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Emergency Nurses' Department Design Recommendations for Improved End-of-Life Care

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ABSTRACT

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for Improved End-of-Life Care

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Introduction: Death occurs frequently in emergency departments (EDs). Obstacles present in EDs can make providing end-of-life (EOL) care stressful and challenging for emergency nurses. Although death is common in EDs, there is a paucity of research regarding ED design as an obstacle to EOL care. The purpose of this study was to identify emergency nurses' experiences and recommendations regarding ways ED designs negatively or positively impacted EOL care for dying patients and their families.

Methods: At 25-item questionnaire regarding ED design and EOL care was sent to a geographically dispersed, national random sample of 500 emergency nurses. Inclusion criteria were nurses who could read English, worked in an emergency department, and had cared for at least one patient at the EOL. Responses were individually reviewed and coded by the research team.

Results: Major obstacles relating to ED design identified by emergency nurses included (1) many issues related to limited space, (2) poor department layout and design features, and (3) the lack of privacy. Despite EDs being a challenging place to provide EOL care, positive ED design characteristics impacted EOL care for dying patients and families.

Discussion: Emergency nurses understand the need for family presence during resuscitation, for secure body stowage areas, and for more resuscitation rooms so that families have time to grieve before being removed due to the immediate need for a second trauma patient and family. Nurses can evaluate existing facilities and identify areas where potential change and remodeling would improve patient care, increase patient privacy, or further utilize space.

Conclusion: Understanding ED design's impact on EOL care is crucial. Modifications to ED layout and design may be challenging; however, improvements to space, layout, and privacy need to be considered when planning new EDs or remodeling existing departments. Further research is required to determine the impact of ED design on EOL care.

Keywords: End of life, emergency department, design, emergency nurses, obstacles

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Emergency Nurses' Department Design Recommendations for Improved End-of-Life Care

Death occurs frequently in emergency departments (EDs). In 2013, there were 130.3 million ED visits reported in the United States, as documented in the National Hospital Ambulatory Medical Care Survey.[1] An estimated 303,000 of those patients were pronounced dead on arrival or died shortly after being admitted to the ED.[1] Large numbers of admitted ED patients dying signifies that death is a common occurrence for emergency nurses.

Although death occurs frequently, emergency nurses face unique obstacles in providing quality end-of-life (EOL) care to dying patients and family members.[2–4] Additionally, obstacles present in EDs can make providing EOL care stressful and challenging for emergency nurses.[5] One previously identified obstacle has been the design or layout of the ED.[2] Therefore, the purpose of this study was to identify emergency nurses' experiences regarding ways ED designs negatively or positively impacted EOL care for dying patients and their families.

Background

EDs are often the healthcare entry point where patients present following acute, chronic, or traumatic events. Emergency nurses desiring to provide excellent, compassionate EOL care to dying patients may encounter obstacles at the ED. Although much has been published on EOL care obstacles in EDs,[2–9] there is a paucity of research regarding ED design as an obstacle to EOL care.[6]

In 2006, Heaston et al[3] completed a national survey of 300 emergency nurses and determined the largest obstacles to providing EOL care were those related to increased patient workload, angry family members, and poor ED design. In a follow-up report adding frequency of occurrence data, researchers found poor ED design as the obstacle with the second highest

magnitude score (mean size multiplied by mean frequency of occurrence).[2] Of the top five most frequent suggestions for reducing EOL care obstacles in the ED, three focused on environment or design, including providing comfortable patient rooms, more privacy at the EOL, and places for families to grieve.[8]

In a study on rural emergency nurse perceptions of EOL care (*n*=508), Beckstrand et al[9] found the third highest obstacle was poor ED design that did not allow for privacy of dying patients or grieving family members. In more recent analysis of qualitative data gathered during the original study,[7] Beckstrand et al[7] found the most frequent suggestion for improving EOL care in rural EDs was providing greater privacy. These rural emergency nurses overwhelmingly identified privacy as the top priority when providing EOL care in rural emergency departments.[7] Subsequent studies have evaluated obstacles to EOL care in the ED and also identified poor department design as a significant barrier to quality EOL care primarily due to poor or limited space in EDs and the lack of privacy.[4,5]

