THE IMPACT OF INTRODUCING RESIDENT PHYSICIANS IN THE ICU: PERCEPTIONS OF SAFETY CULTURE BY STAFF UPON INTRODUCTION OF RESIDENTS IN A NEW TEACHING HOSPITAL

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Introduction

Studies indicate the third leading cause of death in the United States is medical error, and up to 21% of admitted patients are affected by a medical error during their hospital stay. Efforts to reduce patient error have led many hospitals to adopt systems and processes to encourage a culture where the staff and providers feel comfortable to report errors. Residents in training programs are an important part of the safety culture of the hospital but are not often included in patient safety and quality improvement initiatives. The impact that residents have on the safety culture of the hospital is infrequently studied.

This study evaluated data from safety culture surveys in a new community teaching hospital and compared ICU staff and resident perceptions pre- and post-start of residency. ICU staff completed the Safety Culture Index as part of an annual employee engagement survey in 2018-2021, providing data for 12 months prior to residency training to two years after the start of residency programs.

This study demonstrates the impact that residents can have to improve safety culture in the ICUs of a new teaching hospital. Results from this study can assist hospital leaders to better understand the impact of residents on safety culture and support initiatives to start residency programs in community hospitals. Existing residency programs may be encouraged by the results of this study to integrate residents into hospital patient safety and quality improvement initiatives to improve patient care.

Literature Review

Efforts from hospitals to reduce preventable harm to patients require a deeper look into hospital culture overall, and more specifically, patient safety culture.[1] Research has identified a link between the reduction of errors and hospital culture.[2-5] Patient safety culture is measured through the assessment of a hospital's environment and how its workers identify and report errors without fear of retaliation.[6,7] Utilizing evidence-based practices, healthcare systems have made efforts to train their workers in patient safety; however, professionals in the field assert that reform in patient safety is not possible without a transformational change in culture.[8] Similarly, teaching hospitals have also implemented improvements in their educational curriculum to integrate physician education programs to meet the needs of the changing healthcare landscape.[9,10] Wagner et al.[11] claimed training in effective approaches to patient safety for new physicians in the medical field is important to address the changing needs in clinical care, and training hospitals vary in the ways they support teaching faculty and residents in patient safety and quality improvement initiatives. Some community hospitals have transitioned to teaching institutions to address the growing need to train physicians to provide high quality care to future generations.[12]

In 2011, resident physicians made up greater than 15% of all physicians in the United States, yet the involvement of residents in discussions around how national healthcare initiatives should be addressed is rare.[13] Kirch and Boysen asserted that a culture shift is necessary to develop a culture of safety.[14] Specifically, medical school curriculum and training hospitals must make a shift from an "old culture of autonomy and independence to the new world of shared accountability, interdependence, and teamwork[14]." With the focus during residency on teamwork and interdisciplinary teaching[15], teaching hospitals must also shift from compartmentalizing to interdisciplinary teamwork and emphasizing a system-based approach to improving patient care.[16] As medical schools and teaching institutions make a cultural shift, it is suggested that residents can serve as change agents through resident-led projects to improve patient safety at a system level[17] and that residents can facilitate change through providing a positive model to faculty in patient safety practices.[14]

Significance of the Study

This study is significant because there is a gap in the scholarly literature describing the influence of an existing safety culture upon the introduction of residents in a hospital. A better understanding of the impact of residents can assist administrators and leaders in developing appropriate training and interventions to ensure the maintenance of a positive training environment while maintaining a culture of safety for all patients receiving care within a hospital system. In addition, this study may impact how new residents are introduced to a new hospital culture when they start residency and provide a framework for further study of effective interventions that positively impact patient safety culture for frontline workers, thus improving quality in the care of patients.

Methodology

Does the introduction of residency training change employee perceptions of safety culture in the ICU setting?

The purpose of this study was to understand how new residency training programs impact the established safety culture in ICUs of a community hospital. Nurses working in ICUs report concerns about breakdowns in communication that increase the risk of error,[18] and the acuity of patients who receive care in the ICU puts them at high risk for iatrogenic injury or severe illness.[19] From the first day of residency training, the residents at the hospital participate in the care of patients 24 hours per day, seven days per week.

