

**SSM DePaul Health Care:  
Emergency Department ReDesign**

**Post Occupancy Evaluation**

Before Summer 2010, I was in the process of deciding what area to research for my independent study. I immediately started contacting hospitals, health centers, rehab centers, and nursing homes across St. Louis in search of opportunities to volunteer my time, along with an ulterior motive which was to try and understand how these places work, and what changes need to be made when designing these spaces.

The place that I had started volunteering at was DePaul Hospital in Bridgeton, MO. After I began volunteering there, I was given the opportunity to conduct a Post Occupancy Evaluation for the Lawrence Group who had recently renovated their Emergency Department.

A three-fold approach was taken in conducting this POE.

1. **Observations Through Volunteering** (p 5)
2. **Spaghetti Diagrams** (p 10)
3. **Post Occupancy Survey** (p 24)

**Address:** 12303 DePaul Drive  
Bridgeton, MO

**Architect:** The Lawrence Group

**Construction:** Alberici Group

**Completion Date:** March 2008

**Budget:** \$7,200,000

**Square Footage:** 5,500 Additional  
+ Reconfiguration of Existing ED

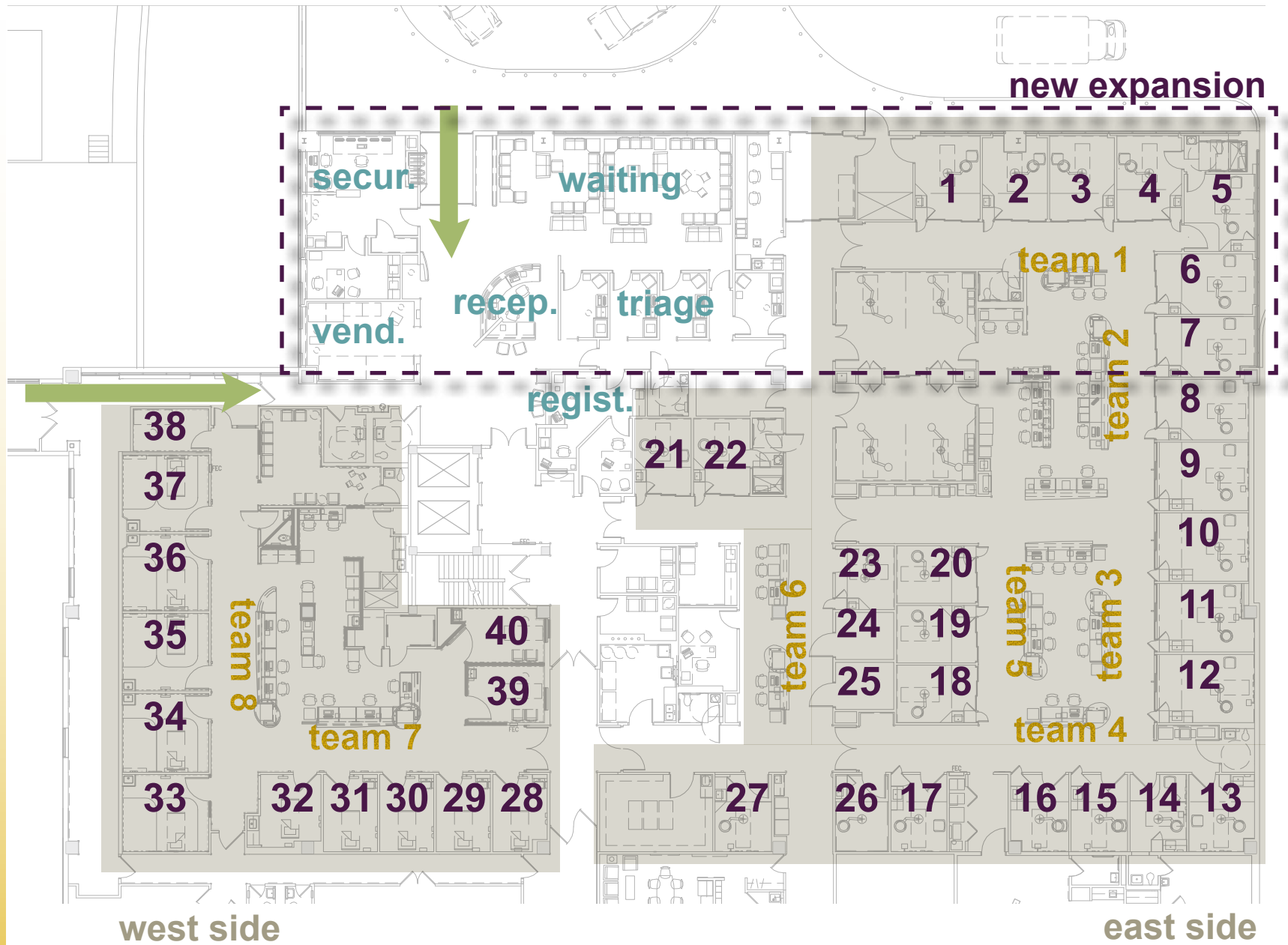
**Redesign:** Emergency Room Entrance  
Nurse Station

**Design:** Ambulance Entrance  
Waiting Room  
Triage  
Patient Room Space  
EMS Space  
Area for Disaster Related Patients

