Process Analysis Results and Recommendations

Rheumatology and Endocrinology Nursing Departments

Telephone Call Analysis

Names
Elizabeth Lukito
Ricky Yasa
Surya Widjaja

Date
December 4, 2000
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>1</td>
</tr>
<tr>
<td>PROJECT DESCRIPTION</td>
<td></td>
</tr>
<tr>
<td>RESULTS</td>
<td></td>
</tr>
<tr>
<td>RECOMMENDATION</td>
<td>2</td>
</tr>
<tr>
<td>INTRODUCTION AND METHODOLOGY</td>
<td>4</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>4</td>
</tr>
<tr>
<td>PROJECT SCOPE</td>
<td>4</td>
</tr>
<tr>
<td>PURPOSE OF PROJECT</td>
<td>5</td>
</tr>
<tr>
<td>APPROACHES AND METHODOLOGIES</td>
<td>5</td>
</tr>
<tr>
<td>CURRENT SITUATION OVERVIEW</td>
<td>7</td>
</tr>
<tr>
<td>DEPARTMENT DESCRIPTION</td>
<td>7</td>
</tr>
<tr>
<td>CURRENT STATE SYSTEM</td>
<td>8</td>
</tr>
<tr>
<td>FINDINGS</td>
<td>10</td>
</tr>
<tr>
<td>CONCLUSIONS</td>
<td>12</td>
</tr>
<tr>
<td>ANALYSIS AND RECOMMENDATIONS</td>
<td>14</td>
</tr>
<tr>
<td>RECOMMENDATION 1</td>
<td>14</td>
</tr>
<tr>
<td>RECOMMENDATION 2</td>
<td>15</td>
</tr>
<tr>
<td>RECOMMENDATION 3</td>
<td>16</td>
</tr>
<tr>
<td>RECOMMENDATION 4</td>
<td>17</td>
</tr>
<tr>
<td>PROPOSED ENVIRONMENT OVERVIEW</td>
<td>18</td>
</tr>
<tr>
<td>RECOMMENDATION SUMMARY</td>
<td>18</td>
</tr>
<tr>
<td>ACTION PLAN</td>
<td>19</td>
</tr>
<tr>
<td>APPENDIX A</td>
<td>20</td>
</tr>
<tr>
<td>CURRENT WORKFLOWS</td>
<td></td>
</tr>
<tr>
<td>APPENDIX B</td>
<td>21</td>
</tr>
<tr>
<td>PROPOSED FUTURE WORKFLOWS</td>
<td></td>
</tr>
<tr>
<td>APPENDIX C</td>
<td>22</td>
</tr>
<tr>
<td>PROMPT SYSTEM SET-UP</td>
<td></td>
</tr>
<tr>
<td>APPENDIX D</td>
<td>23</td>
</tr>
<tr>
<td>TICK SHEETS SAMPLES</td>
<td></td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

PROJECT DESCRIPTION

The University of Michigan Health System Internal Medicine Pod D Call Center handles all non-medical related telephone calls from Rheumatology and Endocrinology patients. The majority of these telephone calls belong to three categories: new appointment scheduling, appointment re-scheduling and appointment cancellations. In the current system, upon calling into the Pod D Call Center, a patient is first put into a queue depending on the availability of the operating lines. The patient will then be answered directly by a Pod D Call Center clerk. If the call is non-medical related, the clerk will handle the call. On the other hand, if the call is medical-related, the patient will be transferred to a nurse working in the department according to the patient’s need. Some nurses prefer answering the calls live while others prefer letting the patients leave messages in their voice mailbox.

The nurses in the Rheumatology and Endocrinology Department are receiving about 17% of their total calls regarding appointments. The large volumes of calls received primarily cause this and there are only four appointment clerks in Pod D answering the telephone calls currently. While the nurses have the authority to overbook a patient if he or she is really sick, many patients have taken the assumptions that the nurses are allowed to overbook them regardless of their conditions.

The project scope of this analysis includes all calls received by a nurse from November 1, 2000 until November 21, 2000, the Subjective Objective Assessment Plan (SOAP) from August 2000 to October 2000 and documenting the workflows of each nurse activities

The student team performs a few tasks to collect all data in order to analyze the current state of the Rheumatology and Endocrinology Department. First we observed the nurses and subsequently we came up with the nurses current state workflows of the nurses. Then we drew the future state workflows of the nurses and eliminate all the unnecessary steps taken by the nurses. Second, we reviewed the Subjective Objective Assessment Plan (SOAP) notes in order to understand what type of calls is received and the response activity related to the call. Lastly, we handed tick sheets for the nurses to track their types. From the tick sheets, information about number of calls and types of calls received by the nurses is obtained.

