



# Nursing Unit Design

& the Role of Communication at Auburn Memorial Hospital

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# The Role of Communication

In the Health Care Sector

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“Culturally, the practice of healthcare continues to be very individualistic, with independent practitioners gathering information and making decisions independently, noting actions in the medical record, and calling upon other practitioners, only when needed” [9]

**The individualistic nature of the health care sector needs to be re-evaluated**

“It is critical that practitioners from different disciplines – nurses, physicians, anesthesiologists, and so on – communicate vital patient information with each other to prevent replication of efforts, errors, and other operational failures” [9]

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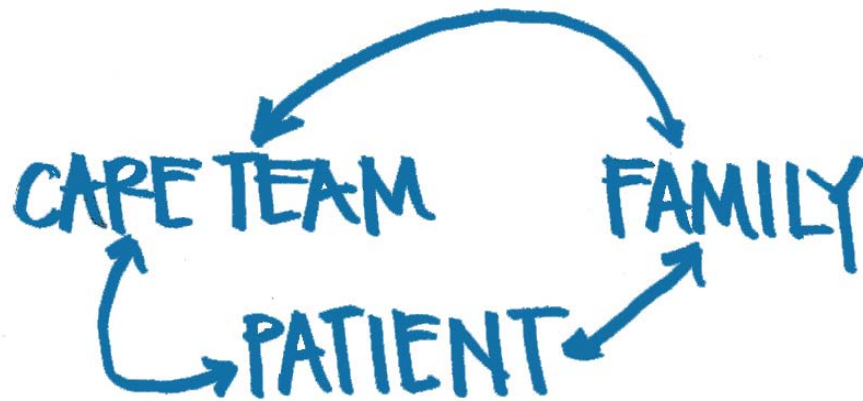


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# The Role of Communication

In the Health Care Sector

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“Good **staff** communication helps reduce **patient** and **family** anxiety, promotes better care at home after discharge, and in other ways can improve outcomes” [16]

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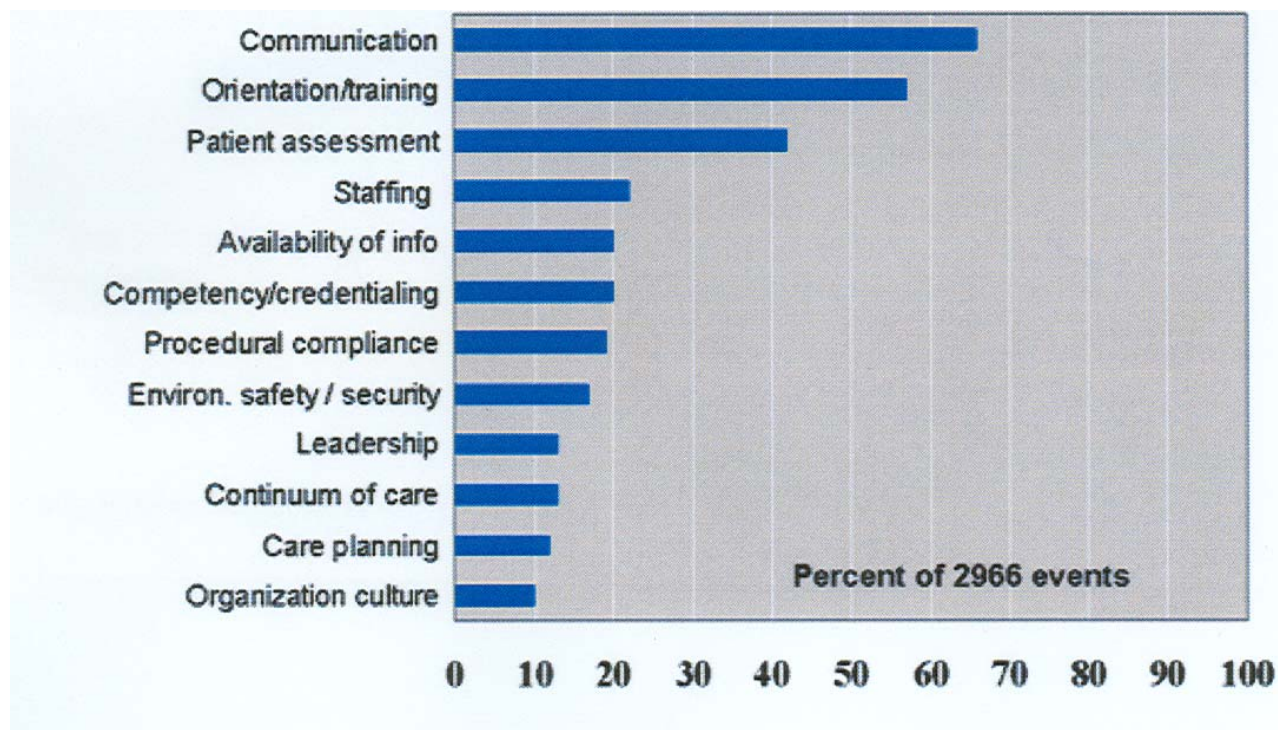
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# The Role of Communication

