indicated the system freed the staff from escorting patients and giving direction to patients. This feedback was so positive we implemented the system.
Clerical Area Rearrangement

The clerical area is the epicenter of clinic operation. This area houses patient charts, clinic appointment schedules, incoming phone calls (including triage), patient origination and termination, etc. Therefore, this is the highest density area in terms of both people flow and equipment concentration. To achieve high productivity for workers in this area, the traffic flow should be minimized or at least controlled and the equipment relationships should be highly coordinated.

Flowcharts of the clerical area were used to determine the relationship between tasks and equipment. Random beepers were used to get the distribution of clerical tasks performed. Therefore, this gave insight into the equipment used most often. Checklists were used to tally the usage of the computer and laser printer. Finally, a time clock was put in the lab to indicate the amount of time the lab person spent out of the lab, specifically time they spent in the clerical area.

Figure 2 shows the current clerical area layout. There are several worker-equipment relationships which can be improved upon. First, the lab printer is used exclusively by the radiographer, however, it is located in clerical Area 1. It is utilizing space in this congested area. Lab results are sent through the lab printer several times a day. This requires the addition of the radiographer to the clerical flow. Therefore, we recommend it be relocated. The optimal place for the printer is in the lab because its user relationship is with the radiographer. It should also be noted this movement would help control the noise level in the clerical area because the lab printer is noisy when printing.

Second, the laser printer is currently located in Area 3 where counter space is scarce. Primary activities performed in this area do not necessitate its use. Therefore, it should be moved to Area 2 because its output is generated through the computer located in Area 2.

Third, there is a computer located in Area 3. It was probably placed here for scheduling purposes. However, scheduling is no longer computer generated and this computer is not used. Most computer functions are performed on the computer currently located in Area 2.
The computer also requires a large amount of counter space. Therefore, it is recommended this computer be moved out of the clerical area.

Fourth, the encounter log is currently located in Area 2. The reason for this location is because of lack of counter space in Area 3. The information needed to complete this log is generated in Area 3. The log's current location requires the clerk positioned in Area 3 to transport the needed information to the log in Area 2 after each patient checks out. This travel time alone accounts for three percent of the clerks' day. Therefore, we recommend this log be moved from Area 2 to Area 3. This relocation would eliminate the extra "people" flow and the time required to travel.

Finally, the card maker is currently located in the doorway between the front and back of the clerical area. Cards are updated and made through the registration process which is done via the computer in Area 2. Therefore, the card maker should be moved to Area 2 so as to obtain its natural relationship with the computer in this area.

**Nursing (Intake Procedure)**

Interviews and surveys of nurses indicated there was a problem with the transition of patients from check-in to in-take. Currently, the nurses are verbally informed a patient is ready for in-take. However, they do not know which provider the patient is scheduled to see. The nurses found themselves entering the lobby to check charts for the provider information. They would then go back into the intake area to see if an exam room for that provider was available. This was seen as a relations problem with patients.

There are several possible solutions. The best solution would be to change the current layout of the facility. This issue is addressed in the next section.

Another possibility would be for the clerks to convey more information when paging a nurse. The clerks could indicate which provider or the patient's name. The biggest problem with this would be whether the information is correctly interpreted by the nurse.

A third solution would be to use indicator lights. The lights could be located in the in-take area, one for each provider. When a patient was ready, the clerks could turn on the appropriate light (possibly
also paging the nurse). Then the nurse would not have to enter the lobby area until they were certain to retrieve a patient.

Last, a thermo-writer could be used. The clerks could write the patients' name, provider they are seeing, and the time of the appointment on the machine. This information would be relayed to the nursing station where the nurses are located.

**Long Term Layout**

Figure 9 shows our recommended layout of the clinic. In this layout the wall separating the front and rear of the clerical area has been removed. This allows check-in and check-out to be combined. During slow periods, this activity could be performed by one clerk.

The nursing intake area can be enlarged into the space currently designated for the waiting area. There is sufficient space for patient waiting without using this space. The enlarged intake area gives nurses more room in which to work. It can be set-up to allow for greater privacy for patients. Furthermore, the nurse can then determine all the necessary information for a given patient without appearing in the waiting area.

**Space/Storage**

**Patient Information**

Observation of the patient chart file showed more than twenty percent of the space was used for storage of materials other than patient charts. Currently, this is not a problem because there is enough room for the patient charts. However, because patient volumes are expected to increase, this space will be needed for patient charts. It is recommended the patient information pamphlets located in this file be moved to the waiting area. They could be hung on the walls in vertical files. This would clear space in the file and utilize the available vertical space.
**Storage Strategy**

There is a storage problem in the facility. This is partly due to the amount of storage space and partly due to the material being stored. Not much can be done about the amount of storage area but something can be done about the material being stored. There are several forms and materials stored which are unnecessary. You need to go through all the forms and decide what is needed and what is not. Once you have eliminated all the unnecessary forms you can then eliminate all the materials which are no longer used (aprons for x-rays, sample drugs, etc.)

The next step is to define a definite ordering system, find out how many of each item you use a week and order accordingly, do not order more than you need because there is not space to store extra materials. You can find out how much you use by having a system of tracking how much of each material is used and how often. This type of data should be collected for the case in which another group might come in to do a detailed study of the storage problem. We recommend you have this done for your benefit. They should be able to give you some clear guidelines as to how to order from the collection of this information.

**OTHER**

**HMO Information**

Surveys and interviews indicated patients had a problem understanding their HMO coverage. Therefore, the clerks were having to explain HMO coverage to patients. This is not the job of the clerks, it should be the HMO agency's responsibility.