**Volume:** 70,000 Patients/Year



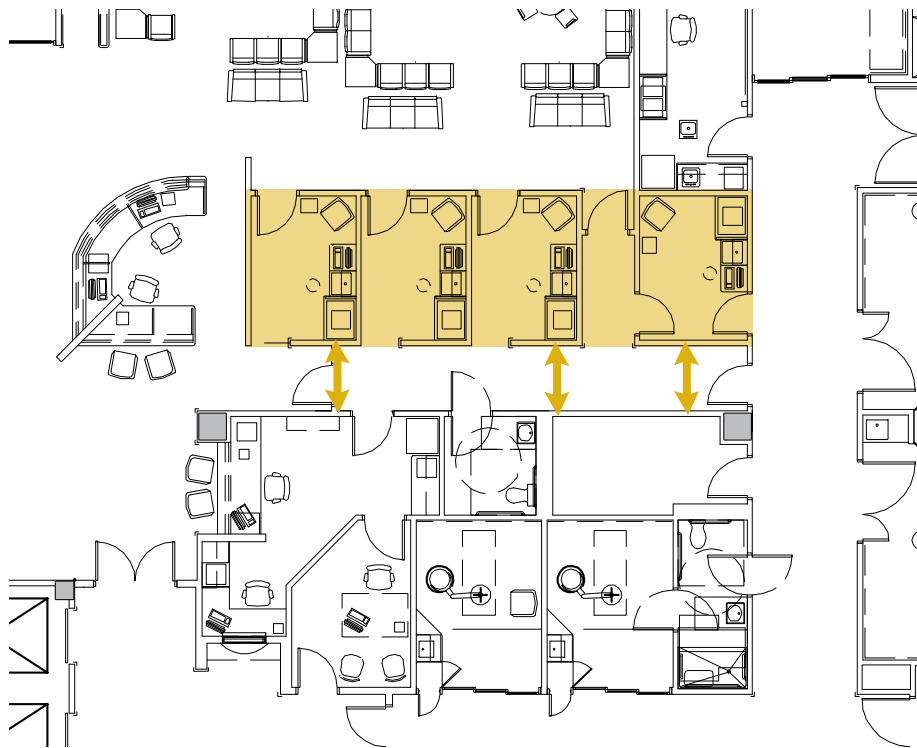
## Emergency Department Expansion



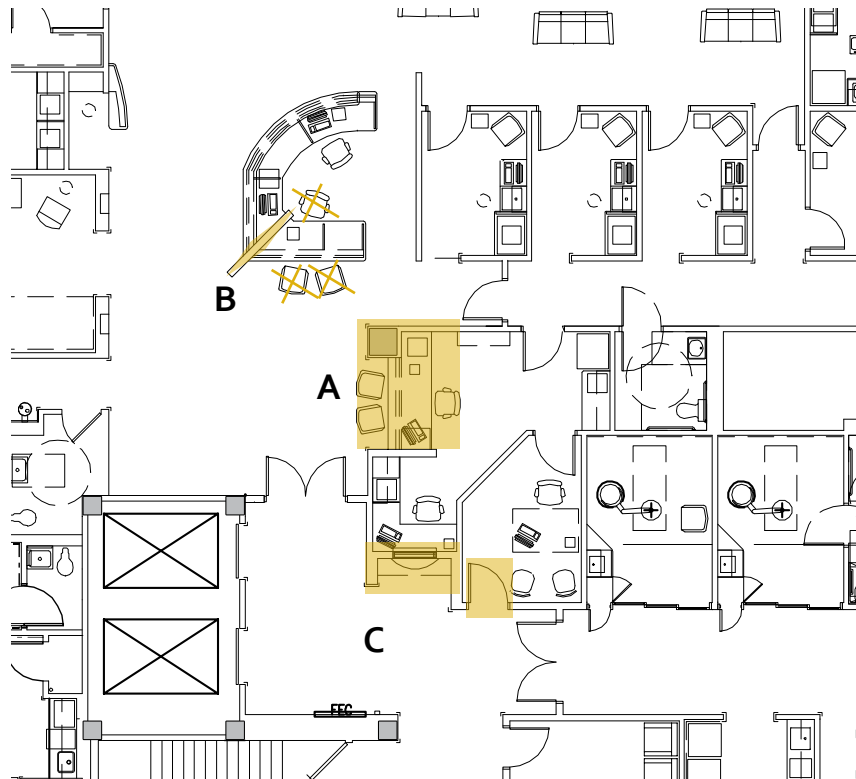
## Emergency Department Expansion

## Observations through Volunteering

I began my volunteering experience at DePaul Hospital's Emergency Department on June 7, 2010. I would try to volunteer for at least five to six hours a day, in the afternoon. My duty as a volunteer was to work the reception desk and assist in taking patients and visitors back to their rooms. In doing this, I was able to observe the interaction of the patients with the staff, the various stages of treatment, and be able to communicate with both patients and staff about what they enjoy about the renovation, and what improvements they would recommend.



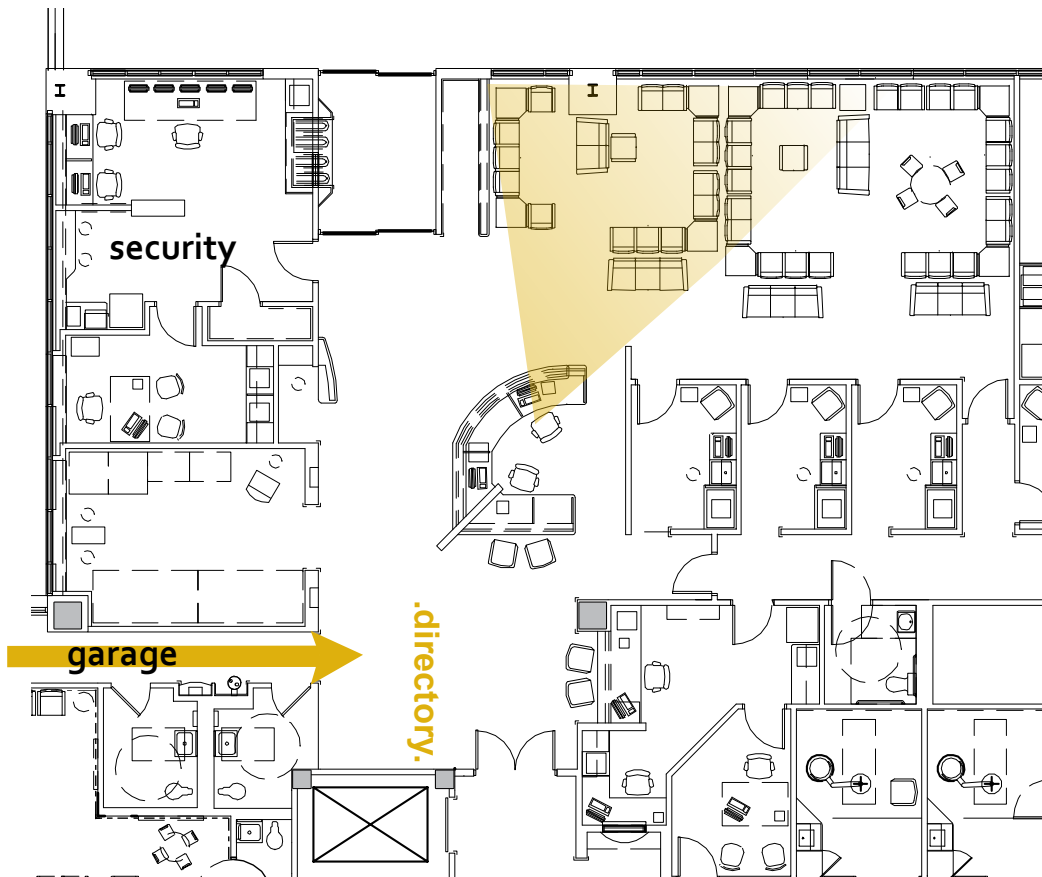
One of the major areas that is not functioning well is the Triage area. The rooms for triage, although used very briefly in the process of moving through the Emergency Department, are important for getting a patient's vitals. Nurses felt that these rooms were too small as it is difficult to maneuver wheelchairs when it comes to treating patients as well. Another issue with this space is the hallway between the triage and registration is rather narrow and makes it difficult to access for patients and nurses.



