

Twelve Tips for Improving the General Surgery Resident Night Float Experience

Rebecca M. Rentea, MD; Jared A. Forrester, MD; Nathan W. Kugler, MD; Anahita Dua, MD, MS, MBA; Travis P. Webb, MD, MHPE

ABSTRACT

Restriction of resident duty hours has resulted in the implementation of night float systems in surgical and medical programs. Many papers have examined the benefits and structure of night float, but few have addressed patient safety issues, quality patient care, and the impact on the residency education system. The objective of this review is to provide practical tips to optimize the night float experience for resident training while continuing to emphasize patient care. The tips provided are based on the experiences and reflections of residents, supervising staff, group discussions, and the available literature in a hospital-based general surgery residency program. Utilizing these resources, we concluded that the night float system addresses resident work hour restrictions; however, it ultimately creates new issues. Adaptations will help achieve a balance between resident education and patient safety.

INTRODUCTION

Many dramatic changes have occurred in graduate medical education over the past 2 decades. Following the Libby Zion case in the 1980s, there has been increased public pressure to restrict duty hours in order to combat perceived house staff fatigue resulting in decreased performance and patient care errors.¹⁻⁵ In both Europe and the United States, action was taken to ensure changes in residency education and culture. The policy implementations focused on objective measurements for residency training and duty hour restrictions with a goal to decrease fatigue and, ultimately, medical errors.⁶

Prior to formal hour restrictions, the Accreditation Council for Graduate Medical Education (ACGME) implemented 6 core competencies in 2001. These competencies include patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and

systems-based practice.⁷ Residency programs were expected to focus educational initiatives and assessment strategies on the achievement of the competencies. In 2003, duty hours were officially mandated with an 80-hour work week limitation followed by further updates and stricter limitations on resident presence in the hospital.⁴ Likewise, in Europe the European Working Time Directive (EWTD) was fully implemented by 2009 and requires junior staff to work no more than 48 hours per week.⁸

In order to address patient care needs and workforce shortages, many residency programs initiated night float shift coverage. Much of the literature on night float coverage has involved analysis of patient handoffs, resident case volumes, and fatigue.^{9,10} Since the introduction of a night float rotation at our institution, several issues have emerged that previously have not been addressed cohesively in the literature.

The tips provided by this article are a compilation of the experiences of residents involved in our night float system, supervising faculty, and group discussions. The scope of recommendations were deemed critical to effective resident education and patient safety, which may be used to inform further refinements to night float rotations. Our 12 tips are organized into those focused on improving communication (practical tips for improvement of transitions of patient care), patient care (areas for enhancing overnight patient management and safety initiatives), and maintaining a resident educational experience (tips for maintaining and increasing an educational environment).

IMPROVING COMMUNICATION

Tip 1: Improve Documentation

The daily progress notes in the electronic medical record (EMR) are increasingly important for the night float team as they cover a large number of unfamiliar patients on multiple surgical services. The EMR has replaced the short handwritten progress notes in many hospital systems. However, EMR notes often contain volumes of imported template information used primarily for billing

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Author Affiliations: Medical College of Wisconsin, Department of Surgery, Milwaukee Wis (Rentea, Kugler, Dua, Webb); Stanford University, Department of Surgery, Palo Alto, Calif (Forrester).

Corresponding Author: Rebecca M. Rentea, MD, Medical College of Wisconsin, 9200 W Wisconsin Ave, Milwaukee, WI 53226; phone 414.805.3000; fax 414.805.5921; e-mail rrenteamc@mcw.edu.

