



Cayuga
Medical Center
at Ithaca

DEA 453

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Cayuga Medical Center
Med/Surg Unit

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“Why is it the way it is?”

Medical Surgical Unit

‘Med/Surg’





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Cayuga Medical Center



Our mission is to provide the residents of our service area with comprehensive health care services of a preventive, curative, and educational nature at a cost reasonable to both patients and the medical center. Further, our mission is to supplement community services in order to meet the needs of the community by providing modern, efficient, and economically feasible programs, personnel, equipment, and facilities.

As a state of the art facility home to 800 healthcare professionals and a medical staff of 180 physicians, Cayuga Medical Center at Ithaca (CMC) has provided care for Ithaca and the greater Finger Lakes community for more than 100 years. With 204 beds, over 150,000 patients use CMC's acute care and outpatient care each year, taking advantage of their cutting edge diagnosis and treatment service. The hospital is accredited by the Joint Commission on Accreditation of Healthcare Organizations, the world's leading independent, not for profit, healthcare accrediting organization. As a technologically advanced institution, CMC ensures that patients benefit from the latest diagnostic and treatment capabilities available and works to guarantee that physicians can provide the best healthcare possible.



Hospital Main Entrance

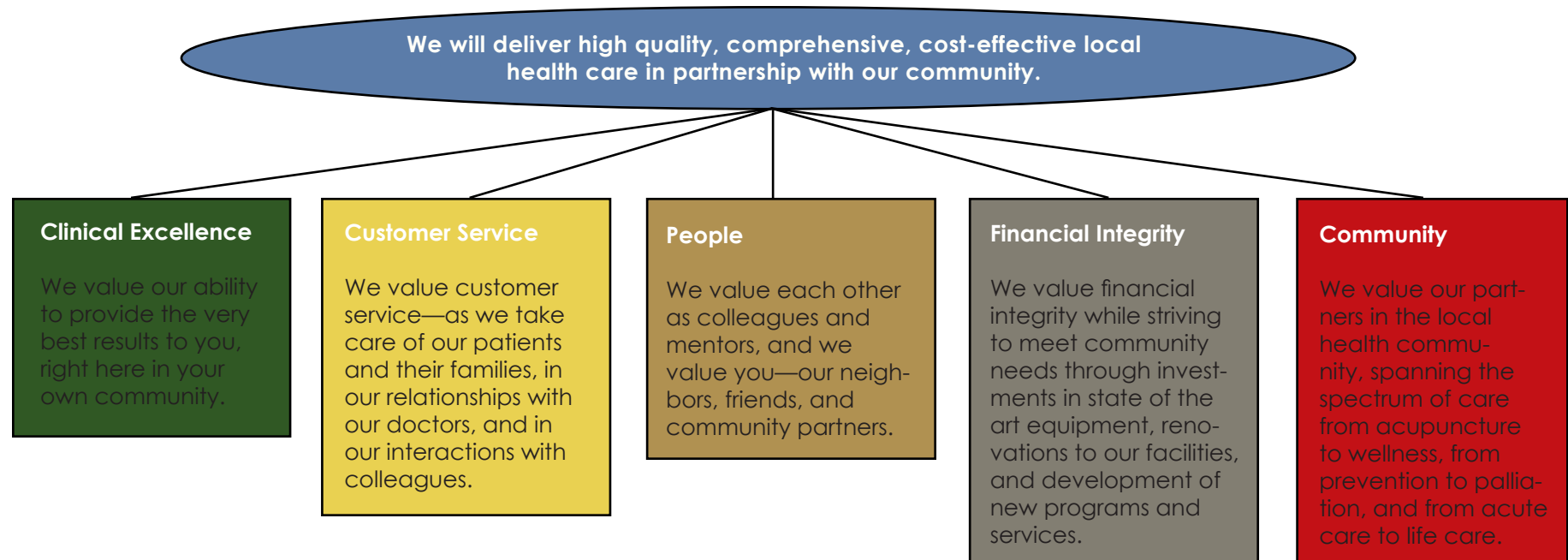
CMC History

The hospital has undergone a lot of changes since it moved in the 1970s to its current location overlooking the western banks of Cayuga Lake. The Tompkins County hospital's services and facility were strained and quickly

becoming outdated, so Cayuga Medical Center was built to be a state of the art health care leader in upstate New York. Since the 1970s there have been renovations to the building, such as the recent upgrade of the hospital's