The registration area provided is not actually used as it had been planned. The areas which are highlighted are not used for registering patients. The nurses typically just take the moveable computer station into the Triage 1 room to get the patient registered right away. Because they do not register at the reception desk, the wall on the registration desk that acts as a separator is actually obtrusive. Also, because registration happens in the Triage 1 room, it should be significantly larger, or possibly swapped with the registration room.

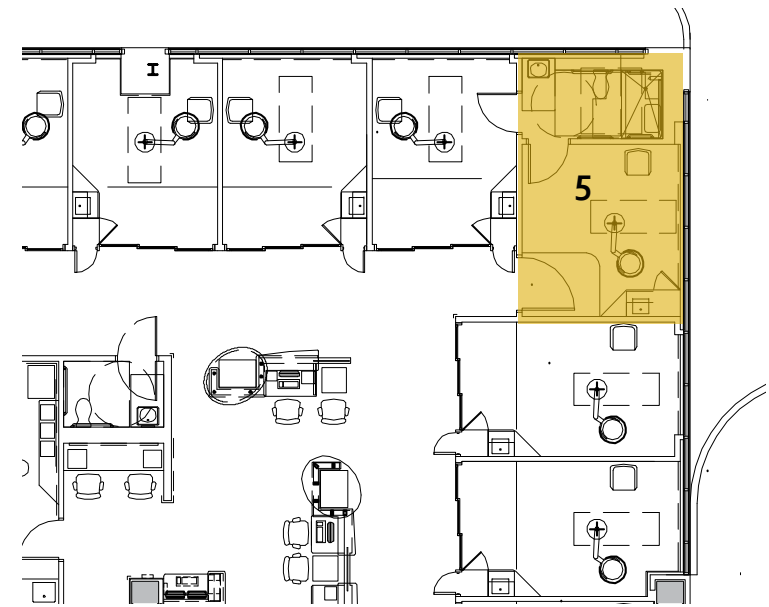
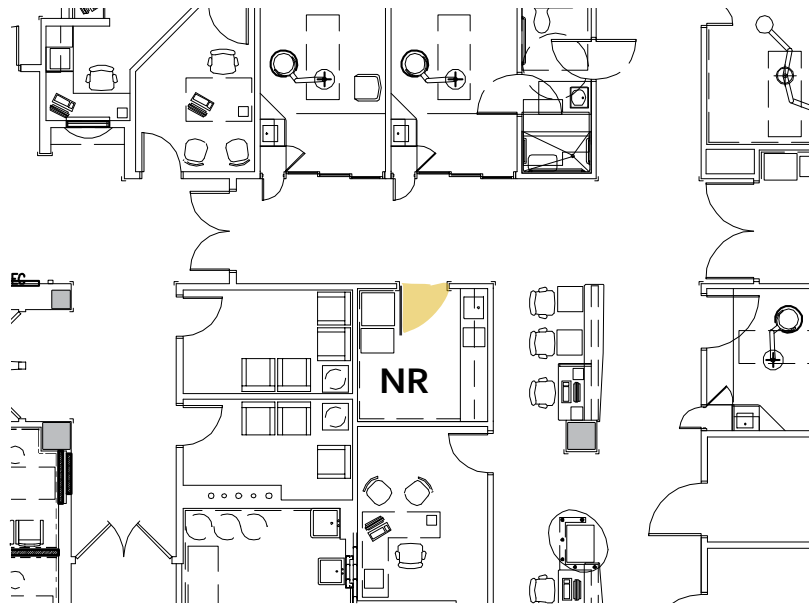
## Registration

A few minor issues in the waiting room/reception area were those of visibility and signage. As people enter into the Waiting room from the garage side entrance, they tend to be a little disoriented and do not know where to go, a directory would be helpful in guiding them. Also, the nurse or tech sitting at the reception desk does not have a full view of the waiting room. It would be beneficial for nurses as well as the security to keep an eye on the entire waiting room.



## Reception





The nourishment room, and treatment room 5 received criticism. The nourishment room was criticized for its lack of a door, making it too easy for anyone to go in and get snacks. The nourishment room was designed for patients not visitors. Room number 5 provided problems because of how awkward it is, it is tough for visitors to get to that room, visibility is a problem for the ER staff. The other rooms have a clear door, this is obscured

