See Something, DO Something: Post-Occupancy Evaluations of Emergency Departments Identify Design Opportunities for Interactions and Situational Awareness

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Proposed Session Title:

See Something, DO Something: Post-Occupancy Evaluations of Emergency Departments Identify Design Opportunities for Interactions and Situational Awareness

Proposed Session Description (Maximum 200 words)

Interactions and situational awareness among emergency department (ED) team members and their patients is critical for patient safety and positive patient outcomes. EwingCole led post-occupancy evaluations (P-O-Es) assessing the layout and design of two Novant Health hospital-based EDs. The P-O-Es identified benefits of and opportunities for designs and layouts supportive of interactions and situational awareness among ED team members and patients. Moreover, the mixed methods used during the P-O-Es provided strong converging evidence in support of design guideline recommendations. The P-O-Es found that reception desks with high visibility and proximity to entry and waiting areas enhanced security and responsiveness to patients. ED examination rooms with sliding glass doors and located in highly accessible and visible locations had higher rates of patients receiving care. Transparent and fritted glass walls could prevent distracting noise while also allowing for high visibility of other team members and patients. A hybrid of team member huddle space concepts from pod-based and ball-room based examination room modules could promote team interaction while improving visibility of patients.

Abstract (Maximum of 500 words)

Objectives:

Communication and situational awareness among emergency department (ED) team members and their patients is critical for patient safety and positive patient outcomes. EwingCole led a post-occupancy evaluation assessing the layout and design of two Novant Health hospital-based EDs. The post-occupancy evaluations identified benefits of and opportunities for designs and layouts supportive of interactions and situational awareness among ED team members and patients.

The mixed methods used during the P-O-Es provided strong converging evidence in support of design guideline recommendations. DOTT® - a web-based behavioral mapping application - was used to perform observations of ED team members and patients over four consecutive days at each ED, for a total of 3,845 place-based observations and 39 patient and team member individual based (i.e., shadowing) observations. Space syntax was used to measure the visibility and access of key spaces and locations of team members and patients. In addition, self-report questionnaires were completed by 67 ED team members. Semi-structured interviews were conducted with eight ED team members.

Findings from multivariate statistics of the DOTT® and self-report questionnaire data had implications for Novant Health ED guidelines and future ED designs. Content analyses of the
semi-structured interviews and open-ended responses to the self-report questionnaire corroborated and elaborated upon the statistical findings.

Both sites shared opportunities for enhancing the reception desk, ED examination rooms, equipment and supply access, and ambient conditions. Reinforcing the need for reception desks with high visibility and proximity to entry and waiting areas, visibility from a reception desk was associated with the patients’ wait time, walking, and standing, team member responsiveness to stroke and chest pain patients, and team member security. Within the ED examination room modules, quality and efficiency of care delivery was predicted by accessibility to people and resources and responsiveness to chest pain and stroke patients. Subsequent analyses emphasized the importance of examination rooms that were highly accessible and visible from anywhere in the ED. ED examination rooms that were easier to access were more likely to have patients, patients receiving care and team members providing care. ED examination rooms with sliding glass doors were more likely to have the same benefits. Accessible and functioning equipment and supplies were emphasized to prevent workarounds that could impact responsiveness to patients with chest pain and stroke. Though the use of workstations-on-wheels to promote patient-centered care was suggestive, there was concern that information technology requiring additional data entry may continue to pull from immediate patient care needs. Noise in the ED settings was associated with distractions and interruptions, difficulty retrieving medications, patient gratitude, and team members’ negative emotions. To address privacy needs, transparent and fritted glass walls can prevent distracting noise while also allowing for high visibility of other team members and patients.

A comparison of the two EDs suggested team member areas consist of a hybrid of pod and ballroom style layouts. When compared to the traditional team huddle spaces in the ballroom-based ED, team huddle spaces in the pod-based ED were more likely to have interaction among team members and team members standing. However, the ballroom-based ED had better visibility of patients in examination rooms.

**Learning Objectives (4 items):**

1. Understand how interactions and situational awareness in ED settings impact patient safety and outcomes
2. Describe techniques that can be used in effective and comprehensive P-O-Es of ED settings
3. Based on P-O-E findings, identify opportunities to support interactions and situational awareness within ED settings
4. Explore design and technology solutions to inform ED guidelines

**Marketing Language:**

In the emergency department (ED), lost opportunities for interactions with patients and other team members have profound consequences for patient outcomes. ED design and layout can create opportunities for ED team members to perceive the cues they rely on to guide their decision making, enhance their interactions with others, and improve awareness of patients’
needs. EwingCole led a post-occupancy evaluation (P-O-E) assessing the layout and design of two Novant Health hospital-based EDs. The mixed methods used for the P-O-E provided converging evidence for design guideline recommendations. Recommendations included design concepts supportive of interactions and awareness among ED team members and patients.

Nicholas Watkins, Ph.D., is Director of Research for EwingCole. His research focuses on those interactions between humans and their built environments that reflect excellence in design and contribute to physical and psychological well-being. His research on healthcare environments and other settings can be found in a number of publications and related venues. He has served as an EDRA Board member and has served as EDRA Chair. He was recognized as one of the top ten in healthcare design with an HCD 10 award during the award’s inaugural year. He currently serves as faculty at New York School of Interior Design.