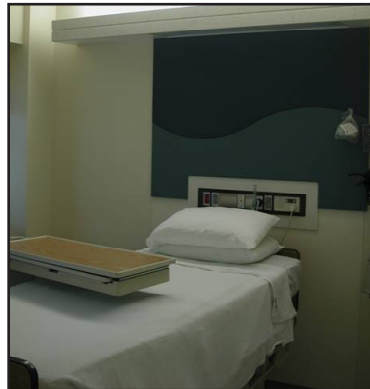
programs, infrastructure, and a renovation of the interior. In 2004, renovations were finished in two of the three Med/Surg Units, the first floor lobby and gift shop, the medical staff lounge, and the Garden Café.

CMC Values



Med/Surg Unit

Medical Surgical Unit



Med/Surg Unit Hallway - Patient Room - Nurse's 'Pod' - Central Nurse Station.

The Medical Surgical Unit of CMC is the unit where adult patients recover from serious illness, orthopedic problems, and major surgery. Cared for by physicians, nurses and allied health care professionals, the patients in the Med/Surg Unit are often patients that are recovering from the entire scope of acute illness.



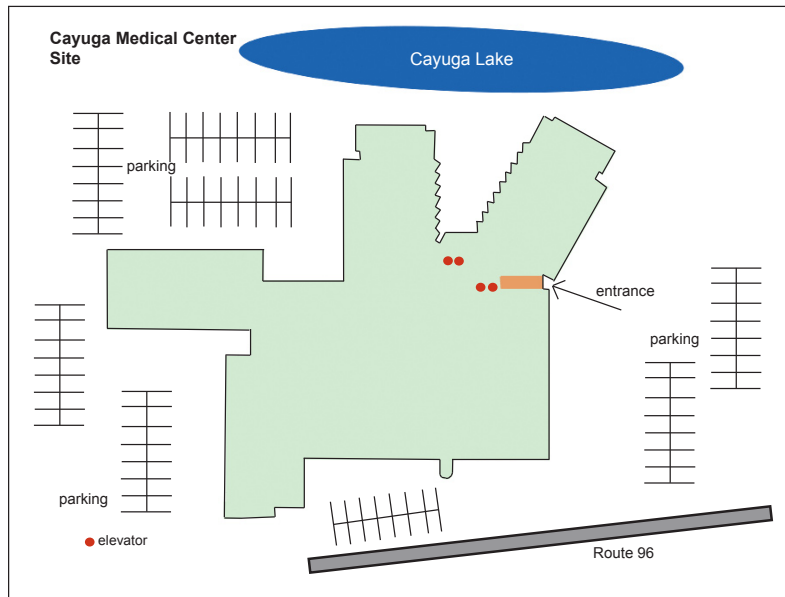
Patients in the Med/Surg Unit are typically recovering or suffering from:

- Pneumonia
- Stroke
- Complications of diabetes
- Cancer
- Dialysis
- Chronic Obstructive Pulmonary Disease
- Joint repair and replacement surgeries
- Trauma surgery
- General surgery
- Transfers from ICCU
- Continued care

Important Numbers

CMC Total Patients Served (Inpatient and Outpatient in 2004)	167,408
Med/Surg Unit Inpatient Discharges (2004)	4,952
Med/Surg Unit Average Length of Stay (2004)	4.4 days