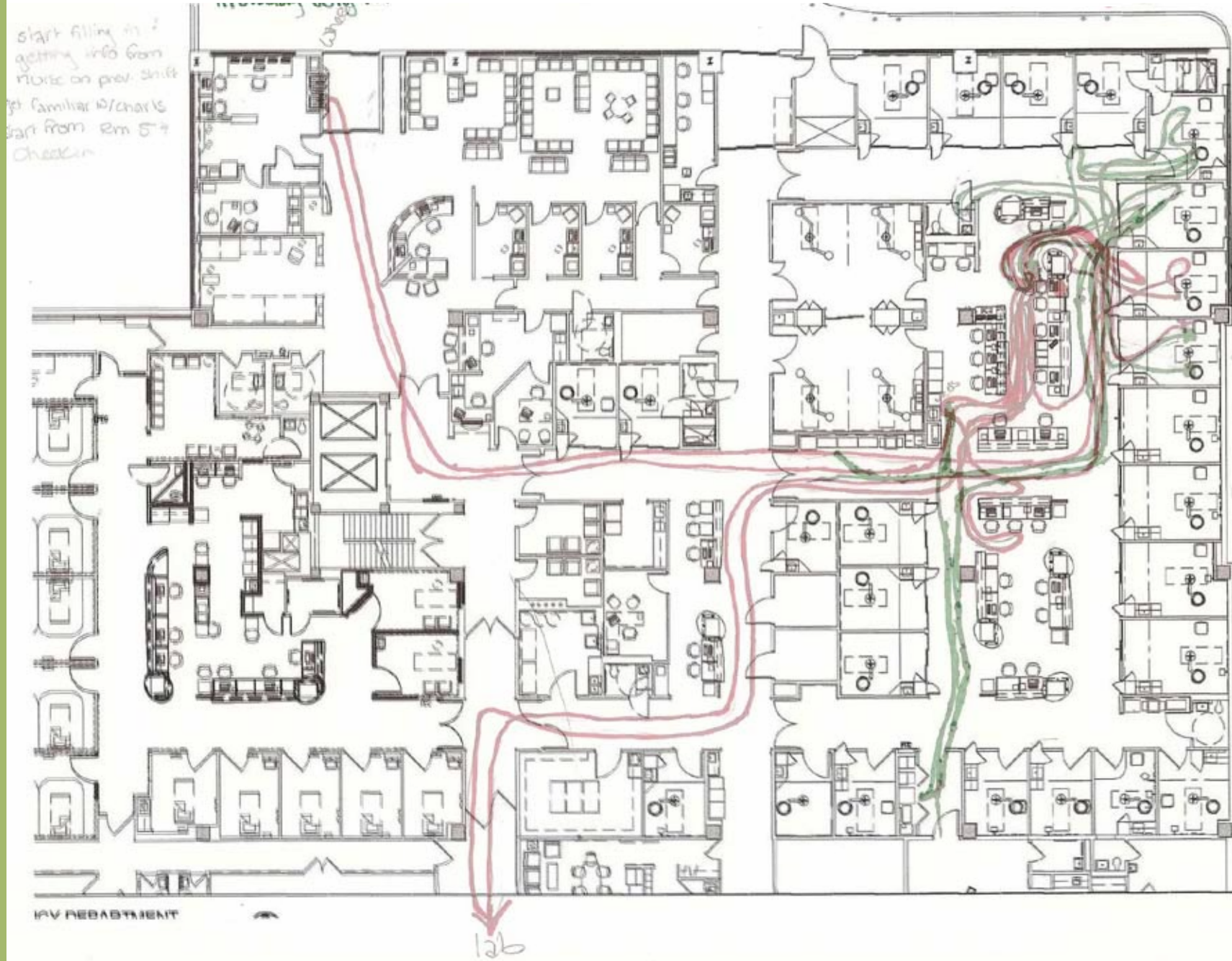


## Nourishment & Room 5

## Spaghetti Diagrams

On July 15th from 7AM to 7PM, I was able to follow a nurse around for her entire shift, and note how exactly she was accessed the space. This was recorded by creating a series of spaghetti diagrams for each half-hour of her shift. The lines on the plan of the ED show where she had traveled during that time period. This gave much insight into how a nurse really uses the space. Because the diagrams would get very detailed at certain hours, we are able to see when things are busy. I also made sure to keep notes on what she was doing during that time period.

Green = 7-7:30 AM  
Red = 7:30-8 AM



The nurse, Amanda, started the morning with a catch up session with the previous night's nurse in order to get familiar with the charts and the situation with each patient. She started at room 5 and moved down. She was in charge of rooms 5 -8. In the first half hour she went to each room and introduced herself and made sure the patients were comfortable. After that, she would go and see what medicines were needed, and go to the Pixas, the supply station, and to each patients room. She needed to get a wheelchair for a patient as well, from the lobby, in order to wheel the patient over to the lab.

7 AM

8 AM

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

3 PM

4 PM

5 PM

6 PM

Blue = 8-8:30 AM  
Green = 8:30-9 AM



In the first half hour, part of her journey was to get some water for a patient in room 5. Her route took her to get a cup, fill water from the nourishment room, and take it back to the patient. Also, she spent time at the Pixas machine getting medicine for her patient.

In the next half hour, besides checking on one of her patients, she was helping another nurse get the room ready for a patient in room 4.

7 AM

**8 AM**

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

3 PM

4 PM

5 PM

6 PM

Red = 9-9:30 AM  
Blue = 9:30-10 AM



A lot of time was spent at her station. Her main trips included getting water for a patient as well as spending quite a bit of time in room 4 with the patient who was brought in.

7 AM

8 AM

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

3 PM

4 PM

5 PM

6 PM

Green = 10-10:30 AM  
Red = 10:30-11 AM



It was quiet in the first half hour, as Amanda had went to the cafeteria. In the second half hour she went back and checked on one of her patients as well as a couple of the patients from Team 1.

7 AM

8 AM

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

3 PM

4 PM

5 PM

6 PM

Blue = 11-11:30AM  
Green = 11:30-12 PM



Typical events occurred;  
she checked in on  
patients.

7 AM

8 AM

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

3 PM

4 PM

5 PM

6 PM

Red = 12-12:30 PM  
Blue = 8:30-9 PM



She checked in on her patients, and also helped register the patient in the hall area before going to lunch.