In the Health Care Sector

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J.C.A.H.C.O. Root Cause of Sentinel Event, All Categories , 1995 -2004



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# Role of Communication

## On Key Stakeholders

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- The Role of Communication on Key Stakeholders:

“**communication breakdowns** occur frequently in healthcare practice due to the physical environmental, organizational, and technological infrastructure in healthcare facilities that focuses on supporting the individual rather than team efforts” [1]

“Health care is not always safe or effective, and the role of poor communication is generating avoidable error and poor outcomes...Since **communication inefficiency** and failure may be a core generator of clinical error, supporting more effective communication practices may have great impact on the quality and safety of health service delivery”[4]

- Communication is at the heart of increasing demands on Key Stakeholders at Auburn Memorial Hospital



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# Auburn Memorial Hospital

## Overview

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- Location: 17 Lansing Street, Auburn, NY 13021
- Mission: “to provide compassionate, quality care”
- Marketing Initiative: “Caring Close to Home”
- Key Issues:
  - Small, Non-Profit Community Hospital
  - Competing with newer, hospitals in surrounding towns and cities
  - Largest employer in the Auburn area
  - Struggling to change image within surrounding community
- Embracing a Dramatic Turnaround:
  - Received state grant money from HEAL NY
  - “core values of quality patient care in conjunction with physician support have been the driving force for the dramatic turnaround in A.M.H.’s performance. Berlucchi’s leadership has been the lynchpin around which the community has been able to believe again in the hospital’s ability to serve it’s health care needs” [14]

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# Key Stakeholders at A.M.H.

## The Hospital as a Stage

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...much like a Theater Production

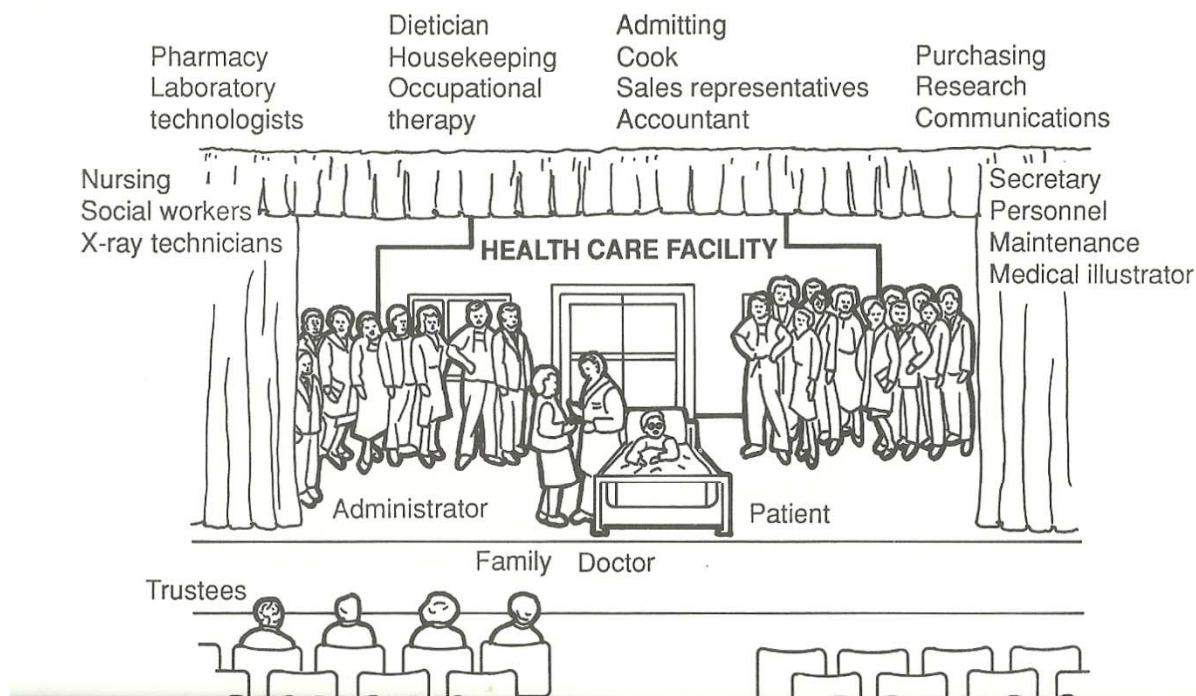


Image courtesy of *A Guide to Health Care Facilities* [13]

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# Key Stakeholders at A.M.H.

Overview: Who are they?