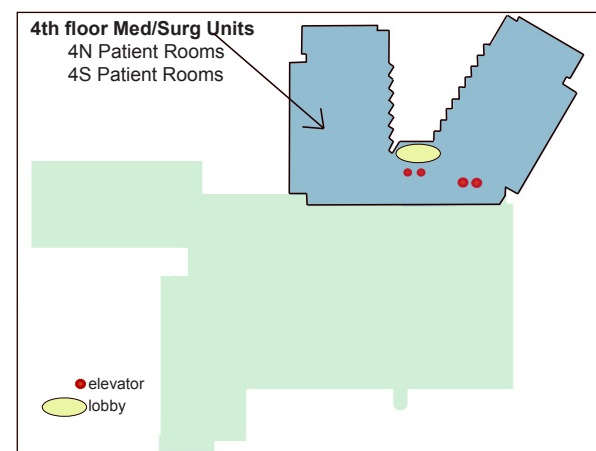
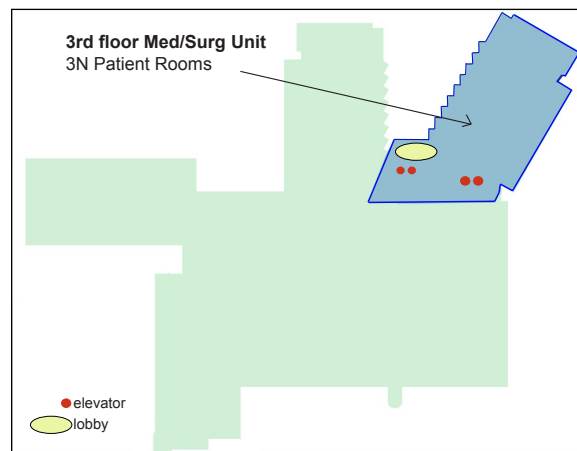
Location



The Med/Surg Units are located on the third and fourth floors of the medical center and the building is also oriented to face Cayuga Lake. The Med/Surg Unit is intended to be a place for patient recovery. Located on the top most floors and having most of the patient rooms facing the lake, patients are able to enjoy the calming views of nature.

The parking lot at the Cayuga Medical Center evenly surrounds the building. A visitor is able to easily access every entrance of the center from the parking lot. This is important because falling short in this regard can cause unnecessary stress for patients and visitors (Malkin 114).

Typically, the third floor Med/Surg Unit handles patients recovering from surgery. Usually the 4S Med/Surg Unit houses patients recovering from a wide range of acute illnesses, and the 4N wing is for patients undergoing cardiac telemetry.

