



Education



RESIDENT SUPERVISION AND PATIENT SAFETY: DO DIFFERENT LEVELS OF RESIDENT SUPERVISION AFFECT THE RATE OF MORBIDITY AND MORTALITY CASES?

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Abstract—Background: In our academic emergency department, our senior residents lead their own patient care team, known as the red team (RT). Attending physicians are responsible for managing their own team (AT) and precepting the senior resident's cases. **Objective:** We hypothesized that the RT would have the same number of morbidity and mortality (M&M) cases and similar numbers of adverse outcomes as the AT. We also hypothesized that there would be no increase in M&M cases during the first quarter of every academic year. **Methods:** We obtained data from M&M cases from 2009–2013, including month and year of patient visit, standard of care code (SoCC), and whether the patient was seen by the RT or an AT. Data were analyzed using a χ^2 test comparing expected outcomes with observed outcomes. **Results:** There was a total of 117 M&M cases during the study period with a SoCC ≥ 3 ; 76 cases were AT and 41 cases were RT. There was no statistically significant difference between expected and observed number of cases. Mean RT and AT SoCCs were 4.03 and 4.23, respectively. There was no statistically significant difference between the two groups for SoCC. Mean SoCC was not significantly different for the first quarter of the year. **Conclusions:** We found that our patient care model did not lead to an increased number of M&M cases and RT cases were not associated with worse outcomes overall. Additionally, there was no increased rate of M&M cases in the beginning of the academic year. © 2015 Elsevier Inc.

Keywords—resident supervision; resident education; patient safety; morbidity and mortality

INTRODUCTION

In an academic emergency department (ED), faculty have the dual task of being clinicians and educators. Clinicians must provide outstanding care to patients, whereas educators work to give residents the knowledge and skills necessary to become independent physicians. Maintaining a balance that is best for patients and residents is a difficult task. It is also difficult to quantify the quality of care provided to a patient when a resident, in comparison with an attending, sees them. One ED study looked at several measures, such as length of stay, rate of return, and rate of hospital admission on days when there were no residents compared with days with residents. This study found no significant difference between the groups for their selected endpoints (1).

Emergency medicine is one of the few specialties that require full-time, around-the-clock attending supervision of their residents. According to Accreditation Council for Graduate Medical Education guidelines, supervision can be exercised through a variety of methods. Residents can achieve progressive authority, responsibility, and conditional independence in a supervisory role under delegation by the program director and faculty members (2). Very few studies have analyzed the effects of levels of supervision on patient care and outcomes. A single study showed direct supervision was associated

with improved compliance with guidelines, but had no effect on reported problems of care (3).

This raises the question of whether highly autonomous senior emergency medicine resident-led care teams provide the same quality of care as an attending physician led team. One way to correlate patient safety is through analysis of cases that required a formal review by the Continuous Quality Improvement (CQI) committee. We hypothesized that resident-led care teams would have the same number of morbidity and mortality cases and similar number of adverse outcomes as an attending-led care team. We also hypothesized that there would be no increase in M&M cases during July–September, the first quarter of every academic year. To our knowledge there are no studies documenting the safety of this patient care and supervision model.

METHODS

Study Design

This was a retrospective review of morbidity and mortality (M&M) cases from the years 2009–2013. Cases are referred to the CQI committee by several avenues. Most cases are added from 48-h return visits, mortality reviews, and standard monthly metrics. ED staff, patient correspondence, inpatient teams, and other hospital services can also suggest cases for review. All adult ED cases were evaluated for inclusion in the study.

At our institution, senior residents manage their own ED team consisting of a junior resident and three nurses.

The other active care teams are led by attending physicians with or without junior residents and are known as the green, blue, and yellow teams. Patients are assigned to teams evenly based on time of arrival and not acuity or chief complaint. The red team resident will ultimately present all cases to an attending on any of the other care teams before patient disposition. The M&M cases resulting from the resident-led care team were designated as the red team (RT) by the CQI committee when the case was originally reviewed. Cases that were seen by an attending-run team will be referred to as attending team (AT) cases. In order to ensure comparability between groups, we calculated the weekly hours that each care team received new patients.

Also recorded from the electronic logs were the month of patient visit and the standard of care code (SoCC). The SoCC is a five-point coding system that assesses clinical care as acceptable (1 point), acceptable with unanticipated occurrence (2 points), questionable (3 points), not optimal (4 points), and unacceptable (5 points). M&M cases were only included from the main ED with an SoCC ≥ 3 . Cases that were deemed to have acceptable clinical practice by the CQI committee were then subsequently excluded from the study (Figure 1).

This study was granted exemption by the internal review board committee.

Study Setting and Population

All cases for this study occurred in an urban, academic ED with an annual adult census of 90,000 patients. The

Standard of Care Code (SoCC)	Explanation
0	Occurrence relating to patient but not practitioner's management
1	Clinical practice acceptable
2	Clinical practice acceptable, but with unanticipated occurrence which was promptly recognized and treated
3	Clinical practice questionable which had or could have had an adverse effect on the patient's well-being, but was not life-threatening
4	Clinical practice not optimal and resulted in: <ol style="list-style-type: none"> no adverse effect on the patient adverse but reversible effect on the patient life threatening situation with or without major loss of function death
5	Clinical practice was unacceptable and resulted in: <ol style="list-style-type: none"> no adverse effect on the patient adverse but reversible effect on the patient life threatening situation with or without major loss of function death

Figure 1. Standard of care code.

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