



KEY POINT SUMMARY

OBJECTIVES

The authors studied how multidisciplinary care occurred in a NICU that transitioned from an open-bay layout to a SFR layout with intentionally designed collaboration areas.

The healthcare workspace: Understanding the role of decentralized nursing stations, corridors, and huddle spaces as locations for teamwork in a neonatal intensive care unit

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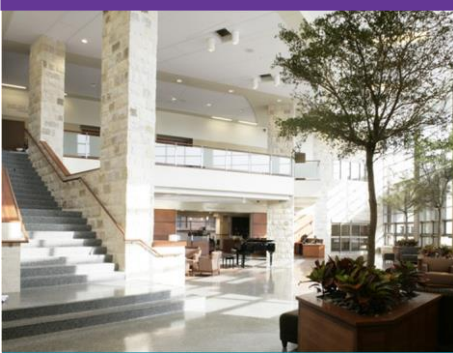
Key Concepts/Context

Neonatal intensive care units (NICUs) host fragile and vulnerable patients. Research studies on NICUs with a single-family room (SFR) layout demonstrate benefits to both neonates and their parents but the impact on staff remains unclear. The decentralization associated with SFRs may impair teamwork. The results of this study suggest that centrally located collaboration spaces may mitigate the negative effects of decentralization and support the multidisciplinary care coordination required for this population.

Methods

All NICU service line staff were invited to complete surveys both before and after the move from an open-bay unit to a SFR unit with decentralized nursing stations (DNSs) and newly added features including centralized collaboration spaces (huddle stations and corridors), a dedicated staff workroom, staff lounge, and a staff terrace. There were 81 surveys completed prior to the move and 131 completed post-move. Survey data were analyzed to identify differences in staff perceptions of teamwork, stress, well-being, job satisfaction, and design satisfaction before and after the move. Descriptive analyses were conducted to summarize individual item results.

One year after the move, researchers used six trained observers to record face-to-face communication at the DNSs, huddle stations, and corridors. Observations were conducted over 19 days and included 40 hours of observations and a total of 1,876 instances of face-to-face interaction. Observers noted the communication patterns of participants by role (MDs/residents, nurses, technicians, therapists, family members, and other badged staff), but the content of the conversations was not considered pertinent for the purposes of this study. Observational data were



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initially assessed regarding communication: specifically the frequency of conversations and which professions participated in them. Secondly, the data was assessed to figure out which professions used which spaces the most. Finally, observations were assessed to determine cross-location conversations among professions.

Findings

Survey respondents demonstrated statistically significant improvements in their perceptions of job satisfaction ($p=.014$), well-being ($p=.000$), and design satisfaction ($p=.000$) after the move to the new unit, but they had lower perceptions of teamwork, albeit not statistically significant ($p=.083$). Analysis of 40 hours of observations in the new unit indicated 54% of communication occurred at DNSs, 46% in corridors, and 18% in huddle stations, with some interactions crossing locations. There were 704 observed interactions at the DNSs that included 1,613 individuals with nursing staff participating in these conversations 80% of the time. There were 531 observed interactions in the corridor that included 1,650 individuals. The corridor was utilized more equally by both physicians and nurses. Finally, there were 277 observed interactions in the huddle stations that included 430 individuals from disciplines including physicians, nurses, technicians, and therapists. Interestingly, when two or more professions were involved in a conversation, 37% of communication occurred at the decentralized nursing stations, 44% in corridors, and 51% in huddle stations, suggesting that huddle stations contribute to multidisciplinary collaboration. Communication in huddle stations averaged two to three individuals, but sometimes had as many as 12. Further, nursing staff were frequently engaged in cross-location conversations between the decentralized nursing station and the corridor.

Limitations

Like all research studies, there are a few limitations for consideration. First, there were no statistical details on the survey or observational tool used despite both being described as piloted to ensure reliability and validity. Secondly, it was not clear if the post-move survey was one year after the move or just the observational portion of the study. Additionally, no information about the shifts observed or surveyed was included and there was no indication of how many individuals from different professions responded to the survey. Finally, this was limited to an NICU transition within a single academic facility.



Design Implications

In this study corridors and huddle spaces were important collaboration areas requiring intentional design to support care coordination as well as care delivery in such a way as to foster conversational privacy and protect patient confidentiality.

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