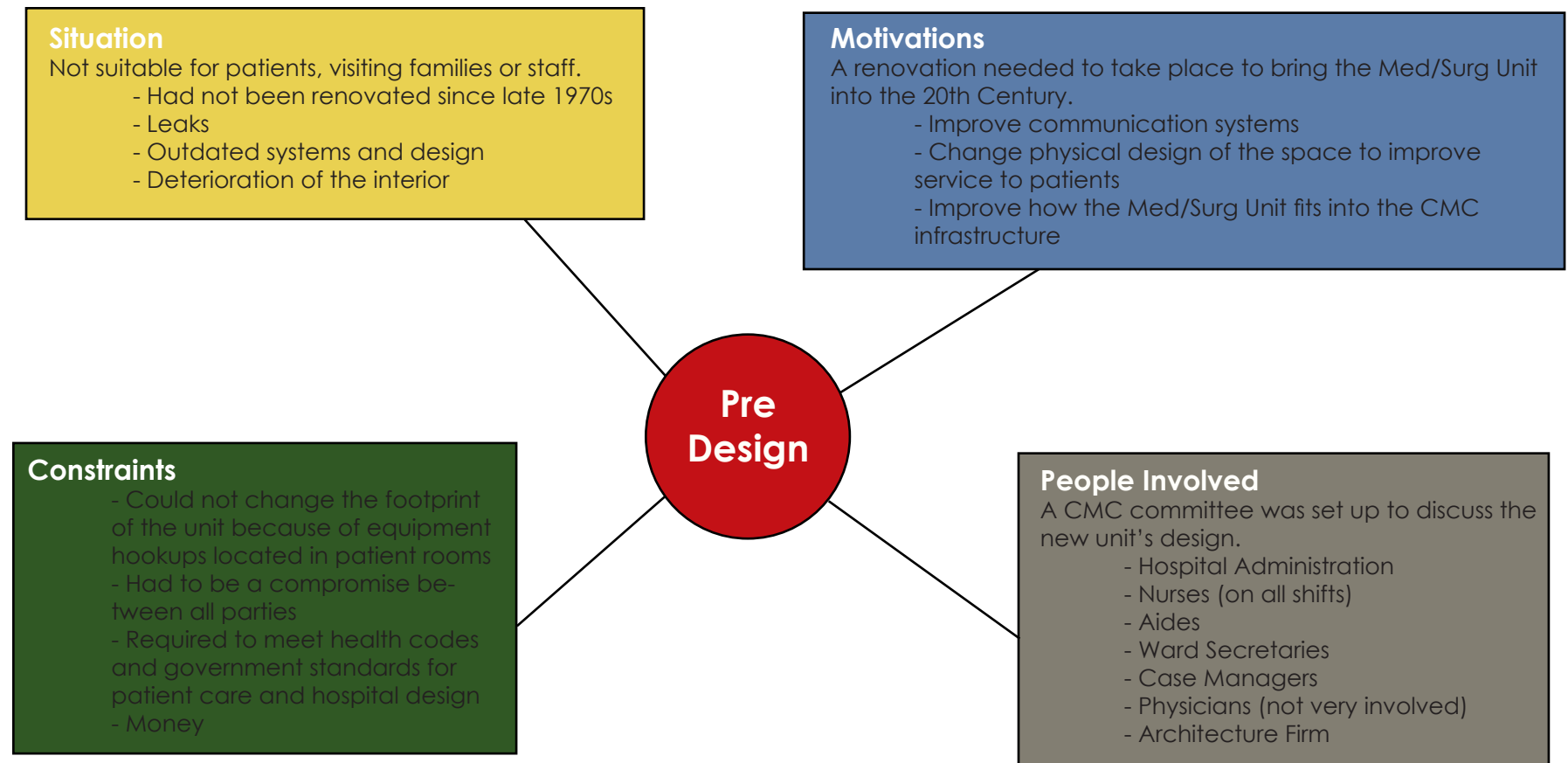


Renovation Process

The Med/Surg Unit underwent major renovations early in the new century, with each unit's transformation completed by August 2005. Prior to the renovations, the unit had not undergone any ma-

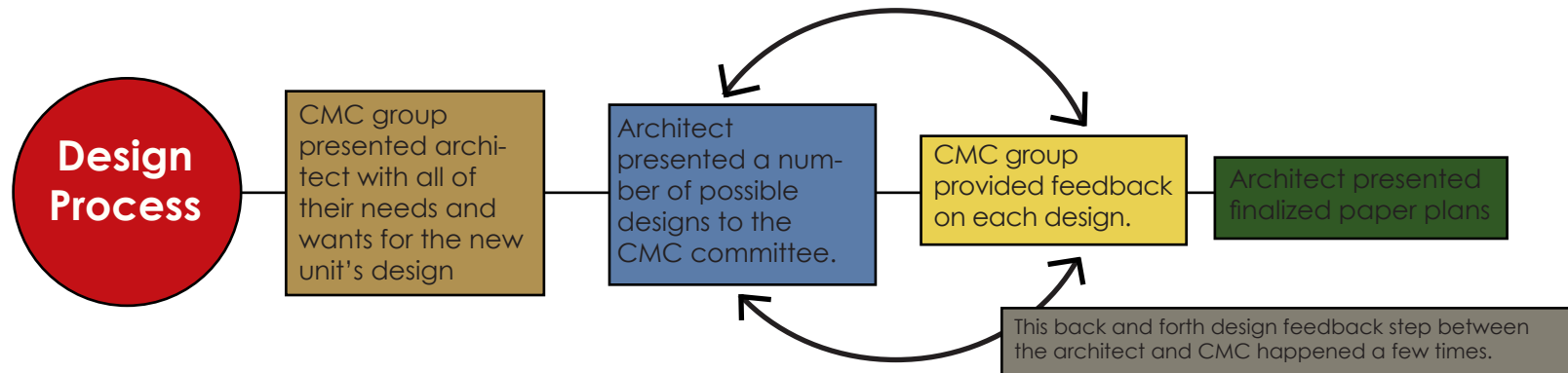
jor improvements since the late 1970s when it was built. Over approximately 20 years, the unit had begun to deteriorate, with leaks, outdated systems, no room for new technology and had become a

space unsuitable for patients or staff. Together, the administration, staff, and architects underwent a renovation process that ultimately produced the Med/Surg Unit that is at CMC today.