RESULTS

Table 1 represents the summary of the amount of each call type. It is the result for both departments. Sample size is based on 570 SOAP notes on calls made in the month of October.
<table>
<thead>
<tr>
<th>Type of Call</th>
<th>Number of Calls</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescription Refill</td>
<td>200</td>
<td>29 %</td>
</tr>
<tr>
<td>Medical Question</td>
<td>30</td>
<td>15 %</td>
</tr>
<tr>
<td>Test Result</td>
<td>73</td>
<td>18 %</td>
</tr>
<tr>
<td>Symptoms / Sick</td>
<td>69</td>
<td>3 %</td>
</tr>
<tr>
<td>Appointment call</td>
<td>88</td>
<td>12 %</td>
</tr>
<tr>
<td>No Information (Call back)</td>
<td>13</td>
<td>7 %</td>
</tr>
<tr>
<td>Other</td>
<td>97</td>
<td>16 %</td>
</tr>
<tr>
<td><strong>Total number of calls</strong></td>
<td><strong>570</strong></td>
<td><strong>100 %</strong></td>
</tr>
</tbody>
</table>

Table 1. Percentage of different type of calls

Table 1 shows that the nurses are getting calls regarding prescription refills the most, followed by test results calls and medical questions calls. The current state is in a good condition as these three types of calls are the nurse’s duty. In the other hand, there are also a fair amount of calls regarding appointments and calls that do not have information which disturb a nurse while doing her job. The appointment clerks should handle appointment calls except when the patients are sick and need to be overbooked. A patient that does not leave any message in the voice mail would require the nurse to call him back and ask his needs. This is a waste of activity since sometimes it is hard to reach the patient on the phone. Opportunities to improve the current state thus exist by looking at the chart.

The student team also observed that there is no standardized work for the Medical Assistant (MA). This consequently causes the nurses not to have any standardized process in handling the different types of calls. MAs with different level of skills handles each call in different way. Thus, by training MA, not only the workflow can be standardized to improve the process, but MAs would also find their job more interesting.

**RECOMMENDATION**

We propose four recommendations in order to achieve the goal of this project, which is to improve efficiency of current state.

Table 2 summarizes the problems and the solutions for each problem.
<table>
<thead>
<tr>
<th>Problem Statement</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No MA workflows standardization</td>
<td>Train MA to higher level and standardize their duties</td>
</tr>
<tr>
<td>No message left in the voice mail</td>
<td>Implement Prompting System</td>
</tr>
<tr>
<td>Lost or misplaced SOAP notes</td>
<td>Set-up labeled bins for SOAP notes</td>
</tr>
<tr>
<td>Waste regarding appointment calls</td>
<td>Eliminate the process of transferring appointment calls to the nurses</td>
</tr>
</tbody>
</table>

Table 2. Problems and Recommendations
INTRODUCTION AND METHODOLOGY

INTRODUCTION

The University of Michigan Health System Internal Medicine Pod D Call Center handles all non-medical related telephone calls from Rheumatology and Endocrinology patients. The majority of these telephone calls belong to three categories: new appointment scheduling, appointment re-scheduling and appointment cancellations. In the current system, upon calling into the Pod D Call Center, a patient is first put into a queue depending on the availability of the operating lines. The patient will then be answered directly by a Pod D Call Center clerk. If the call is non-medical related, the clerk will handle the call. On the other hand, if the call is medical-related, the patient will be transferred to a nurse working in the department according to the patient's need. Some nurses prefer answering the calls live while others prefer letting the patients leave messages in their voice mailbox.

Messages are retrieved by Medical Assistant (MA) assigned to each nurse. The MA then records the message on a Subjective Objective Assessment Plan (SOAP) note. The SOAP notes are read by the nurses where they then perform duties needed and return the calls based on highest priority of the call. This is explained further in current state section and is graphically presented in the current workflow system.

While nurses have the authority to overbook a patient if that patient is truly sick, many patients have taken the assumption that nurses are authorized to overbook patients regardless of their condition. Thus, the nursing staffs at the Rheumatology and Endocrinology departments are receiving numerous calls and messages regarding appointment scheduling other than medical-related calls. Handling appointment-scheduling calls are obviously not the responsibilities of the nursing staffs. This has led to nurses experiencing difficulties in working efficiently and frustration.

However, it must also be understood that this problem is partly caused by Pod D Call Center's inability to handle the magnitude of incoming calls. This is due to the shortage of Call Center clerks, resulting in long waiting times and therefore, customer dissatisfaction. Two additional clerks have been hired to help reduce the Call Center congestion but they are currently still undergoing training.

