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A Night Float System in Nephrology Fellowship: A Mixed Methods Evaluation

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Abstract

Background Johns Hopkins was an early adopter of an in-house nephrology fellowship night float to improve work-life balance. Our study aimed to elucidate attitudes to guide fellowship structuring.

Methods We performed a mixed-methods study surveying Johns Hopkins fellows, alumni, and faculty and conducting one focus group of current fellows. Surveys were developed through literature review, queried on a five-point Likert scale, and analyzed with *t* and ANOVA tests. The focus group transcript was analyzed by two independent reviewers.

Results Survey response rates were 14 (100%) fellows, 32 (91%) alumni, and 17 (94%) faculty. All groups felt quality of patient care was good to excellent with no significant differences among groups (range of means [SD], 4.1 [0.7]–4.6 [0.7]; $P=0.12$), although fellows had a statistically significantly more positive view than faculty on autonomy (4.6 [0.5] versus 4.1 [0.3]; $P=0.006$). Fellows perceived a positive effect across all domains of night float on the day team experience (range, 4.2 [0.8]–4.6 [0.6]; $P<0.001$ compared with neutral effect). Focus group themes included patient care, care continuity, professional development, wellness, and structural components. One fellow said, “. . . my bias is that every program would switch to a night float system if they could.” All groups were satisfied with night float with 4.7 [0.5], 4.2 [0.8], and 4.0 [0.9] for fellows, faculty, and alumni, respectively; fellows were most enthusiastic ($P=0.03$). All three groups preferred night float, and fellows did so unanimously.

Conclusions Night float was well liked and enhanced the perceived daytime fellow experience. Alumni and faculty were positive about night float, although less so, possibly due to concerns for adequate preparation to handle overnight calls after graduation. Night float implementation at other nephrology programs should be considered based on program resources; such changes should be assessed by similar methods.

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Introduction

Nephrology faces challenges with declining interest in the specialty (1), with a number of programs developed to stimulate nephrology interest for medical trainees (2–4). Internal medicine residents believe a nephrology career is too challenging (5), with difficult work-life balance and high workload identified as key dissuading factors (6,7). Thus, innovative methods to improve nephrology workflow are essential for the field to thrive.

One possible method has been the institution of a night float system. Night float was developed as an alternative to being “on call” by assigning residents to an overnight, in-hospital rotation responsible for the care of admitted patients (8). Night float systems allow for reduced resident work hours and alter the educational environment and program perception. Night float could also have negative ramifications, especially in regard to highlighting a nephrology fellowship’s challenges with work-life balance and therefore

normalizing a career that is busy. Also, faculty noted an increase in shift-work mentality among internal medicine residents (9). Fellowship programs have also started to embrace the same concept, but few studies, such as Kohan *et al.* (10) in cardiology, exist on their outcomes. Even fewer, if any, are related to nephrology.

Unlike many internal medicine programs that have embraced night float as the primary mechanism for overnight patient care, the majority of nephrology fellowship programs divide night call among fellows with daytime duties (11). However, nephrology fellows nationally highlight structural change to the fellowship program, including protected time, as one of the top changes to improve the educational environment (12). In the 2019 Annual American Society of Nephrology Fellows Survey, overnight call frequency was rated as one of the most important factors during job selection (13). To improve both the educational environment and work-life balance, Johns Hopkins established one of the first in-house nephrology night

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float systems in the country. The aim of our study was to elucidate the perception and educational value of the night float system by fellows in the program, nephrology faculty with whom they work, and alumni of the program to guide fellowship structuring.

Materials and Methods

Structure of Night Float at Johns Hopkins

The Johns Hopkins Nephrology Fellowship initiated its in-house night float system in March 2012. Hours are 7 PM–7 AM Sunday–Friday, with traditional at-home coverage on Saturday. Each fellow completes 4 weeks of night float per year. The fellow evaluates new consults, discusses with on-call faculty, and crosscovers patients. The fellow is in house at the larger Johns Hopkins Hospital and triages calls from Johns Hopkins Bayview Medical Center. If a Bayview patient requires overnight bedside evaluation, an at-home on-call fellow is called. Additional information on the fellowship and night float, including a visual representation, is in the supplement (Supplemental Methods, Supplemental Appendix 1).

Overall Study Design

Night float was evaluated through a mixed-methods approach with surveys and a focus group. The survey provided a global assessment of the program from the perspective of nephrology faculty and fellows. The focus group further explored survey responses with reflections from individual fellows. The Johns Hopkins Institutional Review Board approved the study.