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- **Patients**
  - Individuals coming to the hospital to seek treatment for disease or ailment; check-up, surgery, etc...
- **Families**
  - People who often accompany individuals seeking hospital services
  - Husband, wife, children, grandparents, aunts, uncles, friends
- **Doctors**
  - Physicians, Surgeons, Anesthesiologists, Pathologists, Radiologists, General Practitioners, etc...
  - Represent a variety of disciplines and sub-specialties at A.M.H.
- **Nurses**
  - Chief Nursing Officer, Nurse Managers, Registered Nurses, LPN's, Certified Nursing Assistant, etc...
- **Administration**
  - Governing Body: Organizations and Committees, Board of Trustees, Board of Directors
  - Executive Management Department: CEO & Hospital Administrator

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# Increasing Demands

## From Key Stakeholders

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- Increasing Demands from **Patients**:

- “The once passive receiver of care is transforming into an active an informed participant in health care. This client wants to be informed about and involved in the medical decision-making process”[4]
- increasing number of patients with multiple morbidities, therefore the typical patient is more seriously ill
- larger aging population creates an increase in healthcare demand
- patients expect to have good communication with their caregivers
- Communication through email, phone, not just face to face consultation
- Patients wanting to access their medical records online



Photo courtesy of Getty Images

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# Increasing Demands

From Key Stakeholders

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- Increasing Demands from **Families**:

- Patient rooms more conducive to family visitation, even spending the night
- Family members acting on behalf of patients, making care-decisions
- Family members expecting to be informed about the status of their loved-one, medications, decision making, etc...
- Nurses utilizing family desire for participation by communicating care directions directly to family members; i.e. – feeding, bathing, etc.
- H.I.P.P.A. regulations must be honored when communication is occurring between health professional and family, creating difficulty
- The increasing importance of the role of the family in making care decisions



Photo courtesy of Getty Images

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# Increasing Demands

From Key Stakeholders

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- Increasing Demands on **Doctors**:
  - Expected to maintain good communication ties with all who are involved in the care of their patients
  - Expected to maintain good communication with patient AND family in making informed care decisions
  - Expected to be available for questions, assistance, meetings, etc. to all other health care professionals
  - Changing physical layout of nursing station places strain on doctors and specialists who are making rounds when they cannot find care team members, appropriate information, or spaces to conduct discussion, consultation, dictation, chart review, etc...



Photo courtesy of Getty Images

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# Increasing Demands

From Key Stakeholders

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- Increasing Demands on **Nurses**:
  - Nursing is a high stress job
  - Nurses are often expected to care for multiple patients per shift, all with different needs and personality types
  - Nurses are also expected to effectively and compassionately communicate with the patient, the family, and other hospital caregivers while maintaining patient privacy
  - RN's have a high turnover rate, and there's an existing nurse shortage that is only getting worse
  - Nurses are dealing with patients who are sicker than ever, coming into the hospital to seek care for multiple illnesses simultaneously
  - “nurses are the cornerstone of hospital care delivery and the hospital's most costly and valuable resource; their efficiency and effectiveness are central to any effort to maximize patient safety or minimize costs”[8]



Photo courtesy of Getty Images



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# Increasing Demands

From Key Stakeholders

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- Increasing Demands on **Administration**:
  - “many health care organizations have increasing numbers of staff, often from mergers with smaller organizations, and because more people work part time. This development has huge implications for the role of communication in the organization of the care processes” [4]
  - **Better Communication = Increased Patient Safety = ANNUAL COST SAVINGS**
  - How to achieve better communication within the organization when staff members are never likely to be in the same place at the same time, as the hospital is open 24 hours/day, 365 days/year? Constant issue when attempting to re-organize structure, company mission, philosophy, care practices, etc...
  - Immense pressure to run a profitable business, rising above competition, and providing a service to the community, focusing on quality patient care at A.M.H.



Photo courtesy of Getty Images



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# How to Meet Increasing Demands

## Nursing Stations as Complex Units

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“When it comes to designing personal workspaces, a nursing station may be one of the most complex. Not only must these areas address the everyday needs of nurses themselves, but also those of other healthcare practitioners like physicians or therapists who may use the station, patients who are receiving treatment nearby, and patients’ family members who are increasingly involved in the delivery of care today” [18]

There’s a lot of pressure to get it right...therefore **the question** is:



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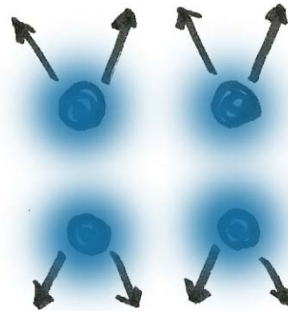
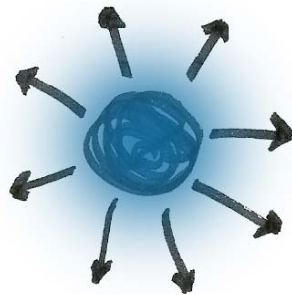
# How to Meet Increasing Demands

## The Question

16

**“How can nurse station design be maximized to improve not only the delivery of care and the experience of the patients themselves, but to better communication among all key stakeholders?”**

**Centralized, Decentralized, or a Hybrid of Both?**



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# The Nurse Station - Centralized

