SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

This study explores how space and physical layouts affect clinician communication and patient safety in eight different ambulatory oncology practices.

Influences of physical layout and space on patient safety and communication in ambulatory oncology practices: A multisite, mixed method investigation

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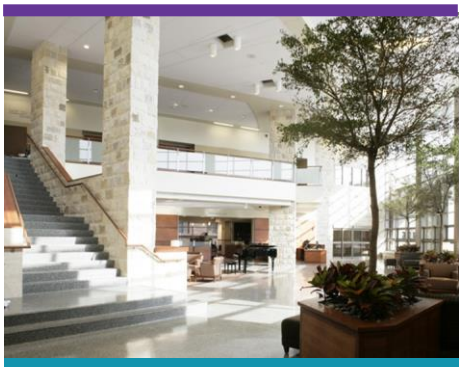
Key Concepts/Context

Data from 2016 to 2020 indicate that the market for ambulatory oncology services is expanding, presenting a need for a deeper understanding of how the physical space of these environments influences clinician work processes and patient safety. Since there are few existing standards that inform the designs of ambulatory oncology centers, the authors generally suggest that designs that enhance patient visibility while integrating clinical spaces and infusion spaces may enhance both communication and patient safety.

Methods

This mixed method study featured a quantitative survey phase followed by a qualitative data collection phase.

Over a six-month period (May 2017 to October 2017), quantitative data from 297 oncology clinicians were gathered from 29 different ambulatory oncology practices with the intent to better understand the relationship between clinician communication and patient safety. These quantitative data were gathered in the form of two surveys. The first was a nine-item SOS (or Safety Organizing Scale) survey featuring questions answered using a Likert-type scale. These questions investigated topics such as: the degree to which mistakes were discussed and learned from, how frequently future error prevention was discussed, how much time was spent identifying potential problem areas, and the extents to which unique skills and clinical expertise were utilized. The second survey featured 21 items with Likert-type scales and asked questions about the ease and openness of communication between nurses and physicians, and whether or not physicians had



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a good understanding of nurse objectives. Stata Version 15 software was used for statistical quantitative analysis.

Based on survey responses from the initial 29 practices, eight sites were selected for qualitative phase responses. These practices were selected with the intent to maximize variations in study environments. These qualitative data were gathered to better understand how oncology clinicians enacted "safety organizing behaviors" and different communication practices within various types of physical layouts. Over the course of nine months (March 2018 to November 2018), researchers spent 290 hours in total between the eight sites interviewing 40 clinicians individually and a further six clinicians during two separate small group interviews. On-site observations were also conducted by the researchers. Recurring topics from the interviews and observations were compiled into a codebook.

Findings

Since only eight practices participated in both data collection phases, a total of 56 surveys from clinicians from the initial 297 were included in final analysis. Analysis of the quantitative data found that three of the eight sites that had the highest quantities of infusion chairs among participating sites were also found to be the highest performers of safety organizing behaviors. Researchers noted that sites within the same health system displayed different safety organizing behaviors, indicating that differences in aspects such as utilization of physical spaces and layout designs are influencing factors in safety organizing. The researchers found a positive correlation between clinician communication measures and safety organizing, but no correlation between numbers of infusion chairs and measures of safety organizing and communication.

Analysis of the qualitative data found that a given practice's physical layout may influence both clinician proximities to patients during chemotherapy treatments and overall patient visibility, both of which contribute to perceptions of communication efficacy and patient safety. Nurses favored being closer to patients to improve observations of side effects, drug reactions, or technical issues. For clinicians, proximity between infusion nurses, the infusion area, and provider offices all influenced effective communication.

Generally, the data suggested that design elements that might block nurse views of patients, such as ornamental walls, were not appropriate for ambulatory oncology sites. L-shaped infusion centers reported positively on patient visibility.

Limitations

The authors note that the quantitative analyses conducted were cross-sectional, which limited their inferences to associations. The qualitative and quantitative phases were not conducted concurrently; the differentials in time may have

resulted in changes in staff perception. Qualitative data focused on nurses, and generally may not be applicable to all ambulatory oncology practices despite their unique variations in design and organization. Including insights from physicians and patients could strengthen future research.

Design Implications

Designers of ambulatory oncology sites should work to find a balance between patient privacy and clinician visibility of patients when planning new layouts as well as renovations. Close proximities between infusion and clinic settings may help promote more effective communication as well as higher levels of patient safety.