Survey Design

Johns Hopkins Nephrology current fellows, alumni who experienced night float, and current faculty were surveyed. Questions for fellows were designed from review of prior studies of residents' attitudes and well-being on night float rotations (14–18). The fellows' survey was developed by J.B.P. and S.M.S. and underwent multiple rounds of editing until approved by J.B.P., S.M.S., D.H.K., and D.M.F. (Supplemental Appendix 2).

Fellow survey domains included clinical care, professional development, and well-being. Questions were asked on a five-point Likert scale. For questions on well-being, one corresponded to "not at all" and five corresponded to "extremely." Fellows were asked about their perception of the night float rotation and how the presence of a night float affected their daytime experience. The fellows' questions were phrased, "As a result of having a night float, how has your day team experience been impacted in [variable]?" One signified "significantly worsened" and five corresponded to "very improved."

The alumni and faculty surveys were adapted from the original fellows' survey (Supplemental Appendixes 3 and 4). We compared current fellows and faculty answers to assess the perspective of learners and educators. We solicited alumni perspectives to elucidate the effect of night float on career readiness. Both faculty and fellows were asked about potential for error, with one and five corresponding to "never" and "always," respectively. All groups were asked about night float's effect on clinical care and

professional development; its importance to the fellowship; and preference among overnight home call, night float, and no preference.

Surveys were distributed electronically from January 16 to March 1, 2019 using Qualtrics (Provo, UT) software, with two weekly emails to nonresponders using the same system, and an individualized email from S.M.S. to nonresponders at the third week. Fellows' survey responses were collected before conduction of the focus group. All parties were consistently notified that responses would be deidentified, used for research purposes only, and reported in aggregate. Fellows and alumni were compensated with a \$25 Amazon gift card for survey completion.

Focus Group Design

We conducted a workplace focus group of current nephrology fellows on February 13, 2019. All fellows were invited to participate *via* email. Of 14 current fellows, nine participated in an hour-long focus group. An interview guide, based on the fellows' survey, was created to structure the conversation (Supplemental Appendix 5). The session was facilitated by J.B.P., a female fourth year medical student with prior focus group facilitation experience. J.B.P. was introduced as a medical student who had completed a rotation in the department. No nonparticipants were present, and each fellow received a \$50 Amazon gift card. Notes were taken during the session, and the discussion was audio recorded and then transcribed by Ubiquitous USA (New York, NY) without participants' names. Transcripts were not returned to participants; repeat interviews were not performed.

Statistical Analysis

Likert responses were converted to group means stratified by fellow, faculty, or alumni. Fellows and faculty responses were compared using an unpaired *t* test with equal variance. All groups were compared using ANOVA and Fisher exact test. A *P* value of <0.05 was considered statistically significant. Stata SE 15.1 (College Station, TX) was used.

Focus groups transcripts were independently, iteratively coded by authors J.B.P. and E.J.X., with S.M.S. present to resolve discrepancies. Themes were derived from the data, agreed upon among all three researchers, and reapplied to existing codes by J.B.P. and E.J.X. Saturation was not reached given the small sample size. ATLAS.ti (Berlin, Germany) software was used.

Results

Demographics of Survey Participants

Surveys achieved the following response rates: 14 fellows (100%), 32 alumni (91%), and 17 faculty (94%) (Table 1). Most current fellows expressed an interest in pursuing clinical nephrology at an academic medical center (79%). Over half of alumni respondents are in private practice (56%) and 38% are clinicians at academic medical centers.

Current Fellows

Perspectives on Night Float Fellows had positive impressions of clinical care on night float, giving the highest

Table 1. Demographics of Johns Hopkins night float survey participants

Demographics	Fellows	Alumni	Faculty
Total respondents, <i>n</i>	14	32	17
Response rate, %	100	91	94
Year of fellowship graduation, <i>n</i> (%)			
<2012			7 (41)
≥2012			10 (59)
2013		6 (19)	
2014		5 (16)	
2015		6 (19)	
2016		5 (16)	
2017		4 (13)	
2018		6 (19)	
2019	8 (57)		
2020	6 (43)		
Career trajectory, <i>n</i> (%)			
Academic clinician	11 (79)	12 (38)	17 (100)
Private practice clinician	3 (21)	18 (56)	
Industry/government practitioner	0 (0)	2 (6)	
Overnight calls, <i>n</i> (%)			
Does not apply		2 (6)	
<1× per wk		7 (22)	
1× per wk		7 (22)	
>1× per wk		16 (50)	

score to overall patient care (mean [SD], 4.6 [0.7]) and the lowest score to continuity of patient care at 3.8 [0.6]. Night float had means above four for all questions on professional development and learning opportunities (range [SD], 4.2 [0.8]–4.6 [0.5]). There was variability in the frequency at which night float fellows watched didactics recorded during the daytime (mean [SD], 3.0 [1.1]) or had follow-up discussions on patients they had seen (3.7 [1.0]).