Renovation Process

Overall, the design process for the renovation was full of discussion from all people involved and compromise from all parties.



Influences

- Research the architect gathered from literature and from observations of CMC and the Med/Surg Unit
- Visits to other recently renovated hospitals to see their design, such as:
 - Anne Arundel Medical Center, Maryland
 - Lehigh Valley Hospital, Pennsylvania
- Based on visits to other hospitals, they saw the following in practice and included them in the final Med/Surg renovation
 - Wireless phones to enhance communication
 - 'Nurse Pod' layout for unit floor plan
 - Computerization of charts
- The needs of each of the different groups involved in the Med/Surg Unit

Final Product

- Once the design was agreed upon, each of the three Med/Surg units underwent renovation on a staggered schedule.
- The 3rd floor unit was the first to be completed, which allowed the group to assess their design.
- They were able to make changes and improvements.
 - For example: they changed the wall height in the doctor dictation area of the main nurse station to increase visual access in the unit.
- All renovations were complete in August 2005.

Re-Assessment

- After using the newly renovated units, CMC staff requested a few changes.
 - For example, they had all of the automatic faucets on the unit changed to manual control faucets because they could not get the water hot enough with automatic controls.

Problems

- Faucet control
- Because they could not change the footprint of the unit based on pre-existing equipment hookups, the nursing staff was not able to have the open layout with visual access to all rooms that they had requested.
- Took time for staff to adjust to new design.

Renovation Results

Med/Surg Unit Today

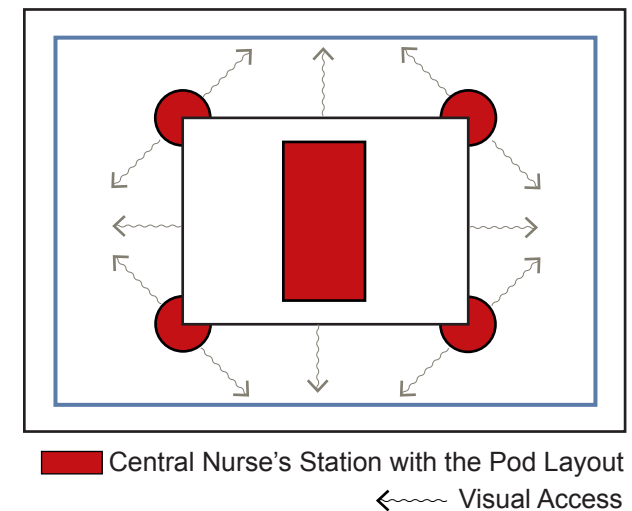
The Med/Surg Unit underwent extensive renovations as a result of the design co-created by the architect and the CMC committee. From this transformation, many of the elements of the unit were improved in an attempt to deliver patient centered and evidence based design. The following are some key aspects of the new design and the reasoning behind the decisions to implement them.

Layout



According Linda Crumb, RN, BSN, the staff originally asked to have the Med/Surg Unit redesigned so that the nurses' station would be in the center of the patient rooms and oriented in a circle. This would make it easier for the nurses to visually monitor all patients at one time; however, the footprint of the unit could not be changed. To compensate for this, the outer most workstations were designed to face the patient rooms so they can see as well as hear activity on the whole wing. These four nurses' pods, which are more private and in-

dividual, are located on each corner of the floor. The location of the pods serves as support to the nurses in the nurses' station who may be too pre-occupied to immediately tend to a patient or an emergency. This creates an efficient layout.