In a landmark study investigating emergency nurses' perceptions of department design as an EOL care obstacle, researchers found ED design might not be as large an obstacle as previous studies suggested.[6] A 25-item questionnaire was mailed to a national random sample of 500 members of the Emergency Nurses Association (ENA). Two mailings of the questionnaire elicited 198 usable responses for a response rate of 40.9%. Emergency nurses reported their current ED design helped EOL care at a greater rate than current design obstructed care. Emergency nurses also reported having little input into unit design or layout changes. The primary request by emergency nurses for ED design changes was more private places for families to grieve.[6]

Research Questions

Research on EOL care obstacles as perceived by emergency nurses in the ED has been published;[2–9] however, there is a lack of studies concerning ED design as an obstacle to EOL care. No studies were found that focused specifically on ED nurses' recommendations for improved ED design. This study builds on previously published quantitative research looking at ED design.[6]

This study will address the following research questions:

1. *What are the shared experiences regarding ED design that epitomize obstacles to providing EOL care?*
2. *What aspects of ED design do emergency nurses identify as obstacles to EOL care?*
3. *What positive aspects of ED design do emergency nurses identify as promoting quality EOL care for dying patients and their families?*

Emergency nurses' perceptions of design obstacles are important. Understanding emergency nurses' perceptions of design obstacles is needed as a means to develop better department designs that enhance provision of EOL care.

Methods

Subjects

After Institutional Review Board (IRB) approval, a national random sample of 500 emergency nurse participants was purchased from ENA. Participants were eligible for inclusion if nurses had worked in EDs, lived in the United States, were able to read English, and had cared for at least one dying patient. Consent to participate was implied upon return of the questionnaire.

Instrument

The *"Emergency Nurses' Perceptions of Department Design as an Obstacle to End-of-Life Care"* questionnaire was created using information gathered from literature review, previously completed research,[2,3,8,9] and expert opinion. The questionnaire included 6 quantitative, 3 qualitative, and 16 demographic items for a total of 25. Quantitative data from this research study has been previously published.[6] The open-ended question analyzed for this study was, *"Can you tell us of any experiences where the ED design either negatively or positively impacted the EOL care you provided to your dying patients or their family members?*"

Procedure

A geographically dispersed, national random sample of members of ENA was purchased. The first mailing included a cover letter explaining the study, a copy of the questionnaire, a $1 bill as compensation, and a self-addressed stamped return envelope. A second mailing was completed 6-8 weeks after the initial mailing to all non-responders. The second mailing included a cover letter, a copy of the questionnaire, and a self-addressed stamped return envelope.

Data Analysis

Data was returned and entered into a Microsoft Word™ (2013) file for analysis. The research team included an EOL care nurse researcher, an advanced practice nurse, a qualitative expert, an advanced practice nurse with emergency nursing experience, and an emergency nurse graduate student. Content analysis was used to identify categories and themes of the qualitative responses. Members of the research team analyzed data to identify preliminary themes then analysis continued as a team to finalize the results and achieve consensus.

Results

Of the 500 mailed questionnaires, 215 were returned. Of the 215 returned questionnaires, 17 were eliminated from the study sample because questionnaires were undeliverable (*n*=16) or because a subject self-reported as ineligible to participate (*n*=1). Thus, the final sample size was 198 emergency nurses. Of those nurses, 126 provided usable responses to the open-ended question for a response rate, on this item, of 63.6%. Many nurses provided more than one making the total number of recommendations at 158.

Of the subjects who responded to gender, 24 (19%) were male and 102 (81%) were female. The mean age of nurses was 47.4 years (*SD*=10.0), with a range of 26 to 68 years. Nurses reported a mean of 19.4 years (*SD*=11.9) working as a RN and a mean of 14.6 years (*SD*=10.5) of total ED experience. Greater than 61% of these nurses reported having provided care for 30 or more ED patients at EOL (see Table 1.)