Fellows reported low to medium overall stress and fatigue at a mean [SD] of 2.4 [0.6] and 2.1 [1.0], respectively. They reported medium to high motivation 3.8 [0.7] and overall wellness 3.9 [0.9], despite a shift-work mentality of 3.6 [0.7] (Table 2).

Perspectives on Day Team Fellows felt the presence of a night float benefited their day experience. They indicated that the perceived effect of night float on the day team

Table 2. Night float survey results for Johns Hopkins faculty, fellows, and alumni

Theme	Question	Current Perspectives			Future Perspectives	
		Fellows	Faculty	<i>P</i> Value ^a	Alumni	<i>P</i> Value ^a
Clinical care	Continuity of patient care	3.8 [0.6]	3.9 [0.6]	0.7	3.6 [0.6]	0.4
	Physician-patient relationship	4.0 [0.7]	3.8 [0.6]	0.3	3.5 [0.6]	0.05 ^b
	Overall patient care	4.6 [0.7]	4.1 [0.7]	0.07	4.2 [0.7]	0.1
Patient safety	Potential for error ^c	2.2 [0.4]	2.4 [0.7]	0.4	—	—
Professional development	Supervision for decision-making at night	4.3 [0.7]	4.1 [0.6]	0.5	4.1 [0.9]	0.7
	Autonomy for clinical decisions	4.6 [0.5]	4.1 [0.3]	0.006 ^b	4.2 [0.9]	0.2
	Clinical burden	4.3 [0.5]				
Educational experiences	Work hours	4.4 [0.7]				
	Learning opportunities while on night float ^d	4.1 [0.7]	3.7 [0.9]	0.1	4.1 [0.7]	0.1
	Follow-up on recorded conferences	3.0 [1.1]				
	Follow-up additional discussions of patients	3.7 [1.0]				
Well-being	Overall stress	2.4 [0.6]				
	Motivation	3.8 [0.7]				
	Shift-work mentality	3.6 [0.7]				
	Fatigue	2.1 [1.0]				
	Overall wellness	3.9 [0.9]				

Table values represent survey responses on five-point Likert scale in the format mean [SD].

^a*P* value by unpaired *t* test (fellows versus faculty) or ANOVA (fellows versus faculty versus alumni).

^b*P*<0.05.

^cBoth faculty and fellows were asked about potential for error, with one corresponding to “never” and five corresponding to “always.”

^dFellows and faculty were asked “While on night float, what is your satisfaction with learning opportunities?” Alumni were asked “How much did the learning opportunities while on night float: Prepare you for your career?”

Table 3. Perceptions of night float on day team fellow, Johns Hopkins nephrology fellows

Theme	Quality	Day Team Perceived Enhancement	P Value ^a
Clinical care	Continuity of patient care	4.6 [0.7]	<0.001
	Physician-patient relationship	4.4 [0.8]	<0.001
	Overall patient care	4.5 [0.8]	<0.001
Professional development	Autonomy for clinical decisions	4.2 [0.8]	<0.001
	Clinical burden	4.6 [0.5]	<0.001
	Work hours	4.6 [0.7]	<0.001
Educational experiences	Learning opportunities	4.6 [0.6]	<0.001
	Well-being	Overall stress	4.4 [0.7]
Well-being	Motivation	4.4 [0.5]	<0.001
	Shift-work mentality	4.4 [0.5]	<0.001
	Fatigue	4.4 [0.6]	<0.001
	Overall wellness	4.6 [0.5]	<0.001

Table values represent the answers to the question, "As a result of having a night float, how has your day team experience been impacted in [variable]?" One signified "significantly worsened" and five corresponded to "very improved." Format presented as mean [SD].

^aP value by *t* test, when compared to a neutral effect of three.

experience was significantly positive across all domains versus neutral effect (range [SD], 4.2 [0.8]–4.6 [0.6]; $P < 0.001$), including clinical care, professional development, educational experiences, and well-being (Table 3).

Group Reflections Several major themes were identified in the focus group: patient care including continuity of care, professional development, wellness, and structural considerations (Supplemental Appendix 6). We separated continuity of care from patient care because each was frequently identified. Selected quotations can be found in Table 4. Figure 1 demonstrates connections among themes, constructed as a visual representation of Table 4.