7 AM

8 AM

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

3 PM

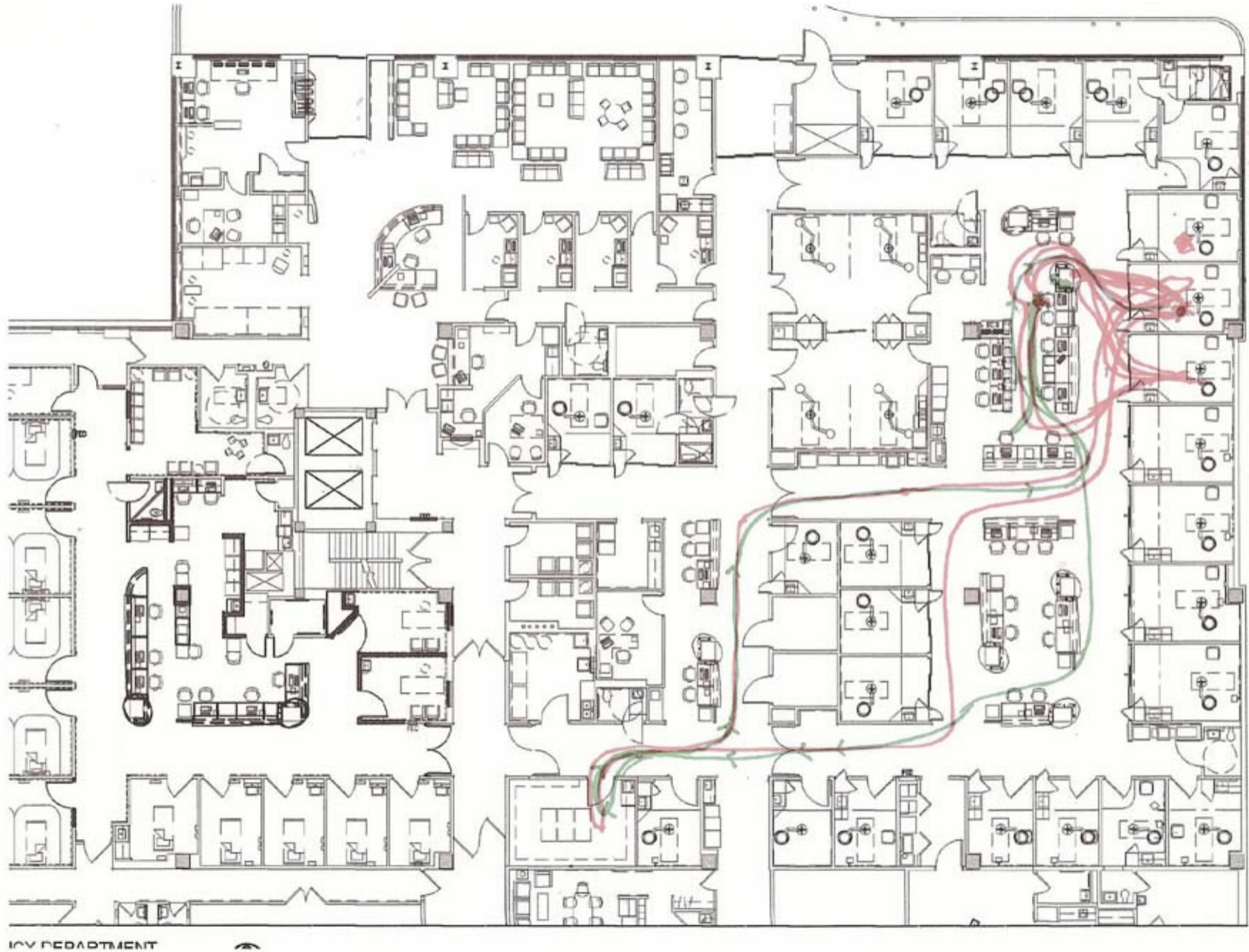
4 PM

5 PM

6 PM



Red = 1-1:30 PM  
Blue = 1:30-2 PM



In this hour she got supplies for patients in room 7 and 8.

7 AM    8 AM    9 AM    10 AM    11 AM    12 PM    **1 PM**    2 PM    3 PM    4 PM    5 PM    6 PM

Blue = 2-2:30 PM  
Blue = 2:30-3 PM



Typical activities occurred, besides going back to check in at the triage room.

7 AM

8 AM

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

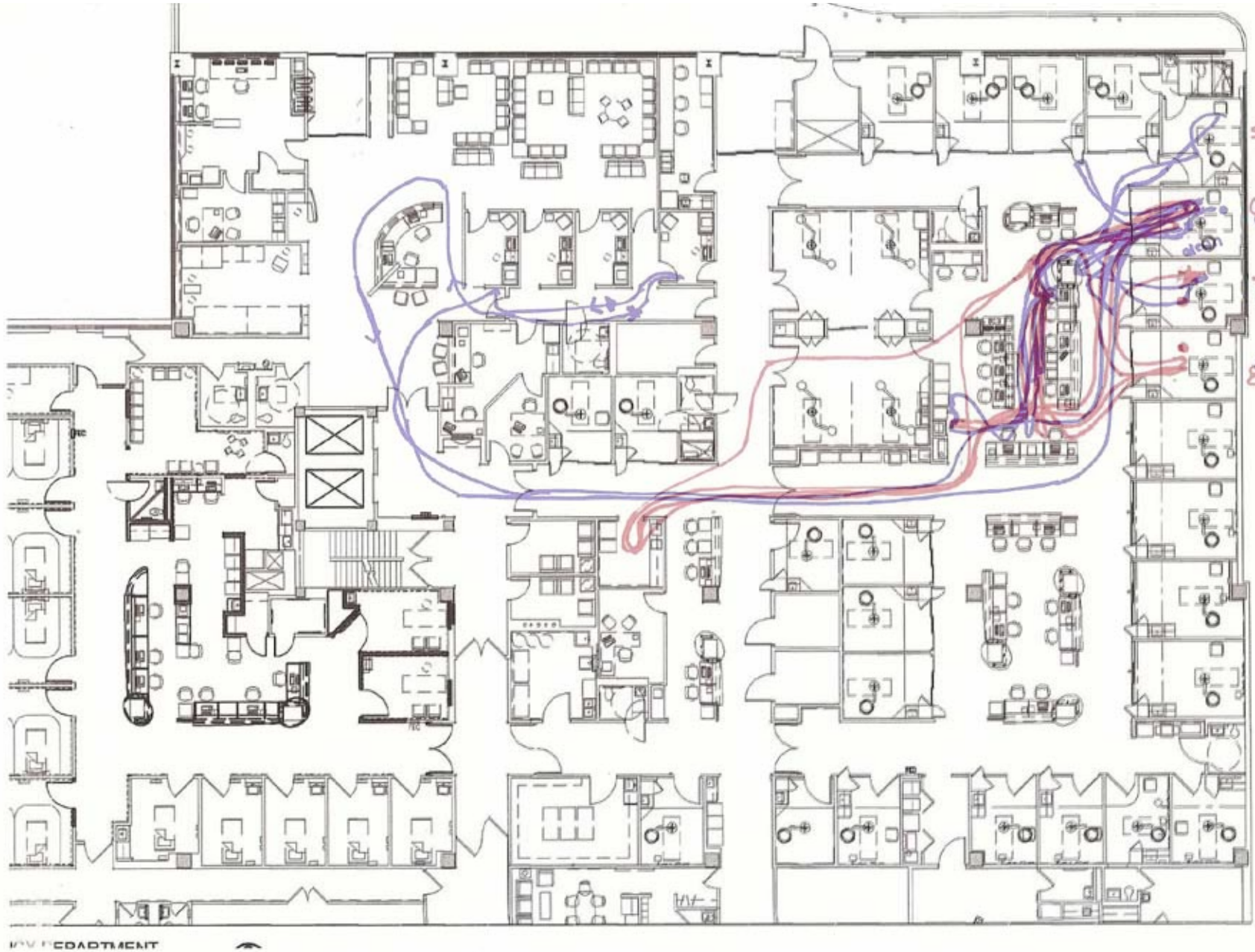
3 PM

4 PM

5 PM

6 PM

Red = 3-3:30 PM  
Blue = 3:30-4 PM



She went to get a snack for the patient from the nourishment room, and also had to go call a patient and take the patient back to their room.