Table. Tips for Improving the General Surgery Resident Night Float Experience

Tips	Recommendation
Improving Communication	
Improve documentation	Document clearly in templated notes, highlighting plan and findings. Move assessment and plans to the top of a templated note, to increase efficiency of chart review at night.
Standardize handoffs	A standard sign-off form (service dependent). Sign-out rehearsal between junior/senior resident on each team prior to night float sign-outs. A supervised junior resident sign-out or structured group sign-out.
Emphasize sign-in	Designate resident to communicate with night float team each morning. Emphasize importance of short, timely, and accurate EMR documentation by night float residents.
Well-defined end-of-life plans and care plans	Document in sign-out sheet goals of care within 2 days of hospital stay.
Proper management of after-hour patient calls	Develop a “must speak to directly” sheet for attending surgeons and have readily available.
Patient Care	
Night float physician extenders	Considering the cost constraints and implementation of support structure for physician extenders, implement use of nurse practitioners for help at night.
Backup	Document numbers to call for backup directly on sign-out sheet. Foster an environment where calling backup is expected.
Resident role in night float	Encourage early recognition by junior resident of limits and call upon senior resident. Implement early education of interns on proper performance of informed consent.
Night Float Educational Experience	
Faculty support of education	Provide ongoing instruction to faculty to emphasize the difference in clinical and educational responsibilities on night float.
Recognize the impact on operative volume	Implement acute care surgery services with dedicated attending surgeon to allow for increased operative time. Encourage junior residents to second assist overnight to increase educational operative experience.
Focus on the need for resident education	Implement educationally focused morning report involving face-to-face faculty interactions.
Medical students taking call on night float	Encourage educational opportunities through introduction to the new team and establishing direct patient care through seeing consults and attending cases.

Abbreviation = EMR, electronic medical record

purposes, offering little important information regarding patients’ daily care. Many notes contain copy-pasted sections with poorly updated problem lists, copied exams with errors, and loss of narrative function.¹¹ To maximize effective communication for health care providers we advocate using short, focused, untemplated notes in the chart to allow individuals involved in patient care to be alerted of overnight events and ongoing care plans. A basic brief SOAP note (subjective, objective, assessment, and plan) as a classic note works well to capture patient information that occurred. Some of our services also have adopted the practice of moving the critical information such as the assessment and plans to the top of templated notes in order to improve the efficiency of chart review (Table).

Tip 2: Standardize Handoffs

One of the downsides of the night float system is the inherent increase in the number of handoffs. There is growing literature regarding the inherent problems associated with the transfer of care between health care providers.¹² Many non-health care, high-risk industries such as the airline industry, space programs, and the nuclear power industry have described the regulation and standardization of their sign-out systems.^{13,14} Unlike these industries and despite many expert recommendations, the medical field lacks a standardized sign-out process.^{15,16} Even though

standardized handoff forms have been demonstrated to improve residents’ perceptions of accuracy and completeness of handoffs, the forms are frequently lengthy in order to capture completeness and do not efficiently glean the critical patient information needed for quick decision making in the middle of the night.¹⁵ Training and level of resident experience with handoffs remains a key factor, with residents able to predict adverse patient events less than half the time following handoffs.¹⁷

We have adopted a supervised junior resident sign-out or structured group sign-out in an attempt to improve our hand-off communication. Additionally, we often reference the paper by Kemp et al who summarized 10 tips for a successful surgical team sign-out.¹⁶ These 10 tips facilitate communication of critical information for each patient/team in written and verbal sign-out and include the following: allot adequate time for sign-out, make it an active process, emphasize sick patients, note the senior on call, provide standardized list per team, place important patient details on the list, outstanding tasks should be emphasized as should laboratory tests/studies, pending admissions need to be communicated, and a morning update should take place. One of the factors leading to successful handoff of patient care is that significantly shorter sign-outs are prone to less error. Finally, at our institution, each team runs their own evening sign-out between

the senior and junior resident to solidify important patient care plans, and then individual residents sign out to the night float team.