Theme 1: Patient Care. Fellows felt that night float was overall beneficial to patient care with more time to see patients, fewer patients to care for, shorter time to consult completion and dialysis line placement, and increased patient safety. With more time for patient care, fellows communicate with patients more fully, think through decisions more thoroughly, collect important physical exam data not available by phone, and follow-up on results quickly. There were, however, some patient care drawbacks that may be seen across call structures. Chief among them were anxiety performing procedures alone and occasional difficulty reaching faculty overnight.

Theme 2: Continuity of Care. Fellows spoke about how night float affects care continuity, in particular, handoffs. A benefit of well constructed handoffs is the facilitation of fresh thoughts, especially given the decreased workload of the night fellow. An in-house fellow overnight also allows for better communication with care teams. Overnight consults, however, were sometimes felt to be called unnecessarily because primary services knew a nephrology fellow was in the hospital.

Theme 3: Professional Development. Night float promotes fellows' professional development, with some drawbacks. Fellows reported greater autonomy on night float, with faculty available for consultation by phone. The reduction in work compression afforded by night float provides greater time for self-study for both day and night fellows. Fellows report they are awake and learning during downtime on night float and believe they would otherwise

be asleep if on overnight home call. Drawbacks include night float not preparing fellows for the experience of overnight home call when in independent practice. Difficulty reaching faculty overnight and minimal procedure oversight could also negatively affect fellows' professional development.

Theme 4: Wellness. Fellows report night float positively affected wellness due to the reduced new consult census and work hours. Repeatedly, fellows shared that overnight home call would lead to more fatigue as well as the anticipatory fatigue of being called in. Because night float is a set shift, fellows felt it allowed for scheduled time with family and personal obligations by avoiding the unpredictability of being called back to the hospital. Night float also facilitated better wellness for the day fellow by reducing the number of morning consults. There were two important drawbacks: challenges seeing loved ones when working nights and difficult sleep transitions.

Theme 5: Structural Considerations. For night float to function smoothly, accountability is crucial with clear time windows of responsibility for the day and night fellows. When the night float fellow should have seen a patient overnight and did not, it created more work for the day fellow and tension between colleagues. Night float was also perceived as a recruitment tool for fellowship applicants. Overall, multiple fellows shared that they felt night float was better than overnight home call.

Comparison of Fellow, Faculty, and Alumni Perspectives

Fellow perceptions of night float were compared with those of alumni and current faculty. All three groups felt similarly about continuity of patient care (range [SD], 3.7 [0.6]–3.9 [0.6]; $P = 0.4$) and overall patient care (range [SD], 4.1 [0.7]–4.6 [0.7]; $P = 0.1$). However, the groups differed on the quality of the physician-patient relationship. Whereas fellows and faculty had comparable results at 4.0 [0.7] and 3.8 [0.6], respectively ($P = 0.30$), alumni rated it worse at 3.5 [0.6], $P = 0.05$. Both fellows and faculty agreed potential for error was infrequent (2.2 [0.4] versus 2.4 [0.7]; $P = 0.4$).

Table 4. Fellows’ focus group themes, codes, and representative quotations, Johns Hopkins nephrology fellows