## A Closer Look

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- Type: Centralized Nurse Station
- Characteristics & Staffing Implications
  - Cardinal point for nurse resources, storage, supplies, documentation, communication
  - Central hub of activity
  - Easy to round up staff for informal meetings, “huddles”, de-briefing, etc., increases cohesion among staff
  - Easier to monitor staffing level mix, and immediate need for additional nursing help in critical situations
- Benefits
  - Increases face-to-face encounters, communication, collaboration
  - Trust can be built, a result of constant communication and collaboration
  - Trust is critical to establish teamwork, and ensure better care and cohesion between care team
- Trade-Offs
  - Appearance of Disorder
  - Congestion
  - Lost time spent hunting for and gathering supplies
  - Lost time spent walking long distances, translates to time away from patient
  - Greater occurrence of distractions, increases risk for errors
  - Noise
    - “there is some good dialogue that goes on; however, the problem with a centralized place, a large one, is the there’s a lot of distractions, a lot of noise. As you well know, distractions can cause variances and errors” Joy Fay, RN [17]

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# The Nurse Station - Centralized

From an Evidence Based Perspective

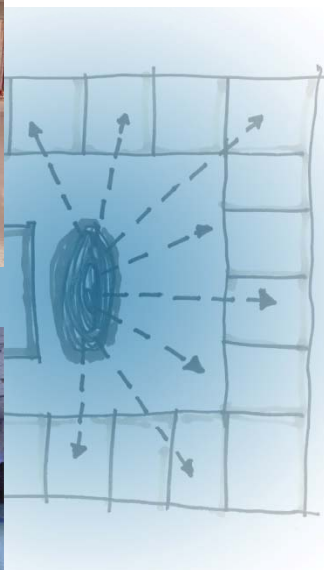
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Photo courtesy of St. Peter's Hospital



Photo courtesy of Trillium Health Centre



- “there is also anecdotal evidence that staff members who move from a centralized nursing unit to a decentralized unit often feel isolated and miss the camaraderie and support of the centralized unit” [9]

- “the social interactions that occur within the care team are critical for information sharing and effective communication”[9]

- “centralized locations of supplies... could double staff walking and substantially reduce care time irrespective of whether nurses' stations were decentralized”[7]

- “nurses on units with a centralized medication station also made fewer trips to assigned patient rooms. It may be that nurses may be that nurses on units with a centralized medication station combine multiple tasks into fewer trips”. [8]

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# The Nurse Station - Centralized

## Effects on Key Stakeholders

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- Effects on Key Stakeholders:

- **Patients:**

- Distant from nurses, therefore farther from caregivers, less time spent with caregiver
- Care and attention is compromised, increasing patient falls, etc...

- **Families:**

- Comfort in knowing where to find nurses at all times – at central hub
- Lacking privacy in speaking with nurse at station about patient issues

- **Doctors:**

- Know where to find nurses at all times- decreases time spent “looking for people”
- Can be overwhelming with activity, disorganized, and sometimes chaotic
- Lacking privacy when speaking with nurses and families about patient conditions

- **Nurses:**

- Lack immediate visual access to patients which decreases patient safety
- Farther walking distances between patient rooms, supplies, & medication, etc therefore; more time spend walking and seeking supplies instead of on patient care

- **Administration:**

- Centralized location of supplies = less supplies needed to serve floor, resulting in cost savings on supplies when centrally located
- More healthcare provider time away from bedside translates into decreased patient safety and an increase in costs to cover additional patient expenses resulting from decreased patient care

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# The Nurse Station - Decentralized

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## A Closer Look

- **Type: Decentralized Nurse Station**
- **Characteristics & Staffing Implications:**
  - Perch/Pod Layout, small-scaled workstation
  - Station manifests at room side without central work area or communication hub space
  - Open work area is generally a small greeter's station
  - Difficulty getting staff together for informal “huddles” because everyone is dispersed, difficult to collectively address/delegate
  - Absent nursing staff could place strain on cover nurses when patients are located in different areas, leading to more walking
- **Benefits:**
  - More efficient delivery of care; creating more care-time for nursing at bedside
  - Reduced travel distance for nurses; nurse stations closer to patient rooms
  - Reduced noise levels because of decentralization
  - Reduced staff interruptions; therefore likely to reduce interruption related errors
- **Trade-Offs**
  - Most collaboration/teamwork spaces are located out of sight
  - Limited occurrence of interaction in corridors, decreased spontaneous conversation among staff
  - Increased walking time for physicians and other hospital staff who are looking for nurses
  - Workload transcribing often falls into the hands of the nurse when it is the duty of the clerk – clerk is not readily available
  - Nurses feel more isolated from their colleagues; losing visibility with the care team
    - “it’s almost to the point that people have to look for each other sometimes because they don’t have that conglomeration at the station” Nancy Keenan, RN [17]

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# The Nurse Station - Decentralized

## From an Evidence Based Perspective

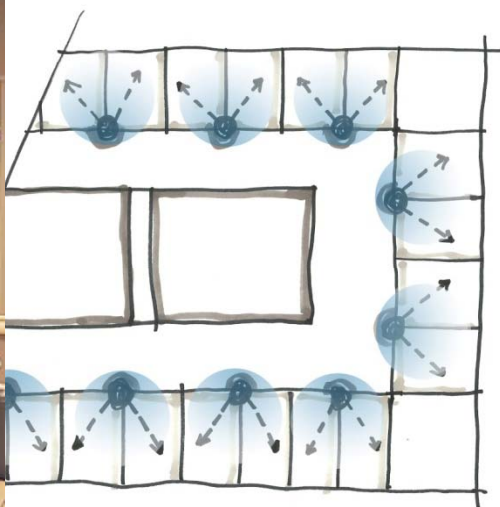
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Photo courtesy of Archi-tech Web



