Mr. T. G. Whedbee, Jr., Director
Church Home and Hospital
Baltimore, Maryland

Dear Mr. Whedbee:

The attached report contains a complete description of the proposed Outpatient Scheduling System, a study of exam room utilization, and an analysis of the suggestion that the Inpatient and Outpatient Medical Records be combined.

I would like to acknowledge the cooperation of the entire Outpatient Department Staff. Particular thanks to Miss Wharton for her assistance on this project.

Sincerely,

Donald J. Pyle
Project Engineer
SYNOPSIS

Objectives -

Community Systems Foundation was asked to study the problem of excessive patient waiting times in the Church Home and Hospital Outpatient Clinic. In addition, it was requested that examining room utilization be studied and the possibility of combining inpatient and outpatient records be investigated.

Summary of Recommendations -

1. That five of the clinics be placed on a staggered appointment system.
   a. The clinics on this system would be Medical, Surgical, Obstetrical, Gynecology, and Orthopedics.
   b. The system would function as follows:
      (1) Each doctor would be scheduled separately.
      (2) An initial "set" of patients would be scheduled at the beginning of the clinic. After this, they would be scheduled at intervals equal to the average service time multiplied by the percentage of patients who actually appear for their appointments.

2. The remainder of the clinics should be left on the present system.

3. The present number of exam rooms is sufficient for present demand and should be sufficient for at least the next four years at the present growth rate.

4. Due to the fact that the space is not needed for other purposes and that it is more convenient for the outpatient records to be located in the Outpatient Department, it is recommended that the records be left in their present location.
Present System

Patient Scheduling -

The present outpatient scheduling system is to instruct all patients, for a particular clinic, to appear at the time that the clinic begins. Thus, if a clinic operates from 8 a.m. to 12 noon, the average patient waiting time is two hours, with some patients waiting as long as four hours. In addition, the clinics operate on a first come - first served basis, which results in patients arriving prior to the opening time. This tends to make the average waiting time even longer and also adds to the congestion in the waiting area.

Analysis of this system has shown that it is sufficient for all but five of the clinics. The reason for this is that, in all but five clinics, there are so few patients per session, or the average service time is so short, that the clinic is over in a very short period of time. Any attempt to shorten patient waiting time in these clinics would result in idle doctor time.

The other five clinics, however, have sufficient numbers of patients to merit a more sophisticated scheduling system. The clinics requiring this system are the Medical, Surgical, OB, Gyn, and Orthopedics.

Examining Room Utilization -

The graph in Appendix D shows the present scheduled examining room utilization. Observation of the clinics over a period of time has shown that certain of the clinics are actually only using the rooms a fraction of the allotted time.

The Suture Clinic, which is scheduled for two exam rooms every morning from 8 to 10, is generally over by 8:30. Therefore this clinic's scheduled time can easily be cut to 8 to 9.

The Medical Clinics invariably start later and finish earlier than their scheduled times. The afternoon clinics, in particular, could easily operate within a 1 p.m. to 3 p.m. schedule.
These two clinics, in particular, could operate with less clinic time. Other changes, in the scheduling of exam rooms, are discussed in the Proposals section of this report.
PROPOSED
OUTPATIENT SCHEDULING SYSTEM

In order to reduce patient waiting time and congestion in the waiting area, it is proposed that certain of the outpatient clinics be placed on a staggered appointment system. The clinics to be placed on this system, initially, would be the Medical, Surgical, OB, Gyn, and Orthopedic. Due to the small numbers of patients seen or the short service time per patient, the other clinics should not be placed on this system at present.

A study was conducted for a period of six weeks to determine the amount of time required for a doctor to see a patient in each of the clinics. Considering, as a primary requisite, that a doctor must not have to wait for a patient, service intervals were determined for each clinic. These intervals were then multiplied by the percentage of patients who actually appear for their appointments. This figure is then used as the scheduling interval for each clinic. To further reduce the possibility of a doctor running out of patients prior to the end of the clinic, a "buffer group" of patients is scheduled to appear 15 minutes prior to the start of the clinic. The scheduling interval and "buffer group" size for each clinic are given in Appendix C.

The basic element of the scheduling system is the appointment book. (A sheet from this book is included as Appendix A.) One column is used for each doctor each day on which he sees patients. The period of time during which the doctor will see patients is blocked in in advance to facilitate the scheduling process. The sheets are prepared for each day two months in advance. The patients are then scheduled as per the instructions given in Appendix B.
EXAM ROOM UTILIZATION

The current clinic schedule is given in Appendix D. It should be noted that there are still large gaps in this schedule. In addition, most of the clinics are not using all of the time presently allotted to them. Appendix E shows the percent utilization of exam room time during an 8-week study conducted during the months of June, July, and August. Appendix F shows that these months are not significantly different from any other period.

