CSF

ANALYSIS OF EMERGENCY ROOM WARD

356 - 69

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COMMUNITY SYSTEMS FOUNDATION

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BACKGROUND:

On August 4, 1969, the consolidation of Emergency Room services at Jackson's three major hospitals became effective. All emergencies in Jackson County are now directed towards Foote Hospital. In the past physicians had been available on a call basis. With the formation of a corporation by the physicians in the area, a physician is now available at all times in the Emergency Room.

Although only a few months have passed since the consolidation, it appears that the hospital will have an increase of approximately 60% in the number of patients treated in the Emergency Room. This increased activity has also brought the need for increased staff. This study, however, is concerned only with the staffing requirements for the ward secretaries.

Prior to August 4, two (2) ward secretaries serviced the department. The staff has since been increased to five (5) ward secretaries and includes at least one (1) girl on each shift. It has been proposed that the ward secretaries provide continuous coverage seven (7) days per week and be assigned as follows:

a) Two (2) ward secretaries on each of the first two (2) shifts

b) One (1) ward secretary on the third shift

This arrangement will require a total staff of seven (7) ward secretaries to provide the necessary coverage as proposed.

The purpose of this study was to evaluate this proposal to determine if the present workload justifies the staffing proposed.

SYNOPSIS

Through observations, work samplings, time studies, discussions with hospital personnel and records' analysis, the necessary information was obtained to evaluate the staffing requirements for Emergency Room ward secretaries.

In order to provide adequate ward secretary coverage when it is most needed taking into account the randomness of patient arrivals, four (4) full-time ward secretary positions are necessary daily and should be assigned as follows:

8 a.m.-4 p.m.	4 p.m. - 12 midnight
10 a.m. - 6 p.m.	6 p.m. - 2 a.m.

This staffing arrangement insures that adequate coverage is maintained during peak activity hours. Employment of a ward secretary on the third shift is unjustifiable. For those third shift hours during which a ward secretary is not present, nursing personnel should handle the paperwork activity in the same manner as prior to the consolidation of Emergency Room facilities.

Recent modifications in the nursing station area have increased the amount of available working space. However, a tight space situation still exists. Although the feasibility of extending a wall of the nursing station into the waiting area has not been evaluated, it should be considered to alleviate the space problem unless Administration has plans to increase the seating capacity in the waiting area.

The present method of reporting Emergency Room activity to Administration should be changed. It is recommended that the number of patients treated daily be reported by the arrival time shown on the admission form. In addition, the number of DOA handled should also be reported. To further facilitate the record keeping procedures involved in assembling this report, it is recommended that the ward secretaries use the sequentially numbered admission forms in continuous ascending order.

METHOD OF APPROACH

Approximately one and one-half mandays were spent directly observing ER activities. Time was spent on each of the three shifts. During this time the activities of the ward secretaries were observed, documented and timed. For those activities not observed, appropriate time estimates were obtained from the ward secretaries. Emergency room records were also analyzed to determine the distribution of patient arrivals by time of day and shift.

DATA ANALYSIS

Appendix A contains the first 25 days of Emergency Room activity since the consolidation. Data was recorded from the Emergency Room Admission Form by patient arrival time and illustrates patient arrivals by hour of day. Weekend activity was further segregated from weekday activity to illustrate the workload increase on weekends. Analysis of this data indicates major activity between the hours of 10 a.m. and 10 p.m.

Appendix B contains a comparison of Emergency Room patient visits for the past two years. Extrapolation of the figures shown for August and September indicate that the hospital has experienced a 60% increase in the number of patients treated during these two months. This increase is solely attributable to emergency cases since the number of outpatients and in-patients treated has remained constant.

An additional facet that must be considered is that data used in the staffing analysis is entirely from the month of August of this year. For the past two years, at least, August has registered the greatest number of patients treated.

An average of 80 patients total (includes in-patients and out-patients) are treated daily in the Emergency Room. Approximately 37% of the patients are treated on the first shift, 50% on the second and 13% on the third.