Renovation Results

Med/Surg Unit Today



Pod Nurse Station



Main Nurse's Station

In addition, a tube system is used to transport hospital materials from the nurses' station to the laboratory and pharmacy and vice-versa. This is a time-saving and convenient way to communicate with other units in the hospital.

Corridors

There are certain design factors of the corridors in the Med/Surg Unit that make them very useful in this setting. First of all, sheet-vinyl flooring was used to line the hallways. This material creates flooring with little to no sheen, which is known to reduce glare and thus the number of slips and falls on the surface (Malkin, 120). Also, the large width of the corridors is important. In addition to being able to fit the patient beds through them,

there are often times in such units where a large number of people, including nurses, doctors, and patients families, need to get to and from rooms in a quick fashion. The width of the corridors is a tremendous factor in allowing such timely movements.



Med/Surg Unit Corridor



4th Floor Corridor



Smaller Waiting Area

In all four corners of the Med/Surg Unit wings, there are smaller waiting areas that are adjacent to the patient rooms. These spaces serve the function of allowing patient visitors to step outside the room and still be near their loved one. Whether the visitor wanted to make a phone call, read a magazine, or just give the patient some time to themselves, they could be comfortable and close by while waiting in these smaller lounges.

Renovation Results

Med/Surg Unit Today

Signage and Wayfinding



Examples of signage found throughout the Med/Surg Units

Examples of wayfinding design in the Med/Surg Units

This may be one of the more important, and often overlooked, aspects of designing a Med/Surg Unit of a hospital. Given the nature of a hospital, if things are not clearly readable and easy to find, many errors could occur. Therefore, it is important that the location and directionality of all areas in the wing are clearly marked.

When creating the sig-

nage, one must keep in mind the users of the space. Since this is a unit where the majority of the visitors are elderly individuals, it is important that the signage font be large, clear and there be a lot of it. These criteria were met in this wing. Almost every door was labeled in the hallways, including the storage rooms, nurse stations, and patient rooms. Also, some rooms

had an additional label stating, "Staff Only", which clearly indicates to patients and visitors that they do not belong in these areas. As far as for aiding visitors coming out of the elevator, there was a clear sign that pointed to where the numbered patient rooms were located, which makes it very easy for a visitor to locate their loved one when coming to the hospital.

A unique aspect of the wayfinding was done with color schemes on the floor on the wing. Near the patient rooms, there were multiple small, colored boxes that lead to the entrances of each patient room. As one got nearer to the entranceway of the room, the squares were grouped together to form long rectangles, literally pointing the way into the room.

Renovation Results

Med/Surg Unit Today

Patient Rooms

The patient rooms in the hospital are of a standard size in a rectangular shape and are designed to hold up to two patients at a time, and each room has a private bathroom. There is a sliding curtain that serves as a partition between the two beds (when needed). Each room was designed with the intention of being both a single or double patient room, yet the priority is to have every patient in their own room. Depending on the available space, sofa beds can be added to the room for visitor sleeping.



Storage in Patient Rooms for Personal Belongings - The Communication Board with Information for Patient and Staff - The Patient Room Interior

There is also a good amount of storage furniture in each room, such as a cabinet, which are used to contain the patient's clothes and personal items. Just outside the main door to each patient room, there is a full-length cabinet divided into two parts. The upper part contained a storage unit full of everyday items the nurses would need for each patient,

such as band-aids, medicine, and cloths. In the lower portion of the cabinet was a laundry bin where the nurses would place the patients used clothes. This was done to keep the odors of the dirty laundry out of the patient's room, and also so the nurses could gather the dirty laundry without having to disturb the patient in their room. Lastly, in each room

there was a communication board for each of the patients in the room, which was a dry-erase board that told each patient who their nurse and doctor were for the day, along with what their goal should be for the day, such as taking a walk through the corridor. This helps to facilitate communication between patient and staff.