Photo courtesy of Ellerbe Becket



- “some studies showed that decentralized nurse stations reduced staff’s walking time and increased patient-care time, especially when supplies were also decentralized, and placed near the nurse stations.”[7]
- “decentralized options may reduce steps for the nurse, but increase unit-based costs (filling/dispensing, wastage/contamination).”[8]
- “new designs are incorporating decentralized nurses’ stations and alcoves outside patient rooms so that staff is distributed around the unit (as opposed to being in a single central location.” [9]
- “One important way to avert adverse events related to patients is for the staff to have the ability to observe patients continuously and provide assistance as needed. Multiple decentralized nurse work areas and charting and alcoves next to patient rooms may help facilitate this activity”[10]

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# The Nurse Station - Decentralized

## Effects on Key Stakeholders

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- Effects on Key Stakeholders:

- **Patients:**

- More time spent with nurse therefore, more bedside care received; however less visual access to caregiver
- Patient care could be compromised because of nurse isolation and difficulty of finding available communication ties
- Lower noise levels resulting in better rest

- **Families:**

- Less visual access to caregivers; possibly increasing anxiety
- More private spaces for communication with caregiver about patient status, treatment, etc.

- **Doctors:**

- More time spent looking for nurses & care team members; taking time away from care
- More time spent traveling to each patient room; taking time away from care

- **Nurses:**

- Less time spent traveling, resulting in more time for bedside care therefore; increased communication
- Less visual access to patient, resulting in more patient injuries like falls
- Feel more isolated, resulting in less communication and impromptu learning opportunities
- Less interruptions lead to reduction of errors
- Less visibility of care team, and interaction with care team

- **Administration:**

- Decentralized location of supplies = more supplies to support decentralized spaces equates to increase in cost of technology & supplies
- Increase in bedside care translates to a cost savings because of increased patient safety



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# The Nurse Station – Hybrid

## A Closer Look

23

- Type: “The Hybrid” – A Team Oriented Approach
- Characteristics & Staffing Implications
  - Focuses on the integration of types of “work” into nursing unit: “Curb Side”, “Step In”, & “Immersive” work
  - **Spaces for privacy and exposure; balanced with open architecture and choice**
  - **Privacy and open access are balanced based on individual preference**
  - Multiple Small-scaled decentralized workstations paired with one medium sized centralized station
  - Small greeters station upon entry
  - Family Room and Informal staff meeting rooms around periphery
  - Various options for care team for documentation, group meetings, dictation, and care coordination
- Benefits
  - More efficient delivery of care; creating more care-time for nursing at bedside
  - Reduced travel distance for nurses; nurse stations closer to patient rooms
  - Reduced noise levels for care team, family, and patient
  - Reduced staff interruptions; therefore likely to reduce interruption related errors
  - Increased visual access to care team therefore, increased interaction and communication
  - Greater flexibility of space usage, and greater flexibility with furniture
- Trade-Offs
  - Increased costs associated with increased supplies, equipment, & technology
  - More square footage used for team space instead of patient care space that generates revenue

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# The Nurse Station – Hybrid

From an Evidence based Perspective

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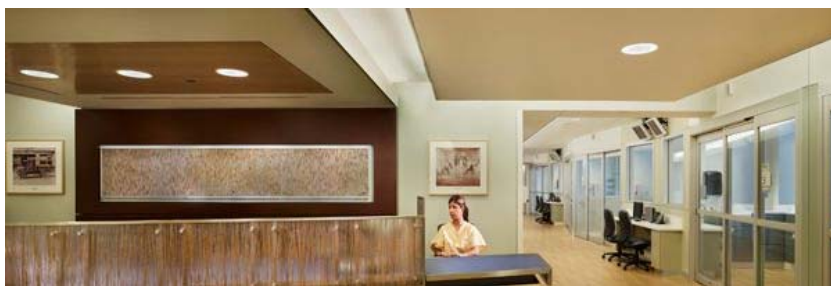


Photo courtesy of Archi-tech Web



Photo courtesy of JKM

- “The practice of healthcare in silos discounts the evidence that, in healthcare as well as other work settings, learning and communication happens most effectively through frequent human contact and social interaction. Such interaction allows for the exchange of explicit knowledge (e.g., through the patient record) but also allows for team members to pick up on cues and triggers from their team members that allow them to perform their work” [9]

- “design ward layouts and nurses stations to reduce staff walking and fatigue, increase patient care time, and support staff activities such as medication supply, communication, charting, and respite from stress”[15]

- “retain the decentralized nurses’ station format to keep the nurses close to their patients, but provide a central station where private consultations and greater collaboration could take place. This “hybrid” model is a balance of nurses at the bedside and collaborative spaces” [6]