Mrs. Jennifer Tillman, the clinical administrator and Mrs. Karen Nairn, the clinical operations manager, have both agreed to collaborate with the project team to improve the nurses' working efficiency, focusing on the nurses working at Rheumatology and Endocrinology departments.

PROJECT SCOPE

Scope of analysis included in the project is:

- Reduce the number of non-medical related calls received by a nurse for in a time-span of 21 days (from November 1, 2000 till November 21, 2000).

- Workflows of each nurse activities.
PURPOSE OF PROJECT

The purpose of this project is to analyze and document the current state of the Internal Medicine Rheumatology and Endocrinology nurses calls and make recommendations that will improve the nurse's work efficiency by eliminating or re-routing non-medical patient telephone calls to nurses.

The deliverables of this project are:

- Documentation of current work flows
- Proposed work flows
- Recommendations for improvement

APPROACHES AND METHODOLOGIES

Throughout the course of the study, interviews with nurses from Rheumatology and Endocrinology were set up to gain some more insight on the problem and to collect data. All nurses related to the project were very helpful in providing information about the amount of calls received each day as well as daily duties performed.

The types of studies that were performed included:

- Nurse Observation

Thorough observation of every nurse in both departments was crucial in order to develop flowcharts of the current workflow system. The result of this method would help graphically visualize the whole process of receiving each type of call. Thus, any steps taken by the nurses that are unnecessary can be eliminated. Based on this, future flowcharts could be developed and proposed by eliminating any wastes or processes related that are not essential to add value to the nurses' job. The student team developed steps to achieve this proposed future state.

Observation was conducted over the course for an eight-week period beginning September 25th and ending November 17th in which nurses' actions and duties were observed during regular working days. The observer recorded each activity included in responding to phone messages from patient from beginning to end when patients' requests are fulfilled. Three teams of nurses for a total of five nurses were observed. The length of observation for each nurse was 10 hours. Therefore, the total length of observation is 50 hours.

- SOAP note reviewing

In order to understand what types of calls received and response activity related to the call we needed to review the SOAP notes of each call. SOAP notes for the month of October were collected and reviewed. There were a total of 600 sample points collected. Some samples of SOAP notes are attached in appendix F.
Tick Sheet collecting

Tick sheets were given to all 5 nurses in the three teams working at both departments. Each nurse then has to fill out at least 4 tick sheets. The tick sheet asks for information about number of calls and type of calls received by the nurses. This is also important as information collected form the tick sheets could then be compared to the SOAP notes to determine the reliability of each method. Some samples of tick sheets are attached in appendix E.
CURRENT SITUATION OVERVIEW

DEPARTMENT DESCRIPTION

University of Michigan Internal Medicine services consists of fourteen sub-specialties, including Allergy, Cardiology, Endocrinology and Metabolism, Gastroenterology, General Medicine, Geriatric Medicine, Hematology and Oncology, Hypertension, Infectious Diseases, Molecular Medicine and Genetics, Nephrology, Nuclear Medicine, Pulmonary and Critical Care Medicine, and Rheumatology. The focus of this project is on 2 departments, which are Rheumatology and Endocrinology. Both areas are located on the third floor of the Taubman Center.

Rheumatology

The Rheumatology Clinic is a major research and patient care facility within the University Hospital. Its primary purpose is to care for musculoskeletal and inflammatory diseases including rheumatoid arthritis, systemic lupus, scleroderma, muscle disease, osteoarthritis (degenerative arthritis), psoriatic arthritis, and systemic vasculitis. Patients are seen by physicians in the rheumatology clinic for a one-hour initial evaluation and then followed as necessary in conjunction with a referring physician.

There are three teams working for this department:
- Team 1 with three nurses
- Team 2 with two nurses
- Team 3 with one nurse

Endocrinology

The Endocrinology clinic provides a team that cares for people with hormone problems, such as short stature, metabolism problems and thyroid problems.

There are two nurses working for this department:

Five nurses were observed for the study. The names of the nurses are not shown due to confidentiality.

Figure 1 shows the organizational chart.
CURRENT STATE SYSTEM

Endocrinology

Upon calling the nurse’s number, a patient hears a long answering message that asks the patient to give all information regarding the call. The patient then leaves a voice message and this message is retrieved by a medical assistant (MA) that assists the nurse. The message is written down on a SOAP (Subjective Objective Assessment Plan) note. The MA then gathers all information about the patient based on the type of message by reviewing Care-web and pulling up office visits. All this information is stapled together with the SOAP note and placed in a labeled bin next to the nurse’s desk. The nurse then picks up and ranked the SOAP notes based on the urgency of the call.