7 AM

8 AM

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

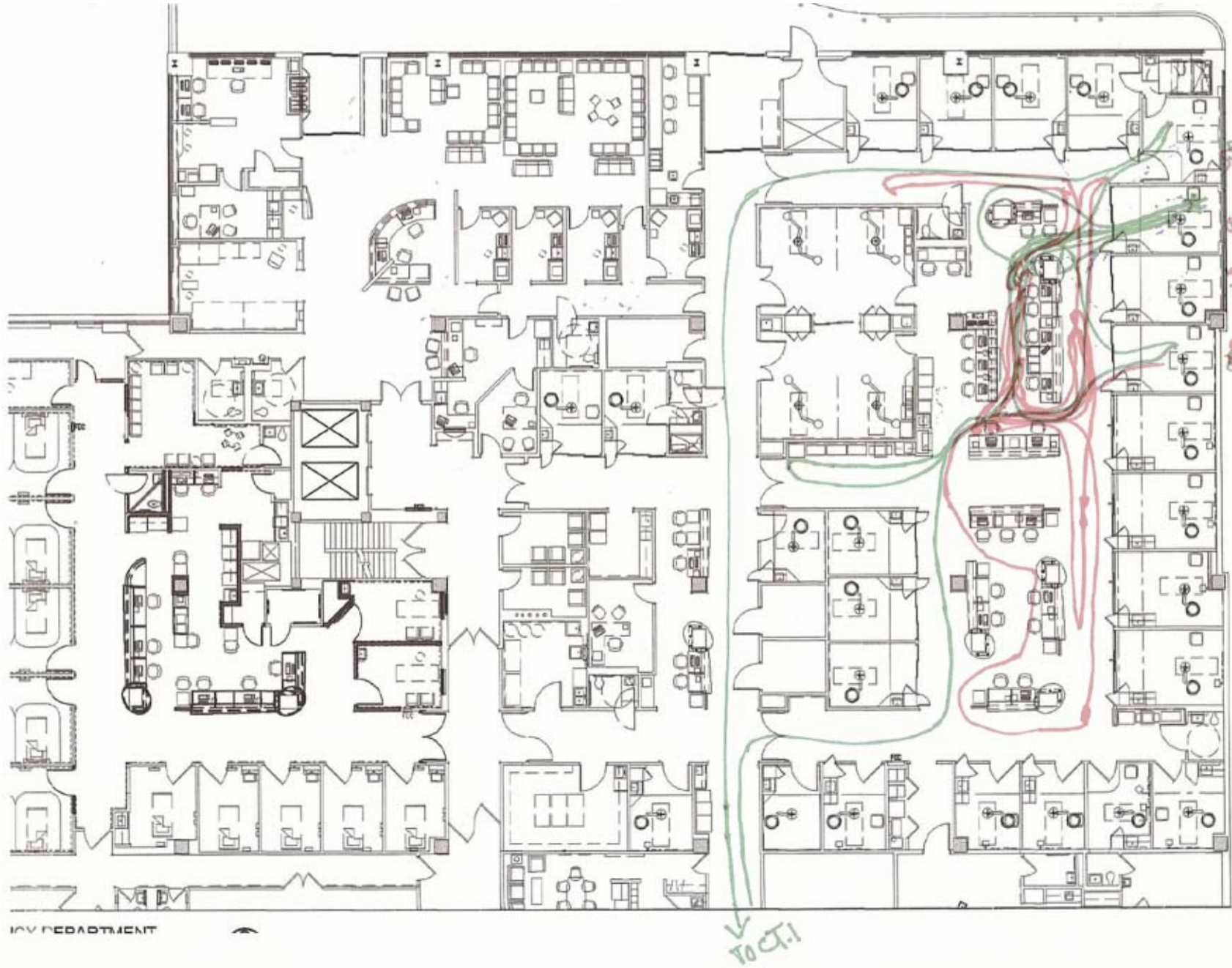
**3 PM**

4 PM

5 PM

6 PM

Green = 4-4:30 PM  
Red = 4:30-5 PM



Typical activities occurred, besides taking a patient back to the CT room

7 AM

8 AM

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

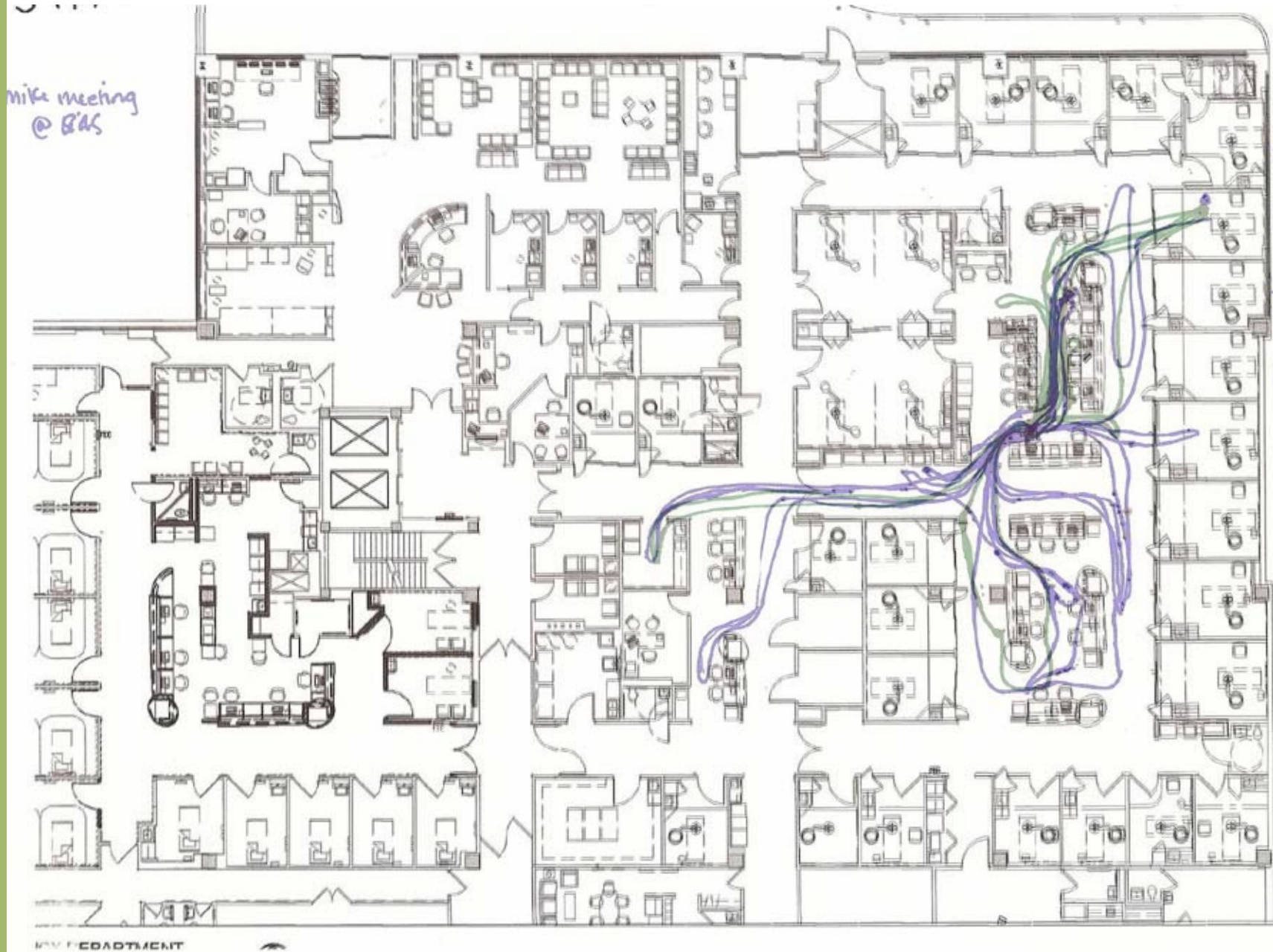
3 PM

4 PM

5 PM

6 PM

Blue = 5-5:30 PM  
Green = 5:30-6 PM



She spent a lot of time talking to the charge nurse and had to take over for him, as he had a meeting to attend to at 5:30. The other nurse took care of the patients in team 2.