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# The Nurse Station – Hybrid

## Effects on Key Stakeholders

25

- Effects on Key Stakeholders:

- **Patients:**

- Increased level of care resulting from more time spent by care team at bedside
- Increased communication amongst care team – more information transferred to patient & family

- **Families:**

- Private spaces for communication about patient with caregivers, increases privacy for patient & family
- Easier access to care team with the integration of the secondary central hub
- More space for families outside the patient room, more interaction with care team, more likely to stay with patient

- **Doctors:**

- Easier to find care team; less time spent walking, more time spent on care
- Increased interaction with care team in designated locations therefore, increased communication & patient safety
- Increased availability for care team, as work type areas are conducive to efficiently fulfilling their various duties

- **Nurses:**

- Increased visual access to patient and care team
- Increased interaction with care team in work locations therefore, increased communication & patient safety
- Decreased feelings of isolations because of variety of work type areas that encourage communication and cohesion

- **Administration:**

- Increased costs associated with more equipment & technology
- Decreased costs associated with increased patient safety and quicker patient recuperation
- Increased cohesion amongst healthcare professionals, establishing trust, and increasing communication within the organization, following through with providing “compassionate, quality care” – the mission statement of A.M.H.



# Recommendation – The Hybrid

Centralized, Decentralized, or a Hybrid of Both?

26

- Based on the previous comparison and understanding the benefits and trade-offs between centralized and decentralized nursing unit design, I have come to the conclusion that The Hybrid nursing unit design would most benefit Auburn Medical Center, by exploring:
  - 1.) “Different types of spaces for interactive team work
  - 2.) Visual Connections to facilitate information seeking and interaction” [1] and
  - 3.) Increasing Acoustical privacy



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# Recommendation – The Hybrid

Different types of space for interactive team work

27

- Support “Curb Side” Work [5]
  - Standing height surfaces – “a perch”
  - Flexible enough to support individuals or small groups
  - Where Impromptu meetings happen
  - Doctor comes to the floor, a nurse need to talk with him about a patient
  - Close proximity to patient rooms
  - Visual access to patient
  - Care team needs to check a chart, or reference something on a computer
  - Space for wireless access and mobile technology for immediate connectivity
  - Open access based on personal preference and privacy needs



Photo courtesy of “Evidence Based Design” by Rosalyn Cama

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# Recommendation – The Hybrid

Different types of space for interactive team work

28

- Support “Step In” Work [5]
  - Seated heights with medium height translucent panels for some visual and acoustical privacy
  - Documentation, dictation, care coordination, referencing charts
  - Privacy for meeting with family or talking over a treatment plan
  - Space for wireless and mobile technology connections for ease of access & communication
  - Privacy and open access are balanced based on individual preference for documentation, etc.
  - Flexible furniture allows for personal choice and changing staff needs
  - Acts as the medium-sized central hub



Rendering courtesy of Perkins + Will

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# Recommendation – The Hybrid

Different types of space for interactive team work

29

- Support “Immersive” Work [5]
  - Planned & impromptu meetings; like at times of shift- change, staffing, care coordination, family consultation
  - Translucent glass allows for acoustical privacy while maintaining visual connection to care team
  - Care coordination with access to various modes of communication and technology –video teleconference, computers, white boards, mobile devices, plasma TV.
  - Alternative option for documentation based on personal preference



Rendering courtesy of Steelcase

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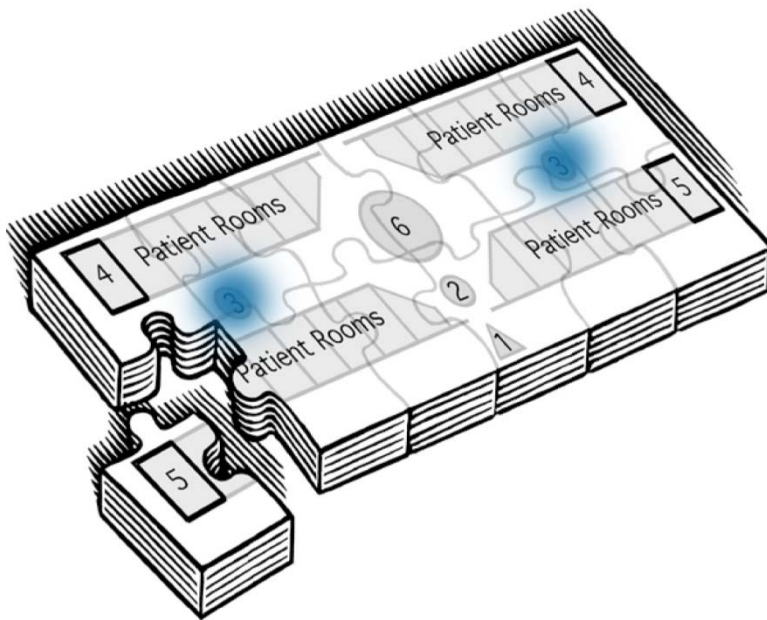
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# Design Recommendation #1

Different types of space for interactive team work

30

- Use series of decentralized “**curb-side**” work stations around patient rooms; gives care team choices depending on what they are working on, and who they are working with.