There are five rankings of the SOAP Note:

1. High Priority

   These calls are the most important. All calls in this category are urgent and need to be done first.
Types of calls that fit into this category are:

- Symptoms Call
  
  A fast action is needed to determine if the patient’s symptom is critical. A patient with a critical condition needs to go to emergency room.

- Bad test result call

  A physician needs to be notified right away if a patient has a bad test result in order to instruct any changes on medications.

2. Pending

These calls are in process and need other resources to be completed.

3. Prescription Refills

These calls are regarding patients’ request of prescription refill authorization from the nurses to their pharmacies.

4. Test Results

These are calls regarding lab result of patients.

5. Low Priority

Pending, prescription refills and test results have the same priority while the low priority is the least important of all calls.

The SOAP notes are categorized according to its priority and urgency based on the above and placed in one of the five-labeled slots available next to the nurse’s desk.

The workflows of the nurse for each type of calls are presented in Appendix A.

**Rheumatology**

When a patient calls in, the nurse answers the call when she is available. Otherwise, the patient is forwarded to her voice mail answering machine or the call is answered by her Medical Assistant or nurse replacement. A message is noted in SOAP note and left for the nurse to handle whenever she returns.
FINDINGS

Endocrinology

The table below represents the summary of the amount of each type of calls. Sample size is based on 200 SOAP notes on calls made in the month of October.

<table>
<thead>
<tr>
<th>Type of Call</th>
<th>Number of Calls</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescription Refill</td>
<td>57</td>
<td>29 %</td>
</tr>
<tr>
<td>Medical Question</td>
<td>30</td>
<td>15 %</td>
</tr>
<tr>
<td>Test Result</td>
<td>35</td>
<td>18 %</td>
</tr>
<tr>
<td>Symptoms / Sick</td>
<td>7</td>
<td>3 %</td>
</tr>
<tr>
<td>Appointment call</td>
<td>25</td>
<td>12 %</td>
</tr>
<tr>
<td>No Information (Call back)</td>
<td>13</td>
<td>7 %</td>
</tr>
<tr>
<td>Other</td>
<td>33</td>
<td>16 %</td>
</tr>
<tr>
<td><strong>Total number of calls</strong></td>
<td><strong>200</strong></td>
<td><strong>100 %</strong></td>
</tr>
</tbody>
</table>

Table 1. Volume of each type of calls

Figure 2. Pie Chart of each call type volume percentage
Calls that do not fit in any of the categories above would be included in other category. Some examples of this type of calls are:

- Billing questions

  Some patients have questions regarding their medical bills (e.g.: extra charge).

- Stolen prescriptions

  A patient’s prescription was stolen and he/she needed a new one.

- Letters for approval

  A patient’s relative needs approval to be included in taking care of the patient.

**Rheumatology**

Based on a randomly picked sample of 314 SOAP notes of calls made from August 2000 until October 2000, Table 2 shows the findings.

<table>
<thead>
<tr>
<th>Call Type</th>
<th>Number of Calls</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>62</td>
<td>16.8%</td>
</tr>
<tr>
<td>Appointment</td>
<td>63</td>
<td>17.0%</td>
</tr>
<tr>
<td>Prescription</td>
<td>143</td>
<td>38.6%</td>
</tr>
<tr>
<td>Lab Results</td>
<td>38</td>
<td>10.3%</td>
</tr>
<tr>
<td>Referrals</td>
<td>10</td>
<td>2.7%</td>
</tr>
<tr>
<td>Other</td>
<td>54</td>
<td>14.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>370</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 2. Volume of each type of calls
CONCLUSIONS

Endocrinology

It was shown that the nurses are getting calls regarding prescription refills the most, followed by test results calls and medical questions calls in the second and third place. This indicates that the current state is in a good condition as these three types of calls are the nurse’s duty. In the other hand, there are also a fair amount of calls that could potentially disturb a nurse while doing her job. These types of calls are appointment calls and no information calls. The appointment clerks should handle appointment calls except when the patients are sick and need to be overbooked. A patient that does not leave any message in the voice mail would require the nurse to call him back and ask his needs. This is a waste of activity since sometimes it is hard to reach the patient on the phone.

Opportunities to improve the current state thus exist by looking at the chart. Calls regarding prescription refills could be improved by having the patient leave detailed message in the voice mail. This could significantly reduce the processing time of completing prescription refills calls, and thus the whole process as prescription refills calls have the biggest percentage. Calls with no message and appointment calls could be eliminated to also improve the process. The concept here is thus to have a lean process by reducing any waste observed in the current state. This will be explained furthermore in both recommendations and future state.