7 AM

8 AM

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

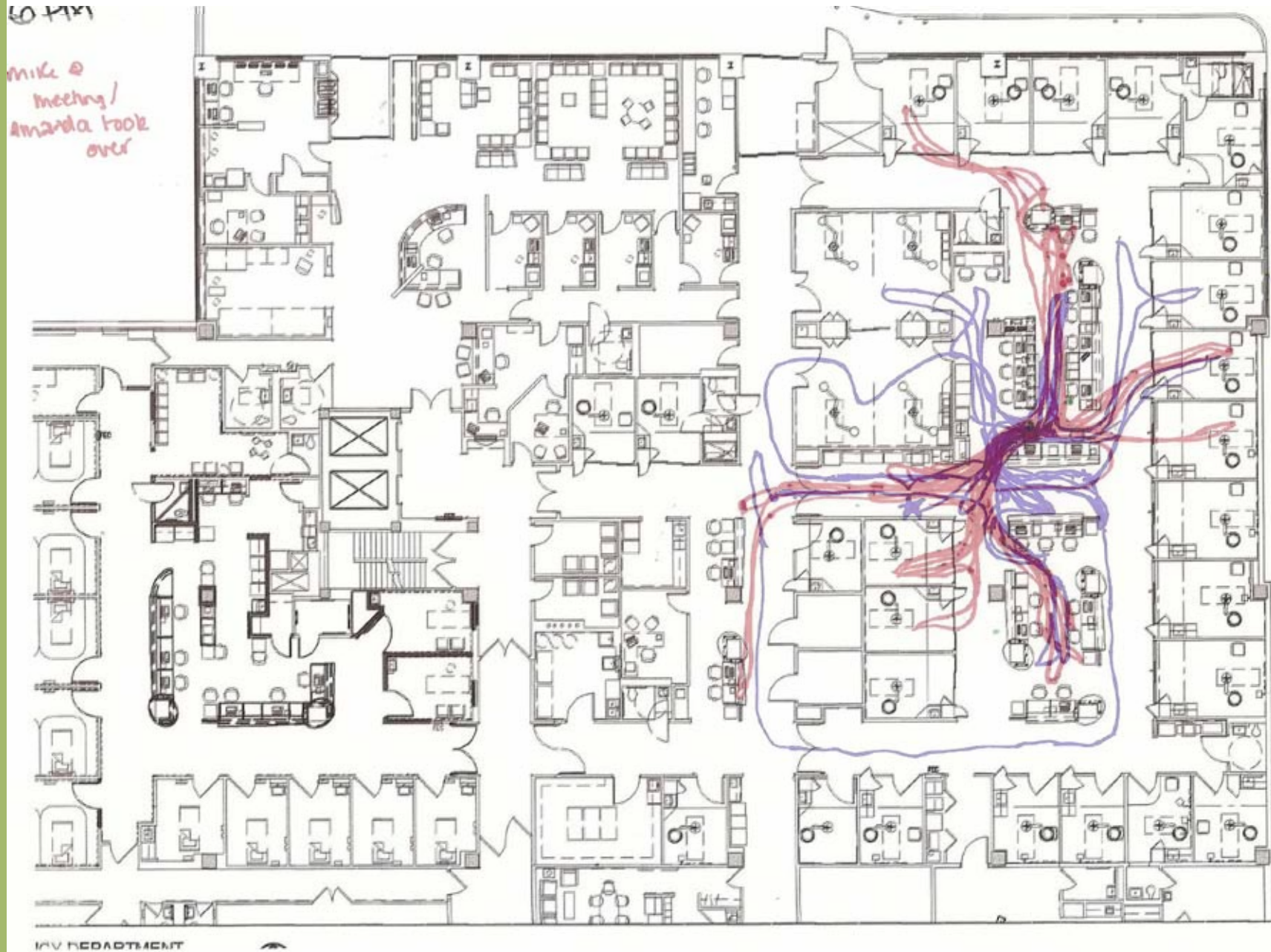
3 PM

4 PM

5 PM

6 PM

Red = 6-6:30 PM  
Blue = 6:30-7 PM



She spent a lot of time attending to patients outside of her team station, as she was in the charge nurses position, as well as communicating with the other nurses.

7 AM

8 AM

9 AM

10 AM

11 AM

12 PM

1 PM

2 PM

3 PM

4 PM

5 PM

6 PM

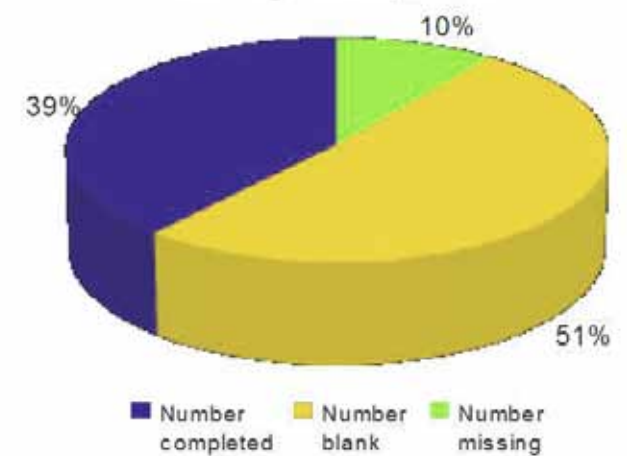
A compilation of all 12 hours of the shift overlaid. The heaviest areas of use are seen behind team station one and the charge nurse area.