Tip 3: Emphasize a Quality Sign-in

While transition of care at sign-out has garnered much attention, the accurate and thorough sign-in of information to the primary team is equally important. The primary team must be made aware of critical overnight events. Timely and accurate EMR documentation of overnight events is crucial, regardless of how brief. The sign-in dilemma has been addressed at some institutions by implementing a detailed morning report, yet this approach is logistically difficult for many programs given the number of services covered and the time constraints during the early morning hours of most surgical environments.¹⁸ At a minimum, a formal plan should assure that each primary team identify a resident designee to communicate with the night float team each morning if a formal morning report is not possible.

Tip 4: Importance of Well-Defined End-of-Life Plans and Care Plans

The primary team assumes the responsibility for making decisions regarding formal plans and management. Unfortunately, many family members visit their loved ones when the primary team is unavailable. The night float team frequently is called to speak with family members to address complex global issues and expectations. We found these discussions frequently lead to family and night float team confusion and frustration.

In addition, changes in patient status may prompt a request for a do-not-resuscitate (DNR) order from either the family or in-house team. While end-of-life and DNR discussions do not legally require an in-depth knowledge of the patient's prognosis and goals of care, ideally these important issues should be known to the health care provider. One way to prevent ill-timed discussions between night float residents, patients, and their families is to proactively address and, most importantly, document in the sign-out sheet goals of care early in the hospital stay. Proactive discussions are not merely a good way to avoid unfortunate discussions, they also are the ideal forum for optimizing patient care by maximizing alignment between the patient's goals and available medical options.

Tip 5: Proper Management of After-Hours Patient Calls

When clinics close, outpatient phone calls are directed to the senior surgery resident on call. Inpatient calls are directed to the junior resident, who then calls either a senior resident or attending physician. Poor communication results in delays of care.¹⁹ One recurrent difficulty in handling telephone encounters relates to the decision to notify staff. A significant problem often encountered is a lack of understanding of call parameter expectations from each faculty. When resident obligations for communication with

faculty are unclear, the resident must make a decision regarding what constitutes "routine" patient care versus what issues require attending input.²⁰ Silverman et al developed a top 10 "must speak to directly" list, which includes a new admission, cardiorespiratory events, death, hemodynamic instability, invasive procedure, need for intubation, new GI bleed, new major wound complication, pulmonary embolism, and a transfer to the intensive care unit.¹⁹ In a study of 80 critical events, a third were not communicated with faculty; and importantly, of the events that led to faculty communication management was altered in a third.²¹ One solution is to have a printout for each attending that can be attached to the sign-out sheet consisting of their "must speak to directly" events. In addition, the senior resident on each respective service must understand their attending's patient population and expectations at the beginning of the rotation to address and clarify issues before they arise for the night float team.

PATIENT CARE

Tip 6: Provide Dedicated Night Float Physician Extenders

In-house patient care often becomes occupied with multiple consults and acute patient care issues. A primary concern identified with large censuses is the triage and timely management of highly complex patients and consultations. Offloading non-educational activities such as scheduling patients for follow-up appointments has been thought to lead to improved patient care and resident satisfaction. Surveys have demonstrated that residents spend approximately 20% of their time on noneducational service related activities.²² Hiring physician extenders is an attractive solution that has been adopted by over 80% of programs in response to the 80-hour work restriction.²³

The addition of physician extenders has many perceived positives from a resident perspective, but also presents inherent challenges and tradeoffs. First, advanced practice providers generally do not take in-house calls after hours, which would be beneficial from a night float team perspective. A second consideration is the overall financial impact of physician extenders—specifically, the high cost to departments, especially compared to the government-subsidized resident roles in an era of cost containment. Salaries of physician extenders can be double that of the government-subsidized residents.²⁴ Interestingly though, one institution found that implementation of a physician extender on 2 busy services increased efficiency and quality of discharge planning, leading to fewer emergency department visits and, in turn, an overall decrease in cost.²⁴ Third, physician extenders require continual professional development and support, which requires organization in addition to resident support and training. This ultimately results in a time, cost, and resource requirement for the continued development and support of the physician extender group. This support may have synergistic or detrimental effects on resident training and education. While physician

extenders have proven beneficial to surgical residents by distributing the workload and improving continuity of care, it is the responsibility of the surgical program to establish well-defined roles for the physician extenders and use them to their maximum potential.^{25,26}