## •Implications:

- Utilizes benefits from both centralized and decentralized nursing stations for care team, patients, and family
  - reduces care team travel time
  - Increases time spent on bedside care
- Encourages communication amongst care team, patient, and family because of increased interaction at multiple work locations
- Provides flexible spaces to accommodate individual working preferences based on task & level of privacy desired

Image courtesy of Knoll

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# Design Recommendation #2

Different types of space for interactive team work

31

- Use one central care team station for “**step-in**” work & storage of general office and medical supplies

## •Implications:

- Encourages communication amongst care team, patient, and family because of increased interaction at designated central work locations
- Provides flexible spaces to accommodate individual working preferences based on task & level of privacy desired
- Central location of supplies decreases costs
- Increases walking distance for care when choosing to work at central station, but is not necessary because of decentralized locations

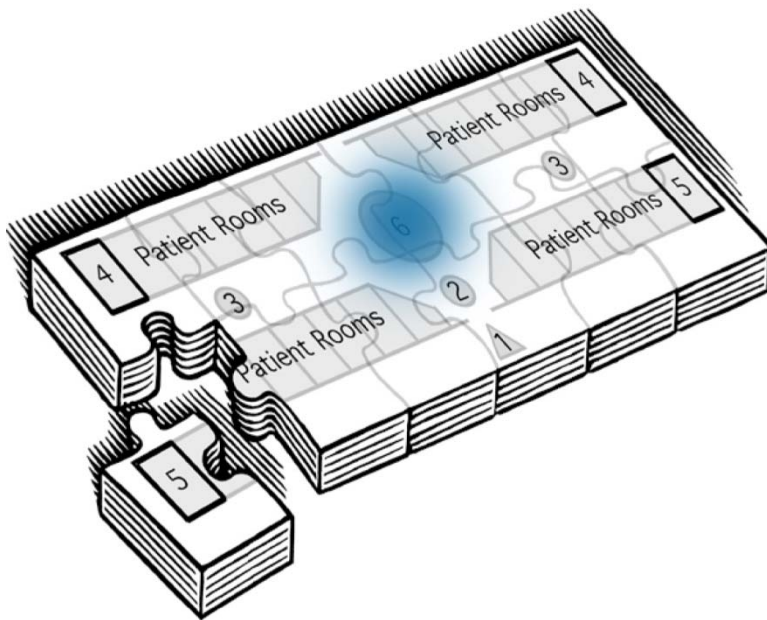


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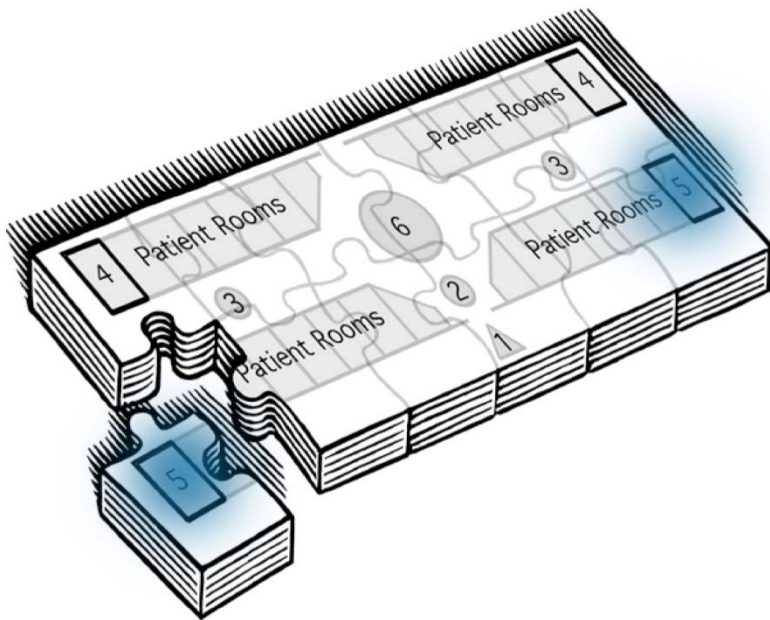
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# Design Recommendation #3

Different types of space for interactive team work

32

- Place a series of separate rooms for staff at the end of the hall, addressing the need for “**immersive**” work spaces for staff and care team.



## •Implications:

- Accommodates modern technology that can support teleconferencing, especially convenient for the small size of A.M.H. – when needing to consult other health care providers in different locations.
- Encourages communication amongst care team, patient, and family because of availability of private spaces
- Provides flexible spaces to accommodate group and individual working preferences based on task & level of privacy desired

Image courtesy of Knoll

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# Design Recommendation #4

Visual connections to facilitate information seeking and interaction

33

- Design the central nursing station in the shape of a diamond, an octagon, a circle or half-circle to provide the best visual access to ongoing activity and situational awareness for care team.