## 12-hour Compilation

## Post-Occupancy Survey Results

On July 28th-July 29th, I had handed out the actual post occupancy evaluations to several nurses and staff in the ED. I had printed about 80 surveys, out of those 80 surveys: 31 were completed, and 8 were not accounted for, and the rest were incomplete. The results of the surveys, along with commentary posted for each subsection are displayed in the next few pages.





WAITING AREA	Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
The light levels are comfortable.			21	9	1
The accessibility of lighting controls are adequate.		1	21	8	1
The light fixtures are aesthetically pleasing.		1	18	11	1
There is a good variety of lighting options	1	3	16	10	1
The overall lighting in the room is soothing.		1	20	9	1
I like the physical appearance of the room.			19	11	1
I find the color selections soothing.			19	11	1
I find the material selections comfortable.		1	19	10	1
I find the surroundings homelike		3	19	8	1
The overall feeling of the room is appealing.			21	9	1
The overall noise level is comfortable.		2	19	8	2
The noise level from the corridor is acceptable.		1	20	9	1
I feel that my private conversations are not overheard.	1	5	16	7	2
The noise level from the medical equipment is manageable.		2	18	9	2
There is an agreeable balance of negative and positive sound.			20	8	3
There are plenty of options for seating		5	19	6	1
The room is located in a convenient area.		1	19	10	1
The furnishings do not make me anxious			22	8	1
The nurse/patient and visitor communication is efficient.		3	20	7	1
The overall layout of the room works well.	1	3	16	10	1
The overall options are efficient for the patient's needs	1		19	10	1
The size of the room is adequate for the patient's use.	1	3	17	9	1
The size of the room is adequate for the patient's family needs.	1	5	15	9	1

The results of the waiting room survey were mostly positive on all queries. There were a few that received a slightly negative result, concerning privacy, seating options, and the size of the room.

TRIAGE & REGISTRATION	Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
The light levels are comfortable.	1	1	21	8	
The accessibility of lighting controls are adequate.	1	2	19	9	
The light fixtures are aesthetically pleasing.	1		18	12	
I like the physical appearance of the room.		1	18	11	1
The overall feeling of the room is appealing.		2	17	11	1
The overall noise level is comfortable.		3	19	8	1
The noise level from the corridor is acceptable.		2	19	9	1
I feel that my private conversations are not overheard.	1	8	14	7	1
The noise level from the medical equipment is manageable.		1	17	12	1
There is an agreeable balance of negative and positive sound.		1	24	5	1
The medical equipment is unobtrusive.		2	23	5	1
The nurse/patient communication equipment is efficient.		1	23	5	2
The overall layout of the room works well.	2	6	18	4	1
The size of the room is adequate for patient care.	2	11	13	4	1
The storage is efficient for my needs.		5	22	3	1

Size of rooms could be a little bigger as well as the hallways.  
 It is hard to get oversized wheelchairs in and out of lab station & EKG room.  
 There is no triage area to the west side.  
 Rooms are too small.  
 Cant get wheelchairs through doors.  
 Doors in the triage are too small to get wheelchairs through.  
 Rooms for the triage need to be bigger & wheelchair accessible  
 Wheelchairs are difficult to maneuver through doorways. They frequently hit or scrape door jambs especially in the waiting room lab station.  
 Labstation (triage 3&4) EKG room are not made for wheelchairs and blue bench for EKG's is unsafe for obese and elderly patients.

The results of the triage area were mostly positive on all queries, besides that of the size of the room. Many of the nurses felt that this space could be larger.

TEAM STATION (PODS)	Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
The medical equipment is stored efficiently.	1	6	18	6	
The medical equipment is concealed effectively, as to be more inviting to patients/visitors.		8	16	6	1
The nurse/patient communication equipment is efficient.		4	18	8	1
The overall layout of the pod works well.			21	10	
The paper storage is efficient for my needs.		4	18	8	1
The size of the my station is adequate for my tasks.		5	19	7	
The size of the pod is adequate for my team needs.		3	20	8	

Drawers are needed for purses, etc.  
Additional staff restroom needed.

Would have been nice to have an employee restroom as well as a break room or a small area for snack breaks for staff on the west side.

Not given adequate place to store large equipment such as portable overhead lights or doctor/PA equipment on the west side.  
Need the supply room to be more centrally located.

NOURISHMENT	Strongly Disagree	Disagree	Agree	Strongly Agree
The light levels are comfortable.			21	10
I have enough work surface to perform tasks.		2	19	10
The overall layout of the room works well.		1	19	11
The accessibility to my other tasks are good.		1	20	10
The storage is efficient for my needs.		1	20	10

Need a door to the nourishment room so family/visitors can't get in.

Wish this area had a door on it to keep patients family from taking patients food.

Patient's family members frequently help themselves and take food from fridge areas, etc. If that was the designs intention then great, however we frequently run out of food.

The results of the team station and nourishment were mostly positive on all queries, besides the fact that the medical equipment could be concealed more effectively at the team stations.

TREATMENT ROOM	Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
The light levels are comfortable.		3	16	7	5
The accessibility of lighting controls are adequate.			18	8	5
The light fixtures are aesthetically pleasing.		3	16	7	5
The overall lighting in the room is soothing.	1	3	15	7	5
I like the physical appearance of the room.		1	17	7	6
I find the color selections soothing.		2	17	7	5
I find the material selections comfortable.		2	17	7	5
The overall feeling of the room is appealing.		3	16	7	5
The overall noise level is comfortable.		1	19	6	5
The noise level from the corridor is acceptable.		2	18	6	5
I feel that my private conversations are not overheard.		4	15	7	5
The noise level from the medical equipment is manageable.		1	19	6	5
There is an agreeable balance of negative and positive sound.		1	19	6	5
The medical equipment appears to be current.			20	6	5
The medical equipment is unobtrusive.	2	6	12	6	5
The medical equipment does not make me or the patient anxious.	1	1	16	8	5
The nurse/patient communication equipment is efficient.	1	2	16	7	5
The overall layout of the room works well.	1	4	14	7	5
The size of the room is adequate for care.		7	12	7	5

Need light fixtures that will "lower the light."

Layout of medical equipment is illogical: ie: gloves on left side, sharps on right while computer on left & monitor on right. Not user friendly.

Maybe some light dimmers in the rooms.

Some rooms are too small with the new epic equipment/computer.

The computers need to be on the wall and off the floor space.

The results of the treatment room were mostly positive on all queries.

# Post Occupancy Evaluation