Tip 7: Call on Backup

The night float system relies upon only 1 or 2 residents to provide care for numerous patients from multiple services. It is of paramount importance that the resident can determine the level of assistance required for safe patient care. The hierarchy of residency training is a critical barrier to address. Furthermore, resident self-awareness is frequently flawed and inadequate. Gow et al demonstrated that low-performing residents repeatedly over estimate their capabilities whereas senior residents and top achieving surgical residents are more self-critical.²⁷ Regardless, all groups appear to lack accurate insight into their abilities.²⁷ Therefore, designated providers, documented as such on sign-out sheets, need to be readily available and willing to provide backup. Reassurance that calling backup is expected rather than discouraged is likewise critical.

Tip 8: Understanding the Resident Role in Night Float

Though goals may be similar, learning objectives and responsibilities of senior and junior residents are different for any given rotation. The senior resident acts in a supervisory role to the junior resident as well as a liaison to fellows and attending staff. Highlighting the importance of communication and teamwork, surgical nurses and surgical residents often have a limited understanding of the full scope of one another's roles and responsibilities.²⁸ In addition, the junior resident needs to develop so as to know and understand his or her limits and effectively communicate those limits with nursing staff. In a study of critical events with pre- and postoperative patients, one-third were not reported promptly to attending physicians, who often can change the plan initially implemented by a resident.²¹

Another identified area of concern is the documentation of informed consent. Often interns are tasked with obtaining the written informed consent. However, interns frequently are unable to answer questions or provide patients with the correct description of the risks, benefits, and alternatives. Adult education is an active, not merely passive process for the learner. However, surgical faculty must not only provide appropriate oversight but educate junior and senior residents to perform consents for procedures on a night float rotation.²⁹ One solution is that the attending surgeon can teach and model responsible appropriate garnering of informed consent. Residents should be responsible for seeking out opportunities to participate in patient or family discussion of complex decision making, informed consent, and request guidance and feedback when doing so themselves.

NIGHT FLOAT EDUCATIONAL EXPERIENCE

Tip 9: Continue Faculty Support of Education Efforts During the Night Float Resident Experience

The increase in faculty workload since the 2003 ACGME resident duty hour regulations has been correlated with a decreased time allocated to resident teaching. Despite consensus that resident supervision and education are essential components of duty hour reform, faculty retention and burnout is a significant concern. Wong et al describe how the tension between reduced resident duty hours and faculty burnout may ultimately undermine the current ACGME duty hour regulations.³⁰ Opportunities for improving teaching behaviors among faculty and staff need to be highlighted. A recent study demonstrated that when faculty simply know their perioperative teaching is being evaluated, their teaching performance improves.³¹ Identifying the accountable faculty for staffing of the night float service during handoffs is vitally important to improve education and oversight of clinical duties.¹⁵ Therefore, an area for improvement in many night float systems is engaging faculty so they understand their clinical and educational responsibilities to the residents on night float. Our institution has identified a faculty member to be in charge of the night float rotation. This faculty also meets with the residents to develop reading plans and potential projects, as well as act as a liaison to other faculty when issues arise on the rotation.

Tip 10: Recognize the Impact on Operative Volume

The night float system impacts the educational opportunities for the resident overnight, but also those not on the night float rotation. For both the senior and junior residents, night float represents an opportunity for increased autonomy, responsibility, and decision making. One drawback of night float rotations is decreased operative volume, which is consistent in both Europe and the United States.^{10,32,33} Senior residents lose an average of 50 cases during each year they participate on a night float rotation.¹⁰