Image courtesy of Healthcare Design Magazine

## •Implications:

- Acts as a sociopetal core, inviting care team members, family and patients to interact with other care team members
- Sociopetal design can be achieved by using circular-shapes that draw people in, where face-to-face interaction can occur
- Sociofugal design would prohibit communication and interaction therefore, a circular shape is conducive to increasing communication
- Gives visual access to ongoing activity and increases awareness amongst care team, patients, and families
- Increased visual access can translate into increased communication because care team has better awareness of where other team members are located

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# Design Recommendation #5

Visual connections to facilitate information seeking and interaction

34

- Semi-enclose central nursing stations areas using translucent materials for privacy and confidentiality while allowing nurses to visually monitor patients and stay connected to care team.



Image courtesy of 3-Form

## •Implications:

- Balances the need for patient privacy in the room while giving visual access to the nurse to monitor care
- Translucent material achieves physical barrier while maintaining important visual connections between care team members, and between care team member and patient
- Balancing acoustical privacy with visual access can increase communication because it gives care team members greater awareness of where other care team members are located, making it easier for them to seek help, advice, or assistance of some kind
- Can decrease feelings of isolation amongst nurses because of better visual access to care team members

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# Design Recommendation #6

## Increasing acoustical privacy

35

- Utilize sound absorbing materials to ensure greater acoustical privacy.



Photos courtesy of Armstrong



### •Implications:

- Making effort to align with H.I.P.P.A. regulations about speech privacy and patient confidentiality
- “Installing high-performance sound absorbing ceiling tiles can shorten reverberation times, improve speech intelligibility, diminish propagation of voices and sounds, and lessen sound pressure intensity” [16]
- “noise is recognized as a distraction and stressor for staff, resulting in reduced productivity” [16]
- “research has shown that inadequate privacy may lower patient satisfaction and can worsen healthcare outcomes if patients withhold personal information or refuse to be examined because of privacy concerns” [16]
- Possible cost increase as opposed to standard acoustical tiles however; the benefits outweigh the additional costs

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# Final Thoughts

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“Healthcare is delivered by human beings, for human beings, to serve our most basic human needs. The more healthcare becomes a real marketplace, the greater will the emphasis on strengthening the connection between providers and patients”[3]

Several key questions should be discussed when considering new designs:

- what are the effects on key stakeholders?
- what is the nurse-to-patient ratio?
- does the hospital have electronic medical records?
- what will the care team need for collaboration and communication?
- what will families need for improved communication and satisfaction?
- what are the financial ramifications and staffing implication of each design?



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# Final Thoughts

37

The interface between unit physical design, organizational culture, technology, and work processes in creating a culture of retention and safety

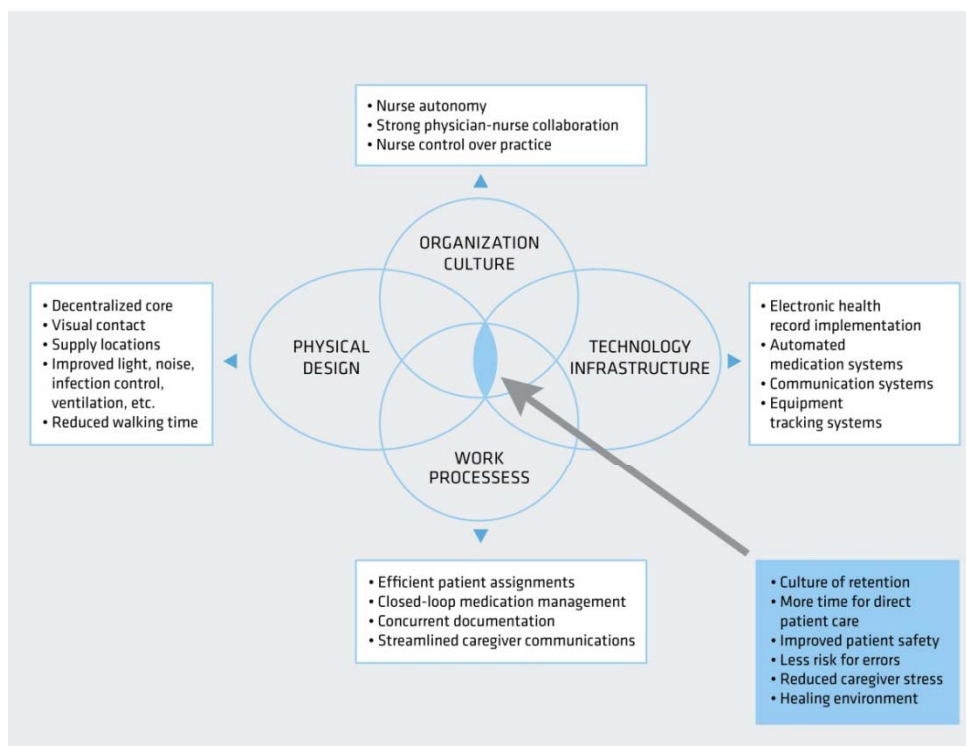


Diagram courtesy of Healthcare Leadership White Paper Series

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