Employees of the hospital participated in a hospital-wide employee engagement survey every year that included validated questions of the employee's perception of the patient safety culture within the hospital and other engagement questions. Press Ganey, a national employee engagement agency administered the survey. The study analyzed responses in safety culture from the employee engagement survey. The data were categorized by hospital unit or area where the employee worked and the researcher isolated employees working in the ICU for analysis. Press Ganey provided employee responses to patient safety questions from the ICU for years 2018 through 2021. Mean scores from the safety culture questions from employees in the ICU were compared by year. The first two administrations of the survey occurred before residents started training in the hospital and the final two administrations were conducted following the start of residency programs. Changes in safety culture perceptions pre- and post-residency start date were analyzed.

Analysis

Sample Size and Response Rates

Administration Date (Month of Residency)	Number of participants (Total Sample)				
	CVICU	MICU	STICU	Total	Participation %
June-July 2018 (-12)	66(72)	51(66)	54(58)	230(285)	80.7
June-July 2019 (0)	56(69)	45(60)	39(58)	196(269)	72.9
June-July 2020 (12)	48(75)	48(54)	52(58)	223(267)	83.5
June-July 2021 (24)	48(61)	52(65)	41(47)	208(256)	81.3

Mean Scores by Safety Index Subscale

Survey responses were provided using a 5-point Likert scale where a score of 3 equals a neutral perception and a score above 3 indicates an overall positive perception. The mean scores for each response grouped by subscale are shown above.

Discussion

New Teaching Hospitals

Hospitals with longstanding residency programs are working to incorporate residency education and hospital initiatives for patient safety to provide high quality care to patients.[11,14,21] There is a dearth of research literature about how new residency programs impact the hospitals where they train. This study provides additional incentive to add residency programs to hospital systems. This case study offers evidence of how safety culture can change with introducing residency education into the existing culture. The accreditation process for residency programs requires the provision of training in patient safety to provide interdisciplinary teamwork and resident involvement in hospital quality and safety initiatives.[11,20] Research studies on the effectiveness of residency curriculum and the influence of residents on safety culture are sparse. This study provides one look into the impact of residents and how they started a change process to improve employee perceptions of safety culture.

Residents as Change Agents

Residents provide direct care to patients alongside other members of the interdisciplinary team. These interactions with the residents are new to the employees in the teaching hospital acting as a change agent within the culture. In the model of organizational theory, Schein[21] proffered that one aspect of organizational change is to create readiness for change by reducing stress and anxiety about changes that will occur. In the instance of a new teaching hospital, leaders are responsible for providing a reason and motivation for the change, as well as education and training for better understanding. The hospital developed education and modeled a shared vision for the residency programs, which helped instill motivation to change and help to shape changes in culture. Positive perceptions from the residents in the area of teamwork may provide an opportunity for employees to seek input and support from residents to improve teamwork within the hospital safety culture.

Recommendations

Further study is necessary to demonstrate if the participants' perceptions maintain over a longer period of time, remain at a constant level, or continue to improve. Opportunities to provide findings beyond Likert scale survey questions exist. For example, focus groups with both residents and employees would be beneficial in providing context to the scores and allowing participants to give their opinions about the transition to a teaching hospital. Furthermore, this study could be expanded to include an analysis of medical staff physicians and teaching faculty. Change in hospital culture before and after residency introduction by current physicians in practice at the hospital would give additional dimension to the current results and facilitate understanding of a variety of groups beyond employees.

This study was limited to hospital ICU settings and comparing those to resident perceptions. Residents rotate in many other areas of the hospital; therefore, it would prove advantageous to determine the perceptions of other team members outside of the ICUs to look at the entire hospital safety culture. More insight based on hospital areas is another area that would be helpful for future study. New residency programs in new teaching hospitals provide a unique opportunity to analyze the effect of adding to the interdisciplinary team and how changes in accreditation and programming requirements of the programs impact the hospital.

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