

Successful Implementation of New Paradigms for Surgical Residency Training

A Night Float System
What Does It Accomplish?

Night Float System (NFS)

- NFS is not a new paradigm
- The limited research about the NFS is generally in agreement
- Implementation of the work hour schedule is the easiest part of the NFS and may solve work-hour requirements
- Compliance with the clinical competencies initiative (ACGME) is a challenge

Definition

- A dedicated rotation in which the resident assumes the night hours in-house call for two or more services for 4+ weeks
- Designed to give the resident a focused exposure to perioperative care
- Complies with all work-hour regulations

Night Float Schedule

	SUN	MON	TUES	WED	THURS	FRI	SAT
6 AM - 7 PM	?	← M-F DAYTIME ROTATIONS →					?
6 PM - 7 AM	←		NIGHT FLOAT TEAM				?

Bell, RH

How to integrate team, night float, and apprenticeship models into a surgery residency program

Advantages

- Allows programs with limited manpower to meet ACGME work regulations.
- Reduces fatigue
- Allows more reading time
- Allows resident to focus on management of postoperative problems
- Better night time continuity for longer-stay patients

Disadvantages

- Interrupts normal biorhythm
- Interferes with continuity of care
- Requires higher level communication between residents
- Decreases contact with attending staff
- Decreases contact with resident's family
- Period of low operative experience

Night Float Publications I

Author	Service	P/R	Conclusions
Gottlieb et al 1993	IM	P	Less sleep deprivation, unchanged psychomotor tests, high hostility depression anxiety
Buff et al, 1995	IM	R	Nurses 360 survey: rested, fewer errors, faster response
Cavallo et al 2002	Peds	R	Resident survey: Lower sleep quality & duration, mood changes, depression, slower thought processes
Cavallo et al 2003	Peds	P	1 hr less sleep/day, ↑ fatigue-inertia, ↓ vigor-activity, unchanged attention, fatigue ~ omission errors

Night Float Publications II

Author	Service	P/R	Conclusions
Reader et al 2002	Rad	R	Survey: 2.3 days to readjust, better clinical judgment vs team system, 90% preferred NFS
Goldstein et al 2004	Surgery	R	360 Survey of residents, spouses, nurses, faculty & patients: All: ↓ fatigue. Residents: ↑ time for sleep at home, ↑ time for independent reading, ↑ availability for family events. Nurses: ↑ availability, ↓ time to resident ID of patient problems, ↑ communication, ↑ ease of nursing duties. Faculty: ↓ continuity of care. Patients: ↑ satisfaction.

Night Float Publications III

Author	Service	P/R	Conclusions
Sanfey et al 2004	Surgery	R	Resident survey before/after to improve conference attendance, operative experience and attending interaction.
Schenarts et al 2004	Surgery	R	Review outcomes of 2826 trauma patients before/after NFS: No change in mortality, overall complications or preventable complications.

UAB Resident Survey

- After two years of experience, residents were asked to evaluate the NF system and compare it to the traditional team system.
- All 47 residents responded to the survey
 - PGY 1 14
 - PGY 2 8
 - PGY 3 5
 - PGY 4 6
 - PGY 5 9

Compared to the traditional team system, patient care under the NF system is :

- Same 22 50%
- Better 17 40%
- Worse 4 10%

UAB Resident Survey

Compared to the traditional night call system, the night float system is:

- Same 23%
- Better 67%
- Worse 10%

UAB Resident Survey

How many days did it take to adjust your sleep cycle after finishing the NF rotation ?

- Range 1-14
- Average 3 days

UAB Resident Survey

Did you have time to read on the NF rotation?

- Yes 29 67%
- No 14 33%

What are the best aspects of the night float system?

- Solves the 80-hour problem
- Less fatigue
- Improved night hour continuity for patients
- Less weekend call
- More study time
- No clinic

What are the worst aspects of the night float system?

- Poor continuity, too many changes during the day
- Low educational value
- Alters sleep cycle
- Low faculty interaction and feedback
- Low operative experience

Conclusions

- NFS is one strategy to help meet the current work hour guidelines
- High level of resident satisfaction
- High level of resident dissatisfaction
- Opportunity to study and improve NFS

In addition to defined work hours, what is needed to make a NFS work well?

1. NFS goals and objectives for each PGY level and organized by the clinical competencies
2. Optimize communication between the day and night shifts
 - Feature important role of the NF resident
3. Flexible duty hours to maximize operative experience for NFS residents, ie rewards

In addition to defined work hours, what is needed to make a NFS work well?

4. Schedule/design conferences to allow NFS residents to attend/participate
5. Develop an evaluation process performed by faculty, senior residents and nurses
6. Develop a NFS evaluation process

NFS Unanswered Questions:

- Does resident performance improve with increasing NFS experience? Outcomes?
- How many rotations are required for a resident to experience the most common adverse events? Event log?
- Are there effective alternative methods to teach residents to recognize and manage adverse events?