STAFFING ANALYSIS

In order to determine the number of ward secretaries required on each shift, the average number of patients treated per shift corresponding with the above percentages, was used in the staffing analysis. Time studies and ward secretary estimates provided the necessary time standards.

The clerical procedures involved in processing an average patient along with other work performed by the ward secretaries and the associated time standards are as follows:

1.	Types or writes information on admission form, obtains patient signature on necessary forms	5 minutes
2.	Fills out lab or x-ray form, detach copy (if necessary) and place on chart, give copy to orderly or other hospital personnel accompanying patient (since some patients require more than one lab test or x-ray, combined ratio of tests/patient is approximately 1/2) 2 minutes/form x 1 test/2 patients = 1 minute	1 minute
3.	Results of x-ray or lab return, results noted	1 minute
4.	Record charges for patient	1 minute
5.	After patient is treated, review admission form to assure doctor's signature and receives patient's signature.	1 minute
6.	Bursts and sorts forms, places in numerical order and readies for mailing and distribution	15 minutes/shift
7.	Other work-giving directions to patients and visitors, ordering supplies, cleaning, scheduling outpatients, etc.	60 minutes/shift
8.	Telephone work--incoming and outgoing calls handled by ward secretary only	
	1st shift (7-3)	90 minutes
	2nd shift (3-11)	45 minutes
	3rd shift (11-7)	10 minutes

Standards/shift are based on the above times and the average number of patients treated per shift (1st shift includes combined average of three in-patients and outpatients treated daily). These standards were utilized as follows:

	MINUTES PER SHIFT		
	7-3	3-11	11-7
Process Patient (#1-#5) x ave.#pts.(App.A)	261	360	90
Forms work (#6)	15	15	15
Other Work (#7)	60	60	60
Telephone	90	45	10
SUB-TOTAL	426	480	175
17% PFD*	72	82	30
TOTAL	498	562	205

*PFD = Personal, fatigue and unavoidable delay allowance

The standard minutes per shift as computed must be further analyzed in conjunction with data contained in the appendices. These totals are based on the average number of patients treated per shift.

The ward secretary's workload is distributed randomly. Although the activities which she is called on to perform are readily defined, it is difficult to determine exactly when and in what concentration she will be called upon to perform these activities. All clerical activities are performed with respect to specific patients and patient load itself is a random phenomenom. The random characteristic of patient arrivals, illustrated by the workload distributions in Appendix A, must be considered before staffing recommendations can be made.

To insure adequate daily coverage especially during peak activitiy hours and to minimize the involvement of nursing personnel in clerical work, the time standards previously developed were utilized to arrive at practical staffing recommendations. By summing the minutes shown in the TOTAL row (1265) and dividing this sum by the average number of patients treated daily (80), a time standard incorporating all the ward secretary's daily activities can be expressed on a minutes per patient basis. This time standard is approximately sixteen (16) minutes per patient.

Utilizing this concept, a ward secretary can handle approximately four (4) patients per hour or 32 patients per eight (8) hour shift. Appendix A3 contains a frequency breakdown of the number of days during the data sampling period corresponding to the number of patients treated (column headings) for the various daily hour intervals. Based on this analysis, the following staffing recommendations are made taking into account that adequate staff should be available daily to cover peak workload periods for the majority of the time.

Four (4) full-time ward secretary positions with the following coverage: 8 a.m-4 p.m. 4 p.m.-12 midnight 10 a.m.-6 p.m.
6 p.m. - 2 a.m.

This staffing arrangement will require 5.6 F.T.E. employees. Various staffing patterns were evaluated, however, this pattern allows coverage during peak activity hours and is the most practical of all those considered.

The starting time of the day shift was advanced one hour to 8 a.m. thus affecting the starting time of subsequent shifts. This starting time change is recommended because little patient activity occurs during the first hour of the present day shift. In addition, a balancing of the workload is effected on the first two shifts. The average number of patients treated on the first shift increases while that of the other two shifts decreases.