As there is no standardized work for Medical Assistant (MA), there is also no standardized process in handling each type of calls for the nurse. MA with different level of skills handles each call in different way. Thus, by training MA, not only the workflow could be standardized to improve the...
process, but MAs would also find their job more interesting.

**Rheumatology**

Handling prescription calls is an important part of a nurse’s job function and currently, a sizable portion of all patient calls are prescription related (38%). Symptom and lab result calls are also important job functions of a nurse and they currently make up 27% of all patient calls.

Appointment calls, which should be handled by the appointment clerks rather than the nurses, make up a whopping 17% of all patient calls. Other calls, which consist of calls like billing questions and lab report request, make up quite a significant portion of 15% of all patient calls.
ANALYSIS AND RECOMMENDATIONS

RECOMMENDATION 1

Problem Statement and Root Cause Analysis

The amount of information gathered based on a patient’s message depends on the skill level of Medical Assistant (MA) that handles the call. MA with more experience and higher level of skill will gather more information than MA that lacks of experience. For example, when receiving a prescription refill call, a more experienced MA knows what information needs to be gathered (pharmacy name, dosage, types of medications) and will try to obtain them by pulling up Careweb, office visits or call the patient if needed.

Through analysis of the current state, the root cause of this problem is that there is no standardized workflow for Medical Assistants. It is evident that nurses’ working efficiency will improve if necessary information regarding the call is obtained so that more time could be spent on doing other value-added activities to the nurse’s job, for example: clinic duties.

Recommendation

Train all MAs to the same higher level in order to standardize MAs workflows.

Benefits

By having all the MAs to have the same higher level of the working knowledge, their work can be standardized. Besides making the MA’s job more interesting, nurses’ could spend more time attending to patient, assisting physicians, and clinic duties. This would significantly reduce processing time in handling each call. In conjunction with this, the nurse would be able to accommodate a larger call volume each day.

Costs

Costs related to this are the costs for the MA’s training, which would include instructor cost and equipment cost. The amount of time needed to train the MAs also needs to be considered.
RECOMMENDATION 2

Problem Statement and Root Cause Analysis

Through examination of Figure 2, there are a fair amount of patients that call without leaving a message in the voice mail. The root cause to this problem is that the answering message is too long that patients do not listen to the message. The answering message states that patients should leave all information regarding the call. For example, for prescriptions refill, a patient should state the dosage and his/her pharmacy. Since this message is ignored by the patient, no information is left in the phone system, thus forcing the nurse to call back the patient.

In conjunction with this problem, some patients could call the clinics more than once per day. The root cause to this problem is that patients do not have access to the policy regarding time required for a call completion. For example, a patient that call to request for prescription refill at 9 AM would call again at 4 PM on the same day hoping that request is fulfilled, while the policy for prescription refills is 2 days.

Recommendation

1. Implement an automatic voice prompting system at the beginning of the message.

A basic set-up of this system could be found in appendix C.

Besides the implementation, we also recommend the training of the system usage in order to get the system working properly with every entity and thus established. The implement system will be made as user friendly as possible for the ease of patients use.
**Benefits**

By directing a call, patients are ensured to leave information in the voice mail. It is then evident that nurses’ time is saved since there is no need to call the patient back. Nurses could also react faster to urgent calls as they do not have to go through listening to all messages until an important one comes along.

**Costs**

Through contact with Cindy Langer, the cost would be approximately $5.00 per month for the current Rockwell system. It would take 2 weeks to implement the system. If the system training timeframe is considered, it takes approximately 3 months before the system is established and working properly.

2. Take calls directly

**Benefits**

We recommend that nurses answer the calls directly if she is the office. Delegating a nurse to do this will eliminate a percentage of the time that the nurses spend on repeat phone calls as well as a percentage of time the SOAP notes are handled because the patient’s problem would be known directly and sometimes could also be solved on the same time.

**Recommendation 3**

**Problem Statement and Root Cause Analysis**

After documenting necessary information on SOAP notes, the MAs put the SOAP notes on the nurse’s table. This could potentially cause problems such as lost SOAP notes or misplace SOAP notes.

**Recommendation**

Set-up a labeled bin for SOAP notes near the nurses’ table.

**Benefits**

Lost SOAP notes could be avoided. Nurses could also organize and rank the SOAP notes easily and time is saved by not having to look for SOAP notes.

