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BALANCING PATIENT CARE & STAFF RESPITE IN THE MICU

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ABSTRACT

Studies show that the restorative quality of break areas may significantly improve nurses' satisfaction and stress reduction in these emotionally charged environments (Nejati et al., 2016). But where is that supposed to occur in intense environments such as the MICU and especially during a pandemic? As Verderber et al. (2021) states, there is an acknowledgment of the therapeutic role of staff amenities, but it is undefined as to what would serve the staff best. A recent UK Healthcare/GBBN study helped define answers for a new MICU.

When UK Healthcare decided to design a new MICU, it was important to have flexibility for any infectious disease or massive event along with addressing needs for staff satisfaction and quality patient care. The study undertaken by UK Healthcare and GBBN focused on the culture for the staff at UK Healthcare in Kentucky and the needs to provide care on the new MICU. The study's objective was to learn design guidelines that will positively transform daily care in the MICU while dual purposing spaces on the unit to prepare for any type of catastrophic event, but it also revealed ways to address staff respite.

To learn from other systems during the 2020 pandemic, the UK/GBBN research team reviewed five ICUs and five bio-containment units as case studies. Then correlated with a literature review of current trends, research areas of focus include bolstering resistance to pathogens and access control & entry function through the built environment. Additional opportunities developed in building systems, patient areas and process & flow procedures. Primary research methods included a staff preoccupancy survey, interviews, staff shadowing, and observations. Key themes were revealed through these methodologies including the need for staff respite & support, flexibility in the support core and staff visibility access on the unit especially for the multidisciplinary teams.

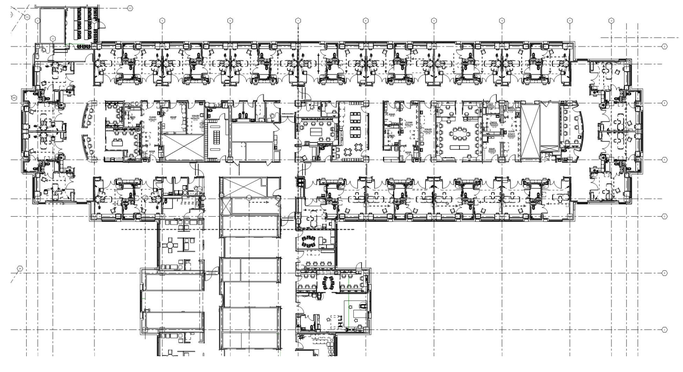
Ten built environment design guidelines were the outcome of our findings, and they all related to the hospital's goal for flexibility. One of these guidelines focuses on the patient corridor as Carthey (2008) suggests in her article about the value of the corridor for communication, efficiency, and function. Guidelines generated opportunities for staff respite, recharge, taking a break, privacy, and the ability to control sound. Daily use of the MICU guidelines included development of the workspace, visibility across the unit, supply standards and maximizing virtual ICU capabilities. Additional pieces to consider for infectious disease and other massive events include adding a serious communicable disease lab and hot zone to the unit.

The project was conducted for the pre-design of a shelled 12th floor at UK Healthcare. The pre-design floor plan is below. This includes what the floorplan was predicted to be before this research study was conducted.

Carthey, J. (2008). Reinterpreting the Hospital Corridor: "Wasted Space" or Essential for Quality Multidisciplinary Clinical Care? HERD: Health Environments Research & Design Journal, 2(1), 17–29.

Nejati, A., Shepley, M., Rodiek, S., Lee, C., & Varni, J. (2016). Restorative design features for hospital staff break areas: A multi-method study. HERD: Health Environments Research & Design Journal, 9(2), 16-35.

Verderber, S., Gray, S., Suresh-Kumar, S., Kercz, D., & Parshuram, C. (2021). Intensive Care Unit Built Environments: A Comprehensive Literature Review (2005–2020). HERD: Health Environments Research & Design Journal, 14(4), 368–415.



METHODS

Case studies were reviewed of five bio-containment units and five intensive care units. Secondly, specific interviews were conducted with knowledge experts including a Director of Critical Care outside of UK Healthcare, a Clinical Professor & MD outside of UK Healthcare, a Deacon in Chaplin services outside of UK Healthcare, and a Director of Pharmacy. Informal interviews were also conducted during staff shadowing and observations.