Theme	Codes Identified	Representative Quotation
Patient care	Decreased patient wait time More safe Care of critically ill patients More time: to follow laboratory results More time: for patient communication More time: to think through patient care Prevent admission Bedside assessment Anxiety performing procedures	There was someone in the middle of the night in the Onc-Center who was tumor lysis syndrome... did not have a good prognosis and was sort of heading toward either dialysis or hospice... Going into a weekend, and you’re covering two services and you get this consult, then it’s either you need to make this decision, yes or no, start dialysis, don’t start dialysis. I had the benefit of having an hour or however long, so [we] could sit down and talk. I think actually understanding what it means to go through dialysis and peritoneal dialysis, which we don’t have nearly the time to explain on a regular basis.
Continuity of care	A bad sign out is dangerous Handoffs different for consultants Benefits to handoffs: fresh thoughts Better interteam communication Primary team overexpectations	Someone in one of the Bayview ICUs who had severe — stable but significant hyponatremia that was on hypertonic saline. For patients like that, we should know to keep an eye on them. And the only reason I found out was because the MICU pages, and says, “the sodium is going down, what should we do?”
Professional development	Autonomy Time to learn Less similar to future practice	I think, being forced to... come up with your own plan and, putting in a line, and all of that is what you need to be ready for independent practice. There was a time when I had to put in a line, but the attending didn’t pick up the phone.... It was obviously an emergent need, and I just put it in and finally they called me back, and I was like, “I hope you’re okay with this because it’s already in...” I feel very confident being able to do anything I need to do, figure it out. If I don’t know, I know I can read about it. I’ve thought on my feet before. I think that fellowship needs more of that in general, but night float is an opportunity for that.
Wellness	Reduced hours Overnight home call would be worse Time for important things Reduce number of morning consults Drawbacks	Just a couple of days back, the night float got five consults for my team. I came in in the morning and we got three and so if there was no night float, and those were waiting, it would have been eight and I would never have left that day. I think it’s just one of those things that makes life a little easier for the morning person.
Structural considerations	Accountability is crucial Suggestions for structural changes Overall better	If [day team] got a consult up until like 6:59 [PM], they would have to do it at 6:59. We tried to institute that, but some people were lazy, and at 6:15, they’d say, “Oh, I got 1 consult. Can you just take it, night float, because it’s 6:15...?” “No, you still have 45 more minutes there. You know that you’re supposed to be taking consults.” Or in the morning, the night float person would be like, “Oh, it’s 6:00 [AM]... can you just take [the consult] for me?” And that’s really hard for the daytime team, because that time before 7:00 AM is their protected time to get to know their patients, or to go through labs, or to make sure they’re on top of everything and get their notes in before the day starts. There’s that peri-7:00 time block. It’s always very dramatic.

Onc-Center, oncology center; ICU, intensive care unit; MICU, medical intensive care unit; labs, laboratory tests.

On the topic of professional development, all three groups felt supervision for decision-making at night (range [SD], 4.0 [0.9]–4.3 [0.7]; $P=0.5$) and autonomy for clinical decisions were strong (4.1 [0.3]–4.6 [0.5]; $P=0.2$). Fellows rated autonomy higher than faculty (4.6 [0.5]–4.1 [0.3]; $P=0.006$). Fellows believed more strongly than faculty that the learning opportunities during night float were adequate at 4.1 [0.7] versus 3.7 [0.9]; differences were not statistically significant ($P=0.1$). Alumni agreed these learning opportunities helped adequately prepare them for their career at 4.1 [0.7], $P=0.1$.

Overall Perceptions of Night Float

Although all three groups were supportive of the night float system, fellows were significantly more enthusiastic. All current fellows preferred night float. Faculty and alumni preferred night float at rates of 71% and 69%, respectively (Figure 2). Fellows were most satisfied with the night float system at 4.7 [0.5] compared with faculty at 4.2 [0.8] and alumni at 4.0 [0.9], $P<0.05$ (Figure 3). Fellows thought it was extremely important to recruitment at 4.0 [0.9]. Faculty cited it as important to the fellowship with a range in responses at 3.9 [1.3]. However, alumni did not think it was an important component of the program (2.7 [1.1], $P<0.001$) (Figure 4).

An additional compilation of alumni and faculty responses from the free-text survey sections are included in Supplemental Appendixes 7 and 8.

Discussion

Night float was well liked by fellows, alumni, and current faculty. Current fellows universally felt this was a significant feature of their program and essential to it running smoothly. Notably, night float improved the experience of the other fellows; day team fellows perceived more time for learning, better patient care, and improved well-being.

Although a recent survey on the American Society of Nephrology’s Training Program Exchange identified six programs as having a nephrology night float call (19), our program is the first to share its evaluation. Most of the literature surrounding night float was conducted at the resident level. In one recent survey of internal medicine residents, 41% agreed that the quality of patient care improved on night float, whereas 18% disagreed. Drawbacks include less emphasis on education (65%) and more emphasis on service (52%). Overall, residents felt more rested during their night float months (83%) (15). Our fellows similarly rated patient care favorably and noted a moderate shift-work mentality. Interestingly, fellows indicate that night float has a positive effect on continuity of care; however, one would expect traditional night coverage to facilitate better continuity, because the person who took care of the patient during the day is still caring for them at night.

The literature supports the fellows’ focus group reflections that overnight home call would require frequently returning to the hospital and disrupted sleep. A recent study found fellows on overnight home call returned to work 64% of the time. Only 31% of call nights allowed for 5 hours of continuous sleep, the amount recommended by the Accreditation Council for Graduate Medical Education (20). Therefore, night float could lessen both the fatigue of returning to work and the anticipatory fatigue of worrying about returning to work.

Fellows