Although the recommended staffing does not include provision for a third shift ward secretary, a ward secretary is scheduled until 2 a.m. This scheduling arrangement makes maximum use of available personnel since the majority of the third shift's workload is confined to the first few hours of the shift. Nursing personnel can handle the paperwork for the remainder of this shift in the same manner as prior to the consolidation.

The staggering of job starting times should provide a smooth transitional means from one shift to another. Paperwork activity involving the dissemination and distribution of admission forms for mailing purposes can occur on the first shift.

LAYOUT

The increase in the number of emergency cases to be treated by the consolidation has necessitated an increase in the size of the emergency room area. The conversion of a portion of the cafeteria into a patient overflow area will allow the hospital to meet the demand for additional service facilities.

The removal of the large filing cabinet and subsequent construction of a counter and acquisition of smaller filing cabinets to fit under the counter has increased the space at the nursing station. The station, however, is still crowded. Investigation into enlarging the nursing station should be considered if the hospital does not contemplate a seating increase. This renovation will not effect the number of seats presently in the waiting area. Under the existing layout, seats can be added in the center of the waiting area.

DAILY REPORT TO ADMINISTRATION

The data shown in Appendix A corresponds to the patient arrival time shown on the Emergency Room Admission Record. Daily figures provided Administration on the number of patients treated per shift corresponds to the shift on which the patient was treated. Therefore, a patient arriving on the first shift at 2:30 p.m. is recorded on the first shift in the 2-3 time interval in Appendix A, whereas in the daily report submitted to Administration, the patient may be recorded on the second shift--the shift on which the patient was treated. The former counting method was used during this study because the majority of the ward secretary's paperwork activity occurs immediately after the patient's arrival not after the patient has been treated.

The present reporting mechanism of the number of cases treated in the E.R. should be changed. In addition to that mentioned above, the report contains the following inequity. The number of cases shown in the 11-7 category reflects the number of cases treated from 12 midnight to 7 a.m. and 11 p.m. to 12 midnight on the same day. Two different shifts are involved and the cases reported do not correspond to the same shift. It is recommended, therefore, that the reporting of patients treated in the Emergency Room be determined by the patient arrival time and that they be reported on a per shift basis.

At present the number of DOA received are not reported. Although this has little effect on the workload of the ward secretary, it does effect nursing personnel. Nurses remarked that the handling of a DOA involves a great amount of time on their part--more so than the treating of an emergency patient. Therefore, to accurately reflect the total daily activity in the Emergency Room, the number of DOA should also be reported.

Advantage should be taken of the sequential numbering of admissions forms. Ward secretaries should use these forms in continuous ascending order. In this manner, compilation of Emergency Room reports and statistics can be facilitated. If the above recommendations are implemented, daily reporting to Administration can be greatly simplified. Knowing the initial form number used at the beginning of each shift, a simple subtraction gives the number of forms used on the shift. Further knowledge of the number of outpatients and in-patients treated, the number of DOA and the number of forms voided, the number of true emergency patients can be determined. The ward secretary can attach a note with the above information on the emergency room copies of the forms for her shift for the nursing supervisor.

The following summarizes the recommendations of this section:

1) Report the number of patients treated per shift by the patient arrival time.
2) For the third shift, report patients treated by arrival time for the shift, not by calendar day.
3) Report DOA daily.
4) Utilize the sequential numbering of Admission forms to simplify reporting procedures.

The above recommendations should save the supervisor making the daily reports some time and provide workload information by shift that is accurate and consistent.