A number of conclusions can be drawn from these figures and the supporting data.

1. The Surgical Clinic should be given about 4 more exam room hours per week.
2. The Orthopedic Clinic should be given about 6 more exam room hours per week.
3. The Medical Clinic could easily operate with 20 less exam room hours per week.
4. The Suture Clinic can be cut from two hours per day to one hour per day.
5. The OB and Gyn Clinics can continue to operate with the present number of allocated exam room hours.

Considering (a) the present level of utilization by the clinics, (b) the fact that there are presently 68 exam room hours unused each week (see Appendix E) and (c) that the total number of patients is increasing by about 10% per year (see Appendix G), the present number of exam rooms should be sufficient for the next four years.
It was suggested at the outset of this study that the possibility of combining the Outpatient Records with Inpatient Records be investigated. The primary reason being that it was felt that the outpatient records area could be converted to exam rooms.

It is recommended that the Outpatient Records be left where they are for the following reasons:

1. This space is not needed for exam rooms at present.
2. Combination in the present Medical Records storage area would necessitate enlargement of this area in the near future.
3. The increase in labor necessary to transport records to the Outpatient Department would not be offset by increased net efficiency.
<table>
<thead>
<tr>
<th>Time</th>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00</td>
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<td></td>
</tr>
<tr>
<td>3:15</td>
<td>3:00</td>
<td></td>
</tr>
<tr>
<td>3:30</td>
<td>3:15</td>
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<td>4:15</td>
<td></td>
</tr>
<tr>
<td>4:45</td>
<td>4:30</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

SCHEDULING PATIENTS

1. Patients for Medical, Diabetic, Surgical, Gyn, and Orthopedic clinics.
   a. Note the number of patients per time interval on the Patient Frequency Sheet.
   b. Following the frequency given, schedule the patient as early as possible in the period of time which is blocked off.
      (1) If the patient is to have an x-ray prior to seeing the doctor, the patient should be instructed to appear 30 minutes prior to the time he is to see the doctor.

      Note: A group of patients will be scheduled for the first 15 minutes as per the frequency sheet. This "group" is to be filled prior to scheduling patients for any other time.

2. New OB patients.
   a. Schedule seven patients for 8 a.m.
   b. Schedule the remainder for 10 a.m.

3. Patients for all other clinics.
   a. List the patients without regard to the time labels.
   b. Have the patient appear at the beginning of the clinic period.
   c. Inform the patient that this clinic is continuing to function on a first come - first served basis.

Example: Suppose that there is an OB clinic for which two doctors will be present from 2 p.m. to 4 p.m.

1. One column would be set up for each doctor on that day's schedule.
2. The period from 1:45 to 4 p.m. would be blocked in.
3. For each doctor:
   a. First: 2 patients would be scheduled for 1:45.
Appendix B (Cont'd.)

b. Then: 3 patients would be scheduled for 2:00.

c. Etc. to 3:45.

Note: An attempt should be made to keep the load as even (between doctors) as possible.
# Appendix C

## PATIENT FREQUENCY SHEET

<table>
<thead>
<tr>
<th>Clinic</th>
<th>First 15 Minutes</th>
<th>Remainder of Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>2 Patients</td>
<td>1 Patient /15 min.</td>
</tr>
<tr>
<td>Diabetic</td>
<td>2 Patients</td>
<td>3 Patients/30 min.</td>
</tr>
<tr>
<td>Surgical</td>
<td>4 Patients</td>
<td>4 Patients/15 min.</td>
</tr>
<tr>
<td>OB</td>
<td>2 Patients</td>
<td>3 Patients/30 min.</td>
</tr>
<tr>
<td>Gyn</td>
<td>2 Patients</td>
<td>3 Patients/30 min.</td>
</tr>
<tr>
<td>Orthopedic</td>
<td>3 Patients</td>
<td>2 Patients/15 min.</td>
</tr>
</tbody>
</table>
### Appendix E

PERCENT UTILIZATION OF

ALLETTED EXAM ROOM TIME

<table>
<thead>
<tr>
<th>Clinic</th>
<th>Percent Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>52%</td>
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<tr>
<td>Surgical</td>
<td>105%</td>
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<td>Orthopedic</td>
<td>115%</td>
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<tr>
<td>OB</td>
<td>82%</td>
</tr>
<tr>
<td>Gyn</td>
<td>72%</td>
</tr>
<tr>
<td>Suture</td>
<td>23%</td>
</tr>
</tbody>
</table>