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Resident Shift-Hour Productivity: A New Method for Measuring Resident Productivity that Accounts for Variations in Hourly Patient Volumes

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Objective: Existing measures of resident clinical productivity do not provide sufficient detail to demonstrate their impact on patient flow in the emergency department (ED). Differences between shift types and variations in hourly patient volumes require a system that defines resident productivity in terms of clinical activity per hour of the day, with total ED activity in the same hour as reference. To demonstrate resident work patterns, we designed a graphic display of resident clinical activity per hour.

Methods: The system was developed at a Level 1 academic trauma center. Eighteen PGY 1-2-3 emergency medicine residents provide 72 hours of coverage a day. For all patients the ED information system provided admit time, discharge time, disposition, total relative value units (RVU), triage acuity, and the assigned resident. For each resident their actual work hours and shift types were derived from the residency management system. The resulting database allowed us to average and graph the following for each resident work hour: new patients assigned per hour, in which the resident's patient load was derived by adding new patients and subtracting discharged/admitted patients. We calculated the average RVU for the resident's patients each hour. The resulting graph was overlaid on the department's arrivals and average RVU per patient for the same hour of the day to provide a reference.

Results: The resulting system was designed to average comparable shifts (day, evening, night) to create a visual representation of the residents' hourly activity and productivity. This graphic is used to explain to them areas where they require improvement during their performance review.

Conclusion: Measurement of average RVU and patients per hour does not address variations in productivity over the length of a shift or by shift type. The averages also disguise the effects of variations in departmental activity. We are able to present to the residents a picture of their productivity that can be used to focus attention on areas for improvement.