Shared Experiences Regarding Design Obstacles

Several themes emerged from emergency nurses' experiences. Nurses identified the ED as a challenging place to provide EOL care due to many obstacles. Major obstacles relating to ED design included (1) many issues related to limited space, (2) poor department layout and design features, and (3) the lack of privacy.

Issues surrounding limited space. The most commonly identified ED obstacle (*n*=50; 31.6%) was limited space and the many problems that comprised this obstacle. While small rooms and lack of storage were general design obstacles, specific issues with limited space included no place for family members at patients' bedsides, during resuscitation, or for deceased body stowage after death.

Overall, emergency nurses determined that limited space was not conducive to appropriate EOL care for dying patients and families. One nurse voiced the concerns of many by sharing this example of limited space, "[Trauma] *care rooms are too small with all the equipment needed and we lack additional storage places."* Other specific comments related to inadequate space for family members, during resuscitation, or for body stowage after death.

Space for family members. Emergency nurses noted that inadequately sized rooms limited family members at the bedside of the dying patient. One nurse stated, *"Rooms are too crowded for dying patients and their families."* Another nurse responded, *"There is nowhere for family members to fit in rooms so families consistently need to be in the hallway."* One nurse described the obstacle of limited space in the ED through the following comment,

> *There is rarely space for families of the deceased to be* [present] *after the death of their loved one. EDs do not allow space for this aspect of care. We have a small family room and chapel, but it is less than ideal for the needs of families.*

Space during resuscitation. Family members are often encouraged to be present during resuscitation efforts; however, limited space often can make family presence difficult for ED staff. One nurse shared,

> *During the code of a young child in our major trauma room, there was no room for multiple family members to observe the code. The only* [space] *was in the hallway in the middle of the ED in view of other patients and visitors.*

Another emergency nurse further articulated the obstacle of limited space during resuscitation by saying, *"Some rooms in the department are too small to have a code* [while] *the family is present without tripping over staff."* Another nurse stated, *"We seldom have family members present for resuscitation mainly because we do not have adequate space in the patient-care area."*

Deceased body stowage. Limited space in the ED also affected where emergency nurses placed patients' bodies after death. Several nurses reported that there are frequently no holding places for deceased bodies in EDs. One nurse responded,

> *During the busy flu season, we frequently have to add rooms to our rooms (i.e. hallway beds or two beds to a room). I have had to put a deceased patient's body off to the side, behind curtains, or in x-ray room because we do not have an appropriate place.*

Another nurse shared an unacceptable experience regarding inappropriate placement of deceased bodies due to lack of room on an extraordinary busy day.

> *We had two trauma rooms for* [more than] *140 patients a day. One night we received 5 codes one after another. Two codes were unsuccessful and we had to put the bodies somewhere so we could receive the next two codes. One body was placed in an elevator that opened into the ED. It was blocked off at the time* [and normally locked] *but, unfortunately, someone unlocked it and when the family arrived the body was going up and down the elevator shaft. The second body was a baby and because we had no area available the* [wrapped] *body was placed on a counter top when the third code came in* [and the nurse was needed immediately]. *At some point the body* [mistakenly] *got moved to the trash bin and was hard to find.*

Department features and layout. Second to lack of space, emergency nurses identified department features and issues related to layout as the second most common obstacle (*n*=43; 27.2%) to EOL care. Many nurses reported that negative design features such as curtain dividers in rooms, the lack of a family grieving rooms, generally poor ED room layouts, and insufficient numbers of resuscitation rooms created a challenging environment to provide quality EOL care.

Curtains as separators. Many EDs utilize curtains to separate patients and provide a semblance of discretion. Several nurses echoed one nurse's comment, *"I see the curtains as a big negative in those rooms no matter how we use them. Just because you can't see what's going on doesn't mean you can't hear."* One nurse shared an EOL experience impacted by curtains used as patient separators.

