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Authors

Brown, N
Pilarski, A

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8 EM Residency Schedule Improvement with Introduction of a Computer-assisted System

Brown N, Pilarski A/Medical College of Wisconsin, Milwaukee, WI

Background: Several EM residencies use manual shift schedules despite purported benefit of computer-assisted approaches. ACGME standards, academic requirements, and off-service needs unique to EM-training are an ideal target for computer assistance, but a cost barrier remains and no evidence of benefit has yet been shown.

Objectives: To show whether introduction of computer-assisted scheduling in our residency resulted in fewer ACGME duty hours conflicts and/or difficult schedule combinations.

Methods: DESIGN - Retrospective, observational. SETTING - A 3-year EM residency with 27 total residents; 2 clinical sites, including a Level 1 trauma center. OBSERVATIONS - Monthly incidence of potential duty conflict (e.g., insufficient shift break), as well as difficult patterns (e.g., academic conference between consecutive night shifts, or AM following 24hrs after overnight work) was measured from Jul 2011 to Dec 2013, comparing 22 manual calendars to 8 calendars created with Tangier Emergency Physician Scheduling software. Confidence intervals of monthly events were calculated and heteroscedastic one-tailed T-tests used for significance.

Results: Use of Tangier EPS was associated with fewer academic conferences between consecutive night shifts (95% CI 4.7 ± 0.8 reduced to 0.6 ± 0.7 per month, $p=0.0001$) as well as a marginally significant decrease in potential duty hours conflict due to conference attendance (95% CI 0.5 ± 0.4 to 0.1 ± 0.3 per month, $p=0.058$). AM shifts following ≥ 24 hrs after nights decreased, but not significantly (95% CI 2.1 ± 0.9 to 1.4 ± 0.9 per month, $p=0.13$). We noted no fewer occurrences of insufficient shift break (95% CI 0.5 ± 0.4 versus 0.6 ± 0.6 per month).

Conclusions: Computer-assisted scheduling may benefit EM residencies by reducing difficult schedule combinations and potential duty hours conflicts. Improvement in schedule creation efficiency can also outweigh software cost.

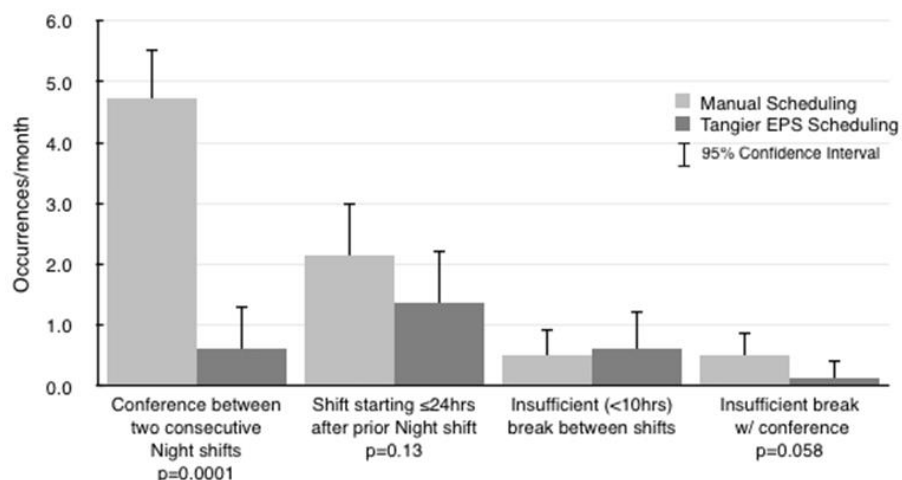


Figure 1. Frequency of difficult combinations and duty conflicts before and after Tangier EPS introduction