Renovation Results

Med/Surg Unit Today

According to Ulrich et. al., “Noise is a much greater problem in multi- than single-bed rooms.” Also, they show that the uncontrollable noise by one roommate has been shown to cause more stress than noise that is controllable (Ulrich et. al, 39). Lastly, Ulrich et Al explains that research strongly suggests that visual access and exposure to nature creates a significant emotion/psychological and physiological recovery from stress within a matter of minutes (Ulrich et. al, 46). In the rooms observed there were views of Cayuga Lake, which provide important views of nature for the recovering patients.



Window View from Patient Room

Storage



Storage Unit Outside each Patient Room

Storage is an important issue for the Med/Surg Unit of the hospital while the renovations were taking place. There are individual storage rooms that are located along the main hallway walls throughout the Med/Surg Unit. To make them easily visible, there were clear signs on the rooms that said “Storage.” Also, one of the storage rooms labeled exactly what pieces of equipment were in that room, which makes a nurse’s job much easier. Instead of having to search each room to see where things are located, a quick glance at the sign can let them know what is where. Each storage room is intended to provide easy access to a variety of items that the nurses

and doctors would need in treating their patients. The rooms do not have a lot of inner organization, so some contents are messy.



Inside a Storage Closet

Renovation Results

Med/Surg Unit Today

Windows

Patients often feel fearful and nervous in a hospital setting and it is the job of the designer to create a therapeutic environment. Installing many windows is a design measure that provides views of nature that can help reduce stress. Strong

research shows that viewing nature not only reduces stress, but eases patient pain" (Ulrich 47). Each patient room in the Med/Surg Unit has one large window. Some rooms are fortunate enough to be facing Cayuga Lake.



Window View from Patient Room

Lighting



Lighting on the Med/Surg Unit

There are two types of lighting used throughout the Med/Surg Unit: natural and artificial lighting. In each of the patient rooms, there is a good amount of natural lighting present. The windows are large enough so that during the day, artificial light is not necessary to illuminate the room. The presence of such windows is very useful in the healing process, as research reveals that the lack of windows in a hospital setting may

worsen the patients' recovery by limiting the amount of positive stimulation they receive daily, which in turn exacerbates the negative conditions they are surrounded by (Ulrich, 51). As far as the lighting used in each room, fluorescent was the source used. There were two sources of this artificial light in the rooms. One came from traditional light squares on the ceiling, and the other came from a lay-in-light fixture, in which the long light bulbs were

located behind a partial, plastic covering near the ceiling and the light was emitted up and over the cove. The latter source of light is good since it provides a great source of light within the room and does not cause any eye harm to users. The controls for the lights are located near the door of the room. They appear difficult to operate since they have a neutral middle position, as opposed to the standard up/down, on/off position.

Renovation Results

Med/Surg Unit Today

Color

Color is a very important aspect of designing any room, especially a hospital wing. It is known that the use of certain colors can create positive mental states in people (Mizan, 798), which is essential in hospital patients recovering from surgery. In the Med/Surg Unit, there is a dark blue/light blue color theme throughout this wing. Additionally, the designers used curves with these colors to create a nice aesthetic presence. By using the blue shades and the curvy lines, the design mimics the nearby water of Cayuga Lake. This color scheme can be seen along the walls in the patients' rooms, the grounds of the hallways, and in the furniture and partitions of the visitors' waiting area. Also, the ceiling in this waiting area had a matching curve in it to that of the glass partitions located below.



Colors Found in the Med/Surg Unit



Artwork from the Med/Surg Corridors



Art

Works of art are a means of distracting patients in healthcare facilities from any pain or worry they may be experiencing. As indicated by evolutionary theory, images of nature create more stress-free and restorative environments (Malkin 117). Each floor of the medical

center has its own distinct theme. The artwork in Med/Surg Unit has a farm theme filled with snapshots of barnyard animals and green landscapes. Usually hung between each patient room, these images depicting nature can truly make a difference in the recovery process.