> *There was a cardiac arrest and the patient was pronounced dead soon after arriving. There were only curtains separating the other patients in the bay. There was not enough room for family. The other patients in the bay (in other curtained off areas) were very aware of what was happening. They were able to hear* [the grieving family] *through the curtains.*

Another nurse described the difficulty of providing EOL care with curtained rooms.

> *We had a dying patient in one room trying to pass in peace with his family. Not too far away separated by only a curtain, a loud intoxicated family was with their daughter cursing, laughing, being loud, foul, and upsetting to the entire ER…not allowing the dying patient or family any peace.*

Lack of family grieving rooms. Additionally, several nurses reported that it was necessary for family members to stay in waiting rooms or hallways because there was no private area for families. Many EDs do not have a family grieving room or a specified place for family members to grieve. One nurse stated, *"I worked at an ED that did not have a grief room. Patients' family members would have to wait in the main lobby. It was a very bad situation."* Another nurse shared an experience of having a dying patient's family members in the waiting room rather than having room for them to be at the bedside.

> [The problem is] *limited space in ED rooms and congested halls.* [One patient's] *family was in the waiting room with other ED patients. Family members got mixed up and the physician informed the wrong family members of* [a patient's] *death.*

Department layout. Poor department layout or design, location of rooms in the ED, and the proximity of dying patients to the nurses' station make EOL care challenging. One nurse described the obstacle of rooms located in busy areas or near the nurses' station.

> *The trauma rooms are right in front of the nurses' station. Family members are mourning in view of everyone. At the same time, everyone at the nurses' station is expected to talk in soft voices, not laugh, and no joking around with each other* [during this traumatic time for family]. *An ED with a code/trauma room that had more privacy would help the family, staff, and other patients.*

Another nurse agreed with the obstacle of room location, *"Rooms near the nurses' station where conversations are loud or involve laughing make* [staff members] *appear insensitive."*

Shortage of resuscitation rooms. Due to the busy nature of EDs, resuscitation rooms are often occupied or there may not be sufficient resuscitation rooms for dying patients and their accompanying family members. One nurse reported, *"The shortage of resuscitation rooms often limits the amount of time families can spend with the patient after death."* Similarly, another nurse stated, *"We normally put EOL patients in our trauma rooms. Then we have to move them out quickly to get ready for the next emergency. We have to move the family; it is loud and very impersonal."*

Lack of privacy. The lack of privacy was specifically reported by emergency nurses (*n*=33; 20.9%) as a top obstacle to providing EOL care. ED design does not generally facilitate

privacy for dying patients and accompanying family members. One nurse shared, *"Because of the close proximity to any location in our ER, there is precious little privacy. Everyone can know what's happening."* Similarly, another nurse stated, *"In the case of our facility, the treatment rooms are small and 'open concept,' which leaves very little opportunity for privacy from other patients."* Another nurse made a comment on the lack of privacy in the ED, *"Due to the design of the ED other patients know exactly what is going on."*

Dying patients are frequently placed in resuscitation rooms; however, these rooms are often in busy areas of the department limiting privacy for patients and family. One nurse stated, *"Resuscitation rooms open out into the busy hallways, there is no privacy."* Another nurse reported, *"The [resuscitation room] is in an area with heavy traffic, it is a large open room, and there is little privacy."*

Several nurses noted that the combination of limited space and poor department layout and features create a difficult environment for privacy in the ED. One nurse shared an EOL experience in the ED,

> [A] *52-year-old female cancer patient had both DNR and DNI orders, but was not expecting to pass soon. It was a very busy night. No private areas, actually no room at all to move to in the ED. When she died, it was loud and busy with many psych patients along with our usual intoxicated patients screaming at us. Family was very disturbed.*

Despite noting many negatives related to ED design, some nurses commented on positive ED design elements that supported and facilitated EOL care.

Positive Design Elements

Despite EDs being a challenging place to provide EOL care, positive ED design characteristics impacted EOL care for dying patients and families. Several nurses (*n*=32, 20.3%)

identified positive ED design elements. Supportive design features enhancing EOL care included private rooms with actual doors rather than curtains, large patient rooms for families to gather or to be present during resuscitation, private grieving rooms for families, and patient rooms close to the nurses' station.

