Memo

To: Matt Ford, Director of Hospital Operations

From: Yolanda Bunton, Project Manager for Tri Health

Date: 10/29/2007

Re: Good Samaritan

Introduction

Good Samaritan is undergoing an expansion, as requested a layout has been considered. Three layouts had been created and compared to one another to find out which one is the best at minimizing the patient's traveling distance in the hospital.

Findings

Layout Recommendation and CVD Outcomes: Good Samaritan should go with Alternative 2 for the new layout because its total distance between the departments is 14,645 feet. On the other hand, Alternative 1 total distance is 15,200 feet and Alternative 3 is 16,220 feet.

Analysis

Method: The following are the three alternatives that have been planned to find which one will be appropriate for the new layout for Good Samaritan. However, all rooms will share a common hallway positioned in the center of the wing.

Alternative 1

Emergency Room	Radiology	Cardiology
Operating Room	Recovery	Reception

Alternative 2

Emergency Room	Operating Room	Reception
Radiology	Recovery	Cardiology

Alternative 3

Operating Room	Recovery	Cardiology
Emergency Room	Reception	Radiology

Data: The numbers that will be used are listed below. The following table shows the results of a week's worth of tracking made between departments in the existing hospital space. The track movements are expressed as a daily average rounded to the nearest trip.

Table 1: Load Matris Chart (Number of Trips)

# Trips	**To**					
From	*Cardiology*	*Emergency Room*	*Operating Room*	*Radiology*	*Reception*	*Recovery*
Cardiology	-	15	30	2	1	4
Emergency Room	7	-	26	10	4	30
Operating Room	4	7	-	17	0	35
Radiology	3	22	23	-	0	14
Reception	10	18	5	21	-	9
Recovery	16	8	5	9	1	-

There are some assumptions that I will be making to find out which alternative should be use, such as:

- knowing what the letters in the cost-volume-distance formula stands for
  - "C" is the cost of movement that is always equal to one (C = 1)
  - "V" is the Load Matris (number of trips) chart
  - "D" is the vertical/horizon distance
    - Movement to a room next to each other or directly across the hall is 30 feet. Moving diagonally across the hall is 40 feet and moving double diagonally across the hall is 75 feet.
- Use the CVD formula for each department and then add it all together to get the total amount for each alternative

Layout Recommendation and CVD Outcomes: Table 2 is a sample calculation for Alternative 1, it will show the amount for each department when using the CVD formula, and this will be the same way Alternative 2 and 3 are calculated. It turns out that Alternative 2 will be the best layout for the expansion of Good Samaritan because it requires a total of 14,645 ft. in movements between the departments. On the hand Alternative 1 requires a total of 15,200 ft in movements, while Alternative 3 requires a total of 16,200 ft. (See Table 3: Total Distance Between Departments)

Table 2: Sample Calculation Between each Department of Alternative 1

From/To	*Cardiology*	*Emergency Room*	*Operating Room*	*Radiology*	*Reception*	*Recovery*	*Total*
Cardiology	-	900	2,250	60	30	160	3,400 ft.
Emergency Room	420	-	780	300	300	120	3,000 ft.
Operating Room	300	210	-	680	0	1,050	2,240 ft.
Radiology	90	660	920	-	0	420	2,090 ft.
Reception	300	1,350	300	840	-	270	3,060 ft.
Recovery	640	320	150	270	30	-	1,410 ft.
Total							15,200

**Cardiology to other Departments: (1)(15)(30 + 30) +(1)(30)(75) + (1)(2)(30) + (1)(1)(30) + (1)(4)(40) = 3,400 ft.*

Table 3: Total Distance Between Departments

From	*Alternative 1*	*Alternative 2*	*Alternative 3*
Cardiology	3,400 ft.	2,595 ft.	3,145 ft.
Emergency Room	3,000 ft.	3,045 ft.	3,225 ft.
Operating Room	2,240 ft.	2,100 ft.	2,775 ft.
Radiology	2,090 ft.	2,180 ft.	3,695 ft.
Reception	3,060 ft.	3,465 ft.	2,040 ft.
Recovery	1,410 ft.	1,260 ft.	1,340 ft.
Total	15,200 ft.	14,645 ft.	16,220 ft.

Sample of Alternative 1: Cardiology to other departments is 900 + 2250 + 60 + 30 + 160 = 3,400 ft.

Limitations

Even though three alternatives were given and that Good Samaritan should chose Alternative 2 because its total distance between the departments is 14,645 ft., many other samples could have been provided and better than Alternative 2. The cost of movements will be the same for each department, but however the expansion could cost more because working on the new layout could come across some problems that Good Samaritan did not know they had, such as a department might need extra space. Plus, the patient's movement between the departments all depends on their situation.