EMERGENCY ADMISSIONS RECORD

Each patient treated through the Emergency Room has an Emergency Admission Record form completed. The form is composed of five (5) copies aligned in the following manner:

1. Medical Records - white
2. Attending Physician - pink
3. Emergency Physician's Corporation - yellow
4. Business Office - gold
5. Emergency Room - green

Often, the doctor's handwritten information is illegible on the last copy. The Emergency Room copy is the only copy along with the Medical Record copy that contains all the information recorded during the patient's visit. Since the Emergency Room copy is often used for reference purposes while it remains at the nursing station and legibility is important, it is recommended that a change in the alignment of forms be made on the next order. The Emergency Room copy should be placed second, the Attending Physicians copy fourth and the Business Office copy last. The Business Office copy does not contain any of the doctor's handwritten remarks but contains primarily handwritten charge information.

NURSING STATION ORGANIZATION

The nursing station is fairly well organized within the existing space constraints. The work area of the ward secretary has been altered by the construction of the additional counter and removal of the glass windows from which all interviewing is conducted. All the essentials for the ward secretary to perform her normal daily routine are located in this area with the exception of lab and x-ray forms which are located on the left side of the sink. Since the ward secretary completes the majority of these forms they should be placed near her.

The removal of the glass windows to allow the ward secretary to conduct interviews at this location now permits a direct view into the nursing station. Therefore, it is important to keep the nursing station in order. The bulletin board should be inspected periodically and outdated information removed. The counter area should also be kept, as much as possible, presentable.

It may be necessary, as the weather grows colder, to install sliding glass windows in the area where interviewing is presently done. Even this change may necessitate interviewing patients in the same location as in the past.

DIRECTIONAL SIGNS

Ward secretaries are often used as "information" personnel by those who enter the hospital through the Emergency Room door. People who are unfamiliar with the hospital are not greeted by adequate signs at this entrance and thus go to the ward secretary at the Emergency desk for directions. Even those who enter through the main entrance may end up at the Emergency Desk asking for directions. Signs directing people to the various service areas of the hospital should be conspicously placed. Signs depicting the meaning of the colored lines running along the corridors would also be most helpful. In the Emergency area, there is room on the wall opposite the outside entrance on which directional signs could be placed. In addition, a sign denoting the lab should be placed perpendicular to the wall in the main corridor so that it could be viewed in the corridor approaching from either direction.

CONCLUSION

The staffing recommendations developed in this report will allow for adequate ward secretary coverage during peak activity hours. The overall average time required per patient, sixteen (16) minutes, can be used as a guide to determine future ward secretary staffing requirements should the number of patients treated daily increase or decrease significantly for an extended period of time. This figure can be multiplied by the average number of patients treated per shift and this total divided by the total number of minutes worked by the ward secretaries daily on the shift. As was done in this study, the distribution of patient arrivals is an important factor that must also be considered.

Recommendations involving daily reporting procedures should be implemented immediately. This information will provide Administration with accurate and consistent data by which to evaluate Emergency Room activity.

Other topics discussed in this report are not presented as recommendations but as concepts which should be considered by the hospital to improve the effectiveness of the Emergency Room.