Large private rooms. Large private rooms with doors were overwhelmingly viewed by nurses as an important supportive design element. One nurse stated, *"We moved our dying patients from rooms with curtains to rooms with doors."* Another nurse stated, *"We have several large private rooms that allow for comfortable EOL care if needed."* One nurse shared, *"Our ED has private rooms without the need to double up patients. This allows for private grieving as well as a consultation room for other family members.* [The private room] *has positively helped the EOL care."*

Family grieving rooms. Additionally, nurses reported that having designated family grieving rooms helped facilitate EOL care for accompanying family members. One nurse stated, *"We have a private consultation room attached to the waiting room and we place families there during resuscitations. I believe* [the private grieving room] *positively impacts our EOL care, allowing privacy for doctor consults and grieving."* Another nurse reported, *"Our ED has a grieving room with a viewing room attached. The viewing room is optional for family and friends."*

Proximity to nurses' station. Although many nurses believed that rooms near the nurses' station were an obstacle to EOL care, several nurses found rooms close to the nurses' station helpful. One nurse stated, *"Rooms close to nurses' station allowed for easy monitoring of patients."* Similarly, another nurse reported,

> *The patient rooms are centered around the nurses' station, so when family members need something we were available to* [help] *them. It was true for all the nurses on shift and not just the nurse caring for the patient, providing a more comforting and caring environment for the family.*

Summary

Several aspects of ED design were identified by this study as obstacles to EOL care. Themes of limited space, poor department layout and design features, and the lack of privacy were frequently acknowledged by nurses as obstacles to EOL care. Additionally, design features that improved EOL care included private rooms with doors, large patient rooms for families to gather or to be present during resuscitation, large private grieving rooms for families, and patient rooms close to the nurses' station.

Discussion

Many patients die or are pronounced dead in EDs.[1] For more than a decade, emergency nurses have reported design issues as obstacles to EOL care;[2–9] however, one quantitative study specifically addressing EOL care design obstacles failed to confirm previous emergency nurses' opinions regarding severity of impact.[6] Close examination of the qualitative data presented in this report again confirms emergency nurses' consistent declaration of design/environmental issues as obstacles to EOL care leading researchers to question whether the previous method[6] to determine severity of impact was flawed. Further research specifically addressing design issue's impact on EOL care is needed.

Shared Experiences

Emergency nurses understand the need for family presence during resuscitation, for secure body stowage areas, and for more resuscitation rooms so that families have time to grieve

before being removed due to the immediate need for a second trauma patient and family. Privacy issues related to secure and sound-limiting space were also identified as needs.

Limited space in EDs is an obstacle to EOL care. Small rooms and limited space negatively impact nurses' ability to provide resuscitation with family members present as well as having areas for body stowage if efforts are unsuccessful. However, the ENA has repeatedly encouraged family presence during resuscitation and EOL care.[10] EDs, when possible, should allocate appropriate space in patient rooms to allow family presence for dying patients. Furthermore, EDs need to plan for secure, accessible locations to place deceased bodies until transported to morgues or mortuaries.

Limited resuscitation rooms decrease allotted time family members spend with dying or deceased patients. Our nurses reported the necessity to hurry and move deceased patients to make room for the next emergency. Similarly, Hogan et al,[5] interviewed 11 Canadian emergency nurses and discovered nurses felt pressured to quickly move on caring for the next critical patient after a previous patient died. In another study, Bailey et al[11] reported that nurses felt a sense of urgency to move dying or deceased patients to provide rooms for other patients. Adding additional resuscitation rooms to existing EDs is difficult; however, nurses need to insist on having input for any future remodeling or planned new construction. Keeping a log of EOL obstacle incidences could bolster the need for additional rooms and space when changes are announced.