At our institution, the acute care surgery service provides an opportunity to address some of this decreased operative time. The senior night float residents have the opportunity to increase nighttime cases (ie, acute cholecystitis and appendicitis) due to a dedicated acute care surgeon on duty. Secondly, when not attending to consults and patient care issues on the floor, the junior resident seeks out opportunities to second assist on these emergency nighttime cases. Overall, the hope remains that residents who participate in a schedule with a night float will ultimately be able to experience high volume operative periods during the day on their service, thus overall improving surgical education throughout the program.¹⁰

Tip 11: Focus on the Need for Resident Education

One of the greatest criticisms of the night float system is that residents are not able to interact and learn directly from faculty members.³⁴ The educational experience may appear diminished

on the night float service due to less faculty interaction and the inability to attend conferences or teaching rounds. One survey of residents after implementation of the night float system found that when compared to intern daytime residents, night float residents experience significantly less conference attendance, operative experience, and faculty teaching interactions.³⁵ While some studies have demonstrated an improved amount of on-call sleep with the new 80-hour work week, this does not translate to better continuity of care or perception of resident education.³⁴

Despite the challenges associated with alterations in the circadian rhythms of night float residents, some institutions have addressed the educational issue through “after hours” independent learning sessions and educationally focused morning report involving face-to-face faculty interactions.^{18,36} While the 80-hour work week was thought to translate into improved time for resident self-education with reading during non-hospital time as well as improved educational efforts, this has not been reflected nationally. In addition to establishing off-hours teaching conferences, resident education may benefit from greater oversight and accountability to reading programs and self-directed learning. Finally, our institution has created a basic week-long curriculum for junior residents that meet several times a year to address patient cases, reading, and operative techniques.³⁷

Tip 12: Medical Students Taking Call on Night Float Should Have Defined Goals

The night float service has potential to strongly affect student education. The impact may be positive for those who desire greater interaction with residents, more autonomy, and an increase in clinical activities.³⁸ Whereas resident education depends heavily on faculty interaction, student education has been found to rely greatly on the student-resident interaction.^{39,40} When students take night call with the night float team, they are working with new residents and new expectations. Therefore, it is important to introduce the student to the new team and explain expectations, which may include seeing consults, documenting plans for patients, and attending operative cases. Additionally, the exchange of contact information between residents and students allows for students to be contacted for educational opportunities.

CONCLUSION

Duty hour regulations in Europe and the United States have resulted in limiting work hours in exchange of the opportunity for educational experiences in an effort to offer better patient care. The ACGME duty hour restriction has reduced the general surgery residency by 6 months of in-hospital experience, preferentially removing night and weekend experience. Additional duty reforms have mandated that residents have direct supervision. These are the same times are when residents are more likely to see urgent and emergency conditions with greater autonomy.⁴¹ The

night float system has been implemented at many institutions as a solution to provide continuous coverage and ultimately allow residents to experience night and weekend call.

While meeting duty hour requirements, the night float system has led to many issues affecting the resident experience. We have provided 12 examples of areas for improvement to the surgical night float system, each with potential solutions in an effort to remain focused on both resident education and quality patient care (Table). Communication and documentation through proper sign-out and sign-in are critical components to insure success and excellent patient care.^{9,10,42} The process for managing consults, managing patient's calls, and making end-of-life decisions are 3 areas that have the potential to negatively impact in-house patient care and safety. We propose a standard sign-out sheet that includes the goals of care for each patient, on-call staff and backup, and a reference for the attending's preferences for patient issues always requiring a phone call. In addition, to facilitate efficiency for nighttime chart review, we propose documenting pertinent thresholds for overnight labs, interventions, and images in daily notes and moving assessment and plans to the top of template notes. We encourage use of short, untemplated notes as well as proper documentation in the EMR by night float residents, regardless of how brief. Decreased operative volume and education through lectures or interactions with staff are important issues that night float has yet to address. Potential solutions include employing physician extenders to assist with either emergency department consults or floor issues, improving the process for managing patient calls at night, encouraging increased use of acute care surgery services with a dedicated staff, and implementation of educationally focused morning reports.

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