APPENDICES

APPENDIX A1

EMERGENCY ROOM VISITS
EXCLUDES INPATIENT AND OUTPATIENT VISITS

August 4-28, 1969

	M	T	W	T	F	SA	SU	M	T	W	T	F	SA	SU
	4	5	6	7	8	9	10	11	12	13	14	15	16	17
7A-8	2	2	-	-	4	-	--	2	2	-	2	2	1	2
8-9	-	6	5	5	-	2	1	3	1	2	3	3	2	1
9-10	6	4	2	2	3	5	2	2	1	2	3	2	4	1
10-11	4	6	4	3	-	3	6	4	3	8	5	3	4	2
11-12N	5	3	2	1	3	4	4	6	-	4	5	4	5	6
12N-1P	9	2	3	4	4	8	3	4	2	5	2	4	2	6
1-2	4	1	5	3	2	5	9	2	6	3	1	5	4	13
2-3	2	2	5	5	3	1	6	4	7	6	3	4	4	6
TOTAL	32	26	26	23	19	28	31	27	22	30	24	27	26	37
3-4	4	10	5	5	3	6	12	3	5	4	2	4	6	4
4-5	7	2	5	4	3	2	3	2	3	4	4	6	5	10
5-6	3	3	4	3	1	7	6	6	7	2	6	4	7	7
6-7	6	6	7	4	3	2	2	5	6	3	5	4	5	6
7-8	7	6	5	1	6	2	6	3	5	2	8	8	5	10
8-9	8	6	10	7	5	4	6	2	4	7	11	8	4	14
9-10	7	8	4	7	3	6	7	4	6	12	4	10	10	3
10-11	5	-	3	4	4	4	4	3	1	1	5	3	4	2
TOTAL	47	41	43	35	28	33	46	28	37	35	45	47	46	56
11-12M	3	4	-	-	-	3	3	2	4	2	7	1	-	3
12M-1A	1	-	2	1	-	5	3	3	1	4	6	1	2	-
1-2	-	1	1	-	-	2	1	3	-	1	1	-	1	5
2-3	2	-	2	1	1	1	4	-	3	3	-	3	8	1
3-4	1	1	-	-	-	1	-	-	-	1	-	-	-	2
4-5	1	-	1	1	1	3	1	2	1	1	-	-	3	1
5-6	-	-	-	-	2	1	1	1	1	-	-	-	2	-
6-7A	1	2	-	1	-	1	1	-	-	-	-	-	1	-
TOTAL	9	8	6	4	4	17	14	11	10	12	14	5	17	12

APPENDIX A1 Continued

	M	T	W	T	F	SA	SU	M	T	W	T
	18	19	20	21	22	23	24	25	26	27	28
7A-8	2	2	-	1	-	1	-	2	1	-	1
8-9	1	1	2	-	-	3	5	-	1	5	-
9-10	3	1	1	1	5	2	1	1	3	2	2
10-11	4	4	2	5	4	7	4	4	6	2	5
11-12N	3	2	3	1	7	6	10	6	1	7	4
12N-1P	6	2	5	4	3	6	3	2	4	2	3
1-2	3	6	4	8	2	4	6	7	3	5	8
2-3	4	3	5	3	2	9	4	1	3	5	2
TOTAL	26	21	22	23	23	38	33	23	22	28	25
3-4	7	5	3	6	4	5	4	-	4	6	6
4-5	4	5	7	7	2	6	13	4	5	1	10
5-6	6	3	3	8	3	6	6	4	5	8	5
6-7	6	5	3	7	6	5	5	8	6	7	4
7-8	5	7	6	2	6	4	4	6	10	6	5
8-9	9	7	1	6	2	6	5	7	3	9	4
9-10	2	5	2	2	8	5	5	8	2	4	6
10-11	3	2	4	1	5	3	8	5	2	3	1
TOTAL	42	39	29	39	36	40	50	42	37	44	41
11-12M	5	1	2	5	4	5	2	2	4	-	-
12M-1A	2	-	3	3	1	1	3	2	-	1	3
1-2	-	-	-	-	1	2	-	-	2	2	3
2-3	2	2	-	2	3	-	3	-	1	-	1
3-4	-	3	-	-	-	1	-	-	1	-	1
4-5	-	1	-	-	-	3	1	-	-	1	-
5-6	1	-	1	-	2	2	2	1	-	-	1
6-7	-	-	1	1	2	-	-	1	1	-	1
TOTAL	10	7	7	11	13	14	11	6	9	4	10

APPENDIX A1 Continued

	TOTAL	AVE.	MIN.	MAX.
7A-8	29	1.16	-	4
8-9	52	2.08	-	6
9-10	61	2.44	1	6
10-11	102	4.08	-	8
11-12N	102	4.08	-	10
12N-1P	98	3.91	2	9
1-2	119	4.76	1	13
2-3	99	3.93	1	9
3-4	123	4.93	-	12
4-5	124	4.96	1	13
5-6	123	4.93	1	8
6-7	126	5.05	2	8
7-8	135	5.40	1	10
8-9	155	6.20	1	14
9-10	140	5.60	2	12
10-11	80	3.20	-	8
11-12M	62	2.48	-	7
12M-1A	48	1.92	-	6
1-2	26	1.04	-	5
2-3	43	1.72	-	8
3-4	11	0.44	-	3
4-5	22	0.88	-	3
5-6	18	0.72	-	2
6-7A	14	0.56	-	2