Providing privacy for dying ED patients and family can be difficult. Lack of privacy, as a theme, was consistent with previously published data on EOL care obstacles.[2–9] Additionally, Barlas et al[12] found that patients perceive less privacy in rooms with curtains than in rooms with walls and doors. According to the Annals of Emergency Medicine in a policy statement

regarding ED planning, patients have a right to "visual and auditory privacy."[13] Patient privacy must be an essential consideration for optimal ED design. When no other option is available, as much space as possible should be provided as a buffer between dying patients and less critical patients and families. The possibility of adding appropriate overhead background music may also help limit noise transfer from one area to another in an open room/bay.

Positive Design Elements

Availability of large private rooms, family grieving rooms, and rooms closer to the nurses' central area were all reported as having positive impacts on EOL care. Results from our previous research support these findings.[6] Having a private family grieving areas, more private patient rooms, more space for family presence and observation, and a chapel close to the ED were all listed as optimal design changes.[6]

Limitations

Although the study was a national random sample, responses were limited to members of ENA and can only be generalized to emergency nurses who are members of ENA. Emergency nurses who are not members of ENA may have reported different EOL care obstacles or supportive measures to ED design. Additionally, with the overall response rate of 63.6%, non-responders may have expressed different perceptions of design obstacles.

Implications for Emergency Nurses

Emergency nurses can evaluate existing facilities and identify areas where potential change and remodeling would improve patient care, increase patient privacy, or further utilize space. To enhance effectiveness, changes in department design need to be reviewed and approved by nurses working in that department. Thus, hospital administrators should view emergency nurses as a resource when planning remodels or designing new departments.

New hospital design teams need to consider aspects of design and layout that influence EOL care in the ED. According to several studies on designing new EDs, design teams that included staff emergency nurses were beneficial for building new departments that focus on patient-centered care.[14–16] Emergency nurses need to be on new hospital planning committees to design EDs that facilitate quality EOL care. Implementing changes based on emergency nurses' recommendations will improve EOL care for dying ED patients.

Conclusion

Caring for dying patients is a difficult aspect of emergency nursing. Understanding ED design's impact on EOL care is crucial. ED design can influence a nurse's ability to provide EOL care, there is a need to consider restructuring EDs to provide sufficient space for patients and family. Modifications to ED layout and design may be challenging; however, improvements to space, layout, and privacy need to be considered when planning new EDs or remodeling existing departments. To provide optimal care to dying patients, further research is required to determine the impact of ED design on EOL care.

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Table 1. *Demographics*

Table 1. Demographics of Nurses. *n* = 126				
Characteristics				
Sex	*n*	%		
Male	24	(19)		
Female	102	(81)		
	M		*SD*	Range
Age (y)	47.4		10.0	26-68
Years as RN	19.4		11.9	1-47
Years in ER	14.6		10.5	1-45
Hours worked/week	32.2		14.0	0-80
ER beds in unit	28.5		17.3	4-88
Years as CEN	7.7		7.3	1-30
Dying patients cared for:	*n*	%		
>30	75	(61.5)		
21 – 30	9	(7.4)		
11 – 20	14	(11.5)		
5-10	16	(13.1)		
<5	8	(6.6)		
Highest degree:	*n*	%		
Diploma	5	(4.1)		
Associate	29	(23.8)		
Bachelor	62	(50.8)		
Master	26	(21.3)		
Ever certified as CEN	*n*	%		
Yes	67	(55.8)		
No	53	(44.2)		
Currently CEN	*n*	%		
Yes	53	(75.7)		
No	17	(24.3)		
Primary position:	*n*	%		
Direct care/bedside nurse	44	(36.7)		
Staff/charge nurse	44	(36.7)		
Nurse manager	15	(12.5)		
Nurse educator	3	(2.5)		
Clinical nurse specialist	1	(0.8)		
Other	13	(10.8)		
Hospital type:	*n*	%		
Adult/Pediatrics	108	(88.5)		
Adults only	9	(7.4)		
Pediatrics only	5	(4.1)		
Facility type:	*n*	%		
Community, non-profit	74	(60.7)		
Community, profit	22	(18.0)		
University medical center	14	(11.5)		
County hospital	5	(4.1)		
Military hospital	2	(1.6)		
Other	5	(4.1)		