Renovation Results

Med/Surg Unit Today

Acoustics



Acoustical Ceiling Tiles in a Patient Room

Where there are humming machines, high foot traffic of nurses racing down the halls, and patients in pain, there will most likely be noise. The sound level poses challenges in a healthcare facility, especially in the unit where patients need a quiet environment to recover. Research has shown that noise worsens patient outcomes through sleep deprivation, awakenings, and the increase of blood pressure and heart rates

(Ulrich 40). Thus, sound should be controlled and balanced. One of the most important design measures to minimize noise levels is to install “high-performance sound-absorbing ceiling tiles that reduce echoing or reverberation and sharply diminish noise propagation” (Ulrich 40). Each patient room in the Med/Surg Unit is equipped with tiled ceilings that absorb any sounds that may resonate throughout the patient room.

Materials

Carpeting is only used in the nurses' station to absorb sounds from the high levels of foot traffic. There is a concern that carpeting is not a preventive measure for infection. However the nurses' station is only used for administrative purposes and is not susceptible to spills. The floors of rooms such as cleaning rooms, utility rooms, and patient rooms are vinyl. This is necessary to reduce the spread of infection. “Studies have shown that with hard-surface flooring particulates are kept airborne” (Malkin 120). In addition, vinyl floors are easy to durable and easy to clean (Zimring 40).



Materials in the Central Nurse Station

Renovation Results

Med/Surg Unit Today

— Transparency and Barriers

The nurses' station is comprised of individual workstations that are divided with clear, glass barriers. While these provide the nurses' with a sense of privacy without being completely hidden, the barriers do not visually obstruct their view of the wings. Also, a glass window was installed in the

door of the Med Room. Before the window was installed, a nurse entering the room would collide with another nurse carrying medicine. This "transparent door" is an efficient way to prevent the spilling of medicine and preserve the cleanliness of the healthcare facility. The larger waiting area

on the fourth floor has a translucent barrier that does not allow for visual access from either side. Since the elevators are facing the waiting area, the barriers are important to provide a sense of privacy to the visitors and families waiting to hear news of their loved-ones.



Glass Barriers in the Central Nurse Station - Translucent Barrier in the Waiting Area - Transparent Door on the Med Room

What is Absent?

The renovations of the Med/Surg Unit almost met the expectations of all the parties involved. However, some design aspects included in the plan seem inadequate. The following are examples that stand out from the others.

Windows

The knob to control the blinds is located on the top left corner of the window frame. This may be difficult for the shorter patients and staff, and even the elderly.



Wayfinding

Despite the helpful signage, all the rooms appear very similar that it is easy to get disoriented.



Signage

The light switches in the patient rooms were not labeled correct nor were they positioned in close proximity to the lights they control. This can cause confusion, especially to the older patients.



Healthcare Aims

According to the Institute of Medicine's article entitled Cross the Quality Chasm: A New Health System for the 21st Century, there are six aims for changing the Health Care System. The design elements within the Med/Surg Unit of the CMC embody those aims in the following ways:

Health Care Must Be Safe

- Antibacterial foam dispensers located throughout the unit
- Vinyl flooring to reduce slippage due to glare
- Handrails in the bathrooms and hallways
- Emergency bell in every bathroom

Health Care Must Be Effective

- "Patient Info Board" serves as a means of educating patients about their own health

Health Care Must Be Patient-Centered

- Allow for personalization
- Sofa beds for overnight visitors

Health Care Must Be Timely

- Tube system transports hospitals materials quickly
- Computerized patient records makes it easier to retrieve
- Corridor size allow for easy flowing traffic

Health Care Must Be Efficient

- Computerized patient records reduce amount of unnecessary paperwork
- Use of tube-system increases productivity

Health Care Must Be Equitable

- Not applicable to renovations

Final Thoughts



According to John Hughes, Vice President of a Managing Consulting and Investment Banking firm, "construction put in place for total health care construction will increase almost 34% from \$34 billion in 2005 to \$45.4 billion in 2009." The baby boomers of the 1950s and 60s are getting to the age where they need to use more healthcare services. CMC, along with many other healthcare facilities, followed this trend of healthcare construction by either renovating or repairing their current building.

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*Photos are from those provided on the Blackboard.Cornell.Edu website and from own personal collection.

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