It is recommended a telephone hot-line be installed in the waiting area for patients to call for answers to their questions. If this is not possible, because of availability of the HMO agency, a "most often asked question" handout could be made available. Both solutions would free up the clerks time and place the responsibility of educating patients onto the HMO agency and patients, where it belongs.
M-CARE PATIENT VOLUMES

PATIENTS PER DAY

JULY  AUG  SEPT  OCT  NOV  DEC  JAN  FEB  MAR  APRIL  MAY  JUNE  JULY

1988  1989

Figure 1
RECOMMENDED CLERICAL LAYOUT

Figure 3  DECEMBER 1989
RECOMMENDED LAYOUT M-CARE

M-CARE PRESENTATION
DECEMBER 1989

Figure 4
BREAKDOWN OF CLERICAL TASKS

<table>
<thead>
<tr>
<th>Task</th>
<th>% of Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misc. Other</td>
<td>1%</td>
</tr>
<tr>
<td>Looking for chart</td>
<td>1%</td>
</tr>
<tr>
<td>Travel</td>
<td>2%</td>
</tr>
<tr>
<td>Phone</td>
<td>3%</td>
</tr>
<tr>
<td>Lunch</td>
<td>7%</td>
</tr>
<tr>
<td>Registration</td>
<td>7%</td>
</tr>
<tr>
<td>Idle</td>
<td>7%</td>
</tr>
<tr>
<td>Filing</td>
<td>11%</td>
</tr>
<tr>
<td>Check-out</td>
<td>12%</td>
</tr>
<tr>
<td>Check-in</td>
<td>13%</td>
</tr>
<tr>
<td>Triage</td>
<td>14%</td>
</tr>
<tr>
<td>Paperwork</td>
<td>22%</td>
</tr>
</tbody>
</table>

Figure 5
LOOSE FILING BREAKDOWN

Form to be filed

<table>
<thead>
<tr>
<th>A</th>
<th>25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>4%</td>
</tr>
<tr>
<td>C</td>
<td>10%</td>
</tr>
<tr>
<td>D</td>
<td>15%</td>
</tr>
<tr>
<td>E</td>
<td>25%</td>
</tr>
<tr>
<td>F</td>
<td>16%</td>
</tr>
<tr>
<td>G</td>
<td>6%</td>
</tr>
</tbody>
</table>

KEY
A ENCOUNTER FORM
B REFERRAL FORM
C DOCTOR NOTES
D EMERGENCY ROOM FORM
E OUTSIDE MISC.
F LAB RESULTS
G REGISTRATION FORM
PATIENT CHART REQUEST

DATE: ____________

PATIENT NAME: ____________________________

REGISTRATION NO.:

☐ WATKINS  ☐ GROH
☐ KOCHHAR  ☐ MATEO
☐ STONE  ☐ LAB/X-RAY
☐ VON MOLL  ☐ TRIAGE
☐ HELLER  ☐ NMW
☐ WILSON  ☐ PEDS CONTINUITY
☐ DRESLINSKI  ☐ NURSING ONLY APPTS.

Revised Outguide Form
DIRECTION SYSTEM M-CARE

Figure 8
RECOMMENDED LAYOUT M-CARE

Figure 9

MGMT SYSTEMS
M-CARE PRESENTATION
DECEMBER 1989
1. Imprint card on top of encounter form

2. Write reg # and patient name on top of encounter form

3. Attach encounter form to file

   Put file in slot and page nurse

   Next
1

CALL AND MAKE APPOINTMENT

GIVE COPY OF REFERRAL TO PATIENT

PUT COPY IN FILE (IF AVAILABLE)

PUT ORIGINAL REFERRAL IN 'TO BE MAILED'

PUT FILE AND/OR LOOSE FILINGS IN 'TO BE FILED'

NEXT
CLERKS: ENCOUNTER LOG

FILE ARRIVES AT ENCOUNTER LOG

TIME TO FILL OUT? NO WAIT FOR TIME

YES LOG INFORMATION

PATIENT FILE PRESENT? NO PUT ORIGINAL ENCOUNTER FORM IN "TO BE FILED" DRAWER

YES PUT ORIGINAL ENCOUNTER FORM IN PATIENT FILE

PUT PATIENT FILE IN "TO BE FILED"

PUT COPIES OF ENCOUNTER FORM IN "MAIL OUT" FILE

NEXT
FILE ARRIVES AT REFERRAL LOG

TIME TO FILL OUT?

WAIT FOR TIME

YES

LOG INFORMATION

PUT REFERRAL FORM IN "MAIL OUT" FILE

NEXT
CLERKS: CHECKING NEXT DAY CHARTS (1 OF 2)

1. FILES FOR NEXT DAY PULLED
2. DIVIDE SCHEDULES PER PROVIDER
3. TURN TO LAST ENCOUNTER FORM
4. LAB SLIP ATTACHED?
   - YES: LOOK FOR RESULTS UNDER ALL POSSIBLE TABS
   - NO: CHECK ON ENCOUNTER FORM UNDER "RADIOLOGY"
5. RESULTS PRESENT?
   - YES: ATTACH NOTE TO FILE
   - NO: LAB ORDER ON ENCOUNTER FORM?
6. LAB ORDERED?
   - YES: RETURN FILE TO APPROPRIATE PERSON FOR RESULTS
   - NO: CHECK ON ENCOUNTER FORM UNDER "REVISIT" AND "LAB"
7. LAB ORDERED?
   - YES: RETURN TO PROCESS
   - NO:
CLERKS: CHECKING NEXT DAY CHARTS (2 OF 2)

1. Check for results of all referrals present?
2. Any original copies of referrals present?
   - Yes: Check for results of all referrals present?
     - Yes: Call for results
     - No: Done
   - No: Done
1

Pull needed files

Put results in providers mailboxes

Return to lab

Done