**Costs**

After checking with Staples, the cost of a bin would be around $10, the total cost for the bins will be $50 for each of the nurses observed.
RECOMMENDATION 4

Problem Statement and Root Cause Analysis

There are some unnecessary steps taken by both the MAs and the nurses when looking at the current workflows. When receiving appointment calls, there are no needs to transfer the calls to the nurses. Paging the doctor directly to ask for overbook is a more efficient way and thus saving nurses' time.

Recommendation

Eliminate the process of transferring calls regarding appointments to the nurses. The new proposed workflows are presented in appendix B.
### PROPOSED ENVIRONMENT OVERVIEW

#### RECOMMENDATION SUMMARY

Table 3. Recommendations summary.

<table>
<thead>
<tr>
<th>Problem Statement</th>
<th>Recommendation</th>
<th>Annual Costs</th>
<th>One Time Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>No MA workflows standardization</td>
<td>Train MA to higher level</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No message left in the voice mail</td>
<td>Implement Prompting System</td>
<td>$ 60.00</td>
<td>$5.00/month</td>
</tr>
<tr>
<td>Lost or misplaced SOAP notes</td>
<td>Set-up labeled bins for SOAP notes</td>
<td>$50.00</td>
<td>$10.00/bin</td>
</tr>
<tr>
<td>Waste regarding appointment calls</td>
<td>Eliminate the process of transferring appointment calls to the nurses</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$110.00</strong></td>
<td></td>
</tr>
</tbody>
</table>
## ACTION PLAN

### Exhibit 1. Implementation Plan

<table>
<thead>
<tr>
<th>Date:</th>
<th>4-Dec-00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager:</td>
<td>Karen Nairn</td>
</tr>
<tr>
<td>Manager:</td>
<td>Jennifer Tillman</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Departments</th>
<th>Objective</th>
<th>Goal (Measurable)</th>
<th>2001 Monthly Schedule</th>
<th>Person in charge</th>
<th>Review Schedule</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rheumatology and Endocrinology departments</td>
<td>Improve efficiency of labeled bins</td>
<td>Eliminate possibilities of lost SOAP notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Implement Prompting System</td>
<td>Eliminate no information calls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Assistant Training</td>
<td>Develop higher skills for all MAs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lean process of receiving calls</td>
<td>No appointment calls transfer to nurses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Signatures**

Manager: Nurse

---

*Program and Operations Analysis*

*Rheumatology and Endocrinology*

*Page 19*
APPENDIX A

CURRENT WORKFLOWS

☐ Endocrinology

1. Retrieve patient’s voice message (By Medical Assistant)
2. Nurse Receive Call Process
3. Appointment Call Process
4. Prescriptions Refill Call Process
5. Symptomatic Call Process
6. Test Results Call Process

☐ Rheumatology

1. Patient Call Handling Process
2. Medical Assistant Message Handling Process
3. Symptoms Call Process
4. Prescription Call Process
5. Lab Results Call Process
6. Referrals Call Process
7. Appointment Call Process
A Medical Assistant that assists Nurse Bonnie Temple does this process.

All calls go into Nurse Bonnie's voice mail and reviewed by her medical assistant.

The amount of info gathered depends on the MA's skill and level of experience.

Retrieve Patients' voice Messages Process
(By Medical Assistant)

- Patient Call and leave a voice message
  - Retrieve the message
  - Record message on a SOAP Note *
  - What type of Message?
    - Appointment related Call
    - Symptomatic Review
    - Prescription Refills
    - Test Results
    - Health Education

The percentages are found by reviewing SOAP Notes.

- 12% Appointment related Call
- 29% Symptomatic Review
- 3% Prescription Refills
- 18% Test Results
- 15% Health Education

Sick?
- No
  - Transfer call to Appt. Clerk
- Yes
  - Enter CareWeb: Review Patient's File and Office Visit Record
  - Print out patient info from CareWeb
  - Staple all info gathered and the SOAP Note together
  - Place the SOAP notes in a bin next to nurse's desk
  - END PROCESS. Move to next Message
Rank SOAP Notes according to severity:
1. High Priority
2. Pending
3. Prescription
4. Lab Result
5. Low Priority

Read SOAP Notes and CareWeb Info attached

What type of Message?

Appointments related Call
Symptomatic Review
Prescription Refills
Lab Results
Health Education

Appointment Call Process
Symptomatic Call Process
Prescription Refills Call Process
Lab Results Call Process
Health Education Call Process
Appointment Call Process

1. Receive Appointment Call

2. Call patient back for sickness clarity (if needed)

3. Sick enough to be overbooked? (18%)
   - No: Transfer to Appointment Clerk
   - Yes: 82%

4. Page doctor to confirm overbooking and issue appointment

5. E-mail Appointment Clerk (Cheryl)

6. Call patient back to confirm new appointment

This process would be done by an experienced MA.
Prescription Refill Call Process

Receive Prescription Refills Call

New Patient?