Staff shadowing showed the majority of the staff delegate their time responsibility per their intended tasks. The time spent staff shadowing was not statically significant. Staff did tasks that included providing patient care, staff-to-staff work, and time for traveling. Smaller amounts of time were spent searching for supplies and waiting for tasks. Data about the space is more significant when reviewing the information by staff type. Staff need space for breaks and nourishment near the patient care areas.

Staff types that took part in tthe survey.

Survey Highlights:
The most important aspect of flexibly on the unit for nurses is the access to supplies and for providers it is the ability to communicate. The most useful piece of equipment for daily work was reported to be a double monitor computer.

Staff survey comments:

- The unit is too spread out.
- We need for space for uninterrupted/ private work"
- Rooms are isolating.
- Space for private conversations
- We need secure, quiet respite areas.
- We need a common space to collaborate"

Shadowing the staff produced information that about what tasks were performed, the location staff and how long it took to perform the task. Highlights of the nurse and the provider time is detailed below.
Nurse shadow time included contact with the patient's family & visitors outside of patient rooms. Communication with staff occurred mostly at fishbowl workstations. Medication distribution was observed to occur between the Clean Supply room, pneumatic tube and pyxis. The medications are then distributed to the patient.

Providers spent the majority of their time communicating with staff and this included teaching. The observations times included the periods for rounding. Many of the patient care interactions included communicating with residents or nurses outside of patient rooms. Providers and other staff used mobile workstations in the corridors and had to move them in and out of storage locations.

An additional research method was the staff survey that received 65 qualified responses of UK Healthcare staff that work on the MICU. This is a high percentage of their total staff of this unit. The pie chart represents the staff types that took the survey. The majority of the staff that took the survey were nurses, nurse practitioners and medical doctors.

RESULTS

The results of the research project produced several design guidelines for the team to use to complete the architectural project.

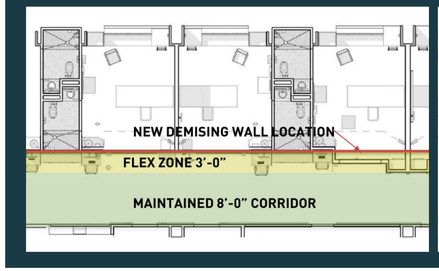
1. Create Decentralized & Centralized Workspaces w/ High Visibility
- Visual connection to other staff
- Standardize supply rooms

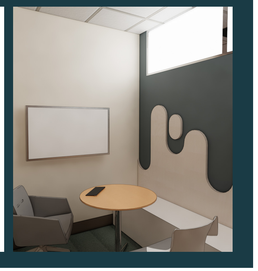
2. Design for Staff Respite, Break & Recharge
- Spaces on the unit for staff to recharge
- Plan for staff retention and recruitment

3. Maximize Capabilities
- Maximize existing possibilities for EICU
- Plan electrical & equipment at each room head wall to connect to corridor

4. Allow for Flexibility in the Corridor
- Provide larger area compared to minimum width
- Plan for movable furniture and nothing fixed

5. Integrate Ancillary Services
- Add serious communicable disease lab & pharmacy
- Create hot zone





CONCLUSION

The intent of this research study was to provide guidance on how the new design of the MICU can be altered to support staff respite and increase patient quality care. It is based on the standard unit level at UK Healthcare with the development of conclusions learned from the past pandemic. The needs of the staff and patient care were used to identity a series of design guidelines in reaction to staff shortages, pandemic response needs and intense health care.

Guidelines came forth from the research to carry forward intentional design for the new MICU. Various guidelines focused on staff work areas and staff areas for respite. One guideline pointed to the integration of digital capabilities and the eICU technologies available. The guidelines also targeted the overall shelled floorplan to create flexibility and integrate ancillary services.

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Following the development of the design guidelines, a space program was created for the UK Healthcare MICU. The project started schematic design after this research project and continued through each of the architectural design phases.

Several limitations to the study of the MICU began with the variations across many healthcare systems. The base of the study was for UK Healthcare and their staff. Limitation of time in staff observations did not create statistically credible information for the research project to conclude how staff spend the majority of their time. Aspects of the shadowing could only support examples and not convey staff trends.