

INTRODUCTION

Many residency programs have established on-call schedules where senior residents take less call as they progress through their training years, leaving junior residents working most shifts early in their career (referred to here as a progressive call schedule). This traditional approach allows for junior residents to develop their clinical skills early on and for senior residents, who have already put in similar hours earlier in training, to have more time to focus on the next steps in their career. There has been recent emphasis on physician well-being and preventing burnout in medical training¹. This brings to question if finishing the bulk of the strenuous shifts early in residency is better for resident well-being or if it would be better to spread the shifts more evenly throughout residency training. In order to address this question, alternative call schedules were developed to spread call equally over all residency training years, referred to here as an equal call schedule.

In addition to resident well-being, quality measures of patient care have also been investigated with different call schedules. For example, more call shifts taken by junior residents with less hospital experience may raise the possibility that patients receive less quality of care during vulnerable hours. Here, we examined effects of an equal call schedule developed for residents in a single ACGME physical medicine and rehabilitation (PM&R) residency program with the aim to improve quality of care provided for patients.

OBJECTIVE

The purpose of this study was to analyze the difference in transfers from the inpatient rehabilitation unit back to an acute medical hospital as a reflection of quality of care during the transition from a progressive to equal call schedule for residents.

RESULTS

Call Schedule	Admissions	Acute Transfers	Percentage
Progressive Call Schedule	686	60	8.75
Equal Call Schedule	663	65	9.80

Table 1. Summary of Admissions and Discharges to Rehab Hospital During the Periods of Different Call Schedules

	Progressive Call Schedule		Equal Call Schedule	
	Acute Transfers	Percentage	Acute Transfers	Percentage
BRAIN INJURY UNIT	30	50	30	46.15
1 SOUTH GENERAL REHAB	30	50	35	53.85
DAY OF ADMISSION				
Monday	5	8.33	9	13.85
Tuesday	10	16.67	8	12.31
Wednesday	11	18.33	17	26.15
Thursday	9	15.00	9	13.85
Friday	24	40.00	19	29.23
Saturday	1	1.67	3	4.62
Sunday	0	0.00	0	0.00
TIME OF ADMISSION				
8am-5pm (Primary Team)	30	50.00	40	61.54
After 5pm (Covering Team)	30	50.00	25	38.46
DAY OF DISCHARGE				
Monday	9	15.00	9	13.85
Tuesday	6	10.00	13	20.00
Wednesday	11	18.33	11	16.92
Thursday	10	16.67	5	7.69
Friday	9	15.00	14	21.54
Saturday	7	11.67	7	10.77
Sunday	8	13.33	6	9.23
TIME of DISCHARGE				
8am-5pm	17	28.33	11	16.92
After 5pm	43	71.67	54	83.08
AGE				
≤ 50	6	10.00	11	16.92
> 50	54	90.00	54	83.08

Table 2. Summary of Discharges to Acute Care Based on Unit, day of admission, time of admission, day of discharge, time of discharge, age of patient

Progressive Call Schedule Discharge Time	Equal Call Schedule Discharge Time
Mean 1467.51	Mean 1391.69
Standard Error 54.016	Standard Error 65.65
Median 1439	Median 1534
Mode 2026	Mode 10
Standard Deviation 418.410	Standard Deviation 529.305
Sample Variance 175067	Sample Variance 280164
Kurtosis 0.940	Kurtosis 0.973
Skewness -0.521	Skewness -1.0776
Range 2126	Range 2305
Minimum 24	Minimum 10
Maximum 2150	Maximum 2315
Sum 88051	Sum 90460
Count 60	Count 65
Confidence Level (95%) 108.086	Confidence Level (95%) 131.155

Table 3: Comparisons of Call Schedule with regards to Discharge Time. Descriptive statistics were gathered and analyzed for each factor. Only discharge time had a trend to a different mean value, however this was not significant, calculated by z score. **In addition, paired t-tests did not show any significant changes in transfers by day of admission or day of discharge.**

DISCUSSION

There were 1350 admissions to the acute inpatient rehab unit. Of those patients, there were 128 transfers, 3 of which were not included (two charts were inaccessible, one was not an acute transfer). There were 60 acute transfers during the progressive call schedule and 65 during the equal call schedule. There were no significant differences demonstrated using descriptive statistics with respect to unit, day and time of admission, day and time of discharge, age of patient and length of stay. In addition, paired t-tests did not show any significant changes when analyzing transfers by day of admission and day of discharge.

CONCLUSIONS

Based on this retrospective review, there was no significant difference between number of acute transfers before and after the change in call schedules. This implies that overall patient care was not associated with the seniority of the resident on call. Beyond the paramount issue of patient care, 24-hour call shifts have an impact on resident training and well-being, both physically and mentally, that may affect individual residents differently. While this study demonstrated that change in call schedule was not associated with changes in numbers of acute medical transfers, further studies should be done to examine how resident wellness was affected by the call schedule. There are many challenges and factors to consider when attempting to create an optimized call schedule².

DESIGN

The main outcome measured was the number of acute medical transfers before and after the change from a progressive schedule to an equally distributed call schedule. We further analyzed any differences between the two groups with respect to admission floor, day and time of admission, day and time of discharge, age of patient and length of stay.

REFERENCES

- Weiss, Pnina et al. "Impact of extended duty hours on medical trainees." *Sleep health* vol. 2,4 (2016): 309-315. doi:10.1016/j.sleh.2016.08.003
- Sun, Ning-Zi, and Thomas Maniatis. "Scheduling in the context of resident duty hour reform." *BMC medical education* vol. 14 Suppl 1,Suppl 1 (2014): S18. doi:10.1186/1472-6920-14-S1-S18