Yes
Page doctor to confirm dosage

No
98 %

Pull UP office visits and Chart (DMI)

Would be done by experienced MA

Call patient back for clarification on types and dosage of medication (if needed)

Call Pharmacy / Drug Store Associated to request and authorize prescription refills
Symptomatic Calls Process

Receive Symptoms Call

Call patient back for information and clarification

Make nursing judgment

Enough knowledge to decide?

Yes 95% → Follow Up Doctor’s advice

5% No → Page Doctor for advice

Critical?

No → Advise patient on what to do

Yes → Have patient go straight to emergency room
Test Result Call Process

1. Receive Test Results call
2. Obtain patients' test result
3. Evaluate
4. Critical / Fine?
   - Critical: 10%
     - Call lab to ensure test result is right
     - Call doctor to notify and ask for advice:
       - Change medications dosage?
       - Change type of medications?
       - Need to do specific procedures?
     - Make copies of any changes made and tape to SOAP note
     - Fax copy to entities related
     - Call patient back to notify changes
   - Fine: 90%
     - Page doctor
Medical Assistant Message Handling Process

1. Medical Asst. Retrieves Message
2. Record Message on SOAP Note *
3. Access CareWeb for Patient Profile
4. Print Patient Info & Place SOAP Notes in Nurse's SOAP box
5. Type of Call?
   - Appointment Call
     - Appointment Call Process
   - Symptoms Call
     - Symptoms Call Process
   - Prescriptions Call
     - Prescriptions Call Process
   - Lab Results
     - Lab Results Process
   - Referrals Call
     - Referrals Call Process

* SOAP – Subjective Objective Assessment Plan
Symptoms Call Process

Symptoms Call

Nurse Attempts to Diagnose Symptoms

Review Patient Medical History

Yes

Nurse Knows How to Diagnose Symptoms?

No

Contact Physician for Recommendation

Pass Doctor Recommendation to Patient

Advise Patient on Next Course of Action
Prescription Call Process

1. Receive Prescription Call
2. Check Medicine and Dosage Required
3. Notify Physician and Pharmacy/Drug Store
4. Inform Patient of Prescription
Lab Results Call Process

Lab Results Call

Retrieve & Evaluate Patient Lab Results

Mail or Fax Lab Results to Patient

Yes

Results Desirable?

No

Contact Physician for Recommendation

Pass Doctor Recommendation to Patient

Inform Patient of his/her Good Current Condition
Referrals Call Process

Referrals Call

Request for Patient Medical History File

Review Patient Medical History

Yes
Need Appointment with UM Hospital Doctor?

No

Transfer to Appt. Clerk for Appt. Setup

Refer Patient to Appropriate Doctor
Appointment Call Process

Receive Appointment Call

Check Patient Status

No

Very Sick?

Yes

Transfer to Appt. Clerk for Appt. Setup

Tell patient to call ER immediately
APPENDIX B

PROPOSED FUTURE WORKFLOWS

1. Retrieve patient’s voice message (By Medical Assistant)
2. Nurse Receive Call Process
3. Appointment Call Process
4. Prescriptions Refill Call Process
5. Symptomatic Call Process
6. Test Results Call Process
Proposed Future State Work Flow

Retrieve Patients' voice Messages Process
(By Medical Assistant)

A Medical Assistant that assists the Nurse does this process.

All calls go into Nurse's voice mail and reviewed by her Medical Assistant.

* SOAP : Subjective Objective Assessment Plan

END PROCESS. Move to next Message
Nurse Receive Call Process

Pick up SOAP Notes from bin

Rank SOAP Notes according to severity:
1. High Priority
2. Pending
3. Prescription
4. Lab Result
5. Low Priority

Read SOAP Notes and CareWeb Info attached

What type of Message?

- Symptomatic Review
  - Symptoms Call Process

- Prescription Refills
  - Prescription Refills Call Process

- Lab Results
  - Lab Results Call Process

- Health Education
  - Health Ed. Call Process
Prescription Refill Call Process

Receive Prescription Refills Call

New Patient?