APPENDIX A2

EMERGENCY ROOM VISITS

WEEKDAYS VERSUS WEEKENDS

August 4-28,1969

	Monday thru Friday				Saturday and Sunday			
	TOTAL	AVE	MIN	MAX	TOTAL	AVE	MIN	MAX
7A-8	25	1.32	--	4	4	0.67	--	2
8-9	38	2.00	--	6	14	2.33	1	5
9-10	46	2.42	1	6	15	2.50	1	5
10-11	76	4.00	--	8	26	4.33	2	7
11-12N	67	3.53	--	7	35	5.83	4	10
12N-1P	70	3.68	2	9	28	4.67	2	8
1-2	78	4.11	1	8	41	6.83	4	13
2-3	69	3.63	1	7	30	5.00	1	9
3-4	86	4.53	--	10	37	6.17	4	12
4-5	85	4.47	1	10	39	6.50	2	13
5-6	84	4.42	1	8	39	6.50	6	7
6-7	101	5.32	3	8	25	4.17	2	6
7-8	104	5.47	1	10	31	5.17	2	10
8-9	116	6.11	1	11	39	6.50	4	14
9-10	104	5.47	2	12	36	6.00	3	10
10-11	55	2.90	--	5	25	4.17	2	8
11-12M	46	2.42	--	7	16	2.67	--	5
12M-1A	34	1.79	--	6	14	2.33	--	5
1-2	15	0.79	--	3	11	1.83	--	5
2-3	26	1.37	--	3	17	2.83	--	8
3-4	7	0.37	--	3	4	0.67	--	2
4-5	10	0.53	--	2	12	2.00	1	3
5-6	10	0.53	--	2	8	1.33	--	2
6-7A	11	0.58	--	2	3	0.50	--	1

APPENDIX A3

Patient Visit Frequency*

	0-1	2-4	Over 4
7A-8	14	11	--
8-9	12	8	5
9-10	7	15	3
10-11	1	16	8
11-12N	4	11	10
12N-1P	--	18	7
1-2	2	11	12
2-3	2	14	9
3-4	1	11	13
4-5	1	12	12
5-6	1	10	14
6-7	--	8	17
7-8	1	6	18
8-9	1	7	17
9-10	--	10	15
10-11	5	15	5
11-12M	8	13	4
12M-1A	12	11	2
1-2	18	6	1
2-3	13	11	1
3-4	23	2	--
4-5	21	4	--
5-6	20	5	--
6-7A	23	2	--

*Based on twenty-five (25) day data sample.

Data indicates the number of days during the sample corresponding to the number of patients (column headings) treated during the hourly intervals shown.

APPENDIX B
Emergency Room Visits

	1968						1969					
	7-3	3-11	11-7	IP	OP	Total	7-3	3-11	11-7	IP	OP	Total
January	390	478	206	10	111	1195	462	509	176	10	109	1266
February	344	469	157	14	100	1084	408	474	161	14	95	1152
March	409	552	184	14	115	1274	517	627	216	14	140	1514
April	412	568	185	19	139	1323	416	578	176	6	137	1313
May	456	660	237	13	162	1528	525	691	179	11	109	1515
June	464	763	253	13	118	1611	547	691	242	14	130	1624
July	538	787	243	13	132	1713	620	933	258	9	134	1954
August	520	826	250	9	120	1725	834	1254	353	5	93	2539
September	428	707	224	4	92	1455	862	1113	382	4	119	2480
October	430	574	211	6	118	1339						
November	427	492	233	27	97	1276						
December	443	552	215	8	97	1315						

Source: Nursing Service