Yes → Page doctor to confirm dosage

No → Pull UP office visits and Chart (DMI)

Call Pharmacy / Drug Store Associated to request and authorize prescription refills
Symptomatic Calls Process

1. Receive Symptoms Call
2. Make nursing judgment
   - Yes
     - Critical?
       - No: Advise patient on what to do
       - Yes: Have patient go straight to emergency room
   - No: Page Doctor for advice
   - Follow Up Doctor's advice
**Test Result Call Process**

1. Receive Test Results call
2. Obtain patients’ test result
3. Evaluate
4. Critical / Fine?
   - Critical
     - Call lab to ensure test result is right
     - Call doctor to notify and ask for advice:
       - Change medications dosage?
       - Change type of medications?
       - Need to do specific procedures?
     - Make copies of any changes made and tape to SOAP note
     - Fax copy to entities related
     - Call patient back to notify changes
   - Fine
     - Page doctor
APPENDIX C

PROMPT SYSTEM SET-UP

1. Basic Set-Up

2. Appointment Call
Sample Voice Form when Patient Leave a Message

Welcome to the University of Michigan Rheumatology Department. If you already called within the last 48 hrs and left a message, please hang up and someone will get back to you as soon as possible.

Please leave your CPI number and press pound.

Please leave your full name and press pound.

Please leave the contact number you want us to reach you and press pound.

Please choose from the following options:

- For Appointment press 1
- For calls regarding symptoms press 2
- For Prescription press 3
- For labwork press 4
- For other questions press 5

Appointment process:

- Please leave a brief message about the symptoms and press pound.
- Please leave your pharmacy number and press pound.
- Please leave the type and the dosage of the medicine you required and press pound.

Thank you for calling the Rheumatology department. Someone will get back to you as soon as possible.
Appointment process

Please choose from the following options

If this is an emergency please press 1

Please leave a brief message of your condition and press pound

Thank you for calling the rheumatology department. Someone will get back to you as soon as possible

If this is regarding scheduling, rescheduling or cancellation, please press 2

Transfer call back to appointment clerk

Thank you for calling the rheumatology department. Someone will get back to you as soon as possible.
<table>
<thead>
<tr>
<th>TIME</th>
<th>Rescheduling of appointment</th>
<th>New Appointment</th>
<th>Cancellation</th>
<th>Calls for Nurse</th>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 am - 7.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.30 am - 8 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 am - 8.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.30 am - 9 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 am - 9.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.30 am - 10.00 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 am - 10.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.30 am - 11 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 am - 11.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.30 am - 12 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 pm - 12.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.30 pm - 1 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 pm - 1.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.30 pm - 2 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 pm - 2.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.30 pm - 3 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 pm - 3.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.30 pm - 4 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.30 pm - 5 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 pm - 5.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.30 pm - 6 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 pm - 6.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.30 pm - 7 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 pm - 7.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.30 pm - 8 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 pm - 8.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.30 pm - 9 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no of calls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total no of calls: 212
<table>
<thead>
<tr>
<th>TIME</th>
<th>Rescheduling of appointment</th>
<th>New Appointment</th>
<th>Cancellation</th>
<th>Calls for Nurse</th>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 am - 7.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.30 am - 8 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 am - 8.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.30 am - 9 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 am - 9.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.30 am - 10,00 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 am - 10.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.30 am - 11 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 am - 11.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.30 am - 12 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 pm - 12.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.30 pm - 1 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 pm - 1.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.30 pm - 2 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 pm - 2.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.30 pm - 3 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 pm - 3.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.30 pm - 4 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.30 pm - 5 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 pm - 5.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.30 pm - 6 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 pm - 6.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.30 pm - 7 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 pm - 7.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.30 pm - 8 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 pm - 8.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.30 pm - 9 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total no of calls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional comments:
Date: 04/09/94

Nurse's Name: C. Yee (5 doctors) off Wednesday

Project Title: Calls Analysis for Internal Medicine

Department: circle one: Rheumatology

Endocrinology

<table>
<thead>
<tr>
<th>TIME</th>
<th>Rescheduling of appointment</th>
<th>New Appointment</th>
<th>Cancellation</th>
<th>Calls for Nurse</th>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 am - 7.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.30 am - 8 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 am - 8.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.30 am - 9 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 am - 9.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.30 am - 10.00 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 am - 10.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.30 am - 11 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 am - 11.30 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.30 am - 12 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 pm - 12.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.30 pm - 1 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 pm - 1.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.30 pm - 2 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 pm - 2.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.30 pm - 3 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 pm - 3.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.30 pm - 4 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.30 pm - 5 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 pm - 5.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.30 pm - 6 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 pm - 6.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.30 pm - 7 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 pm - 7.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.30 pm - 8 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 pm - 8.30 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.30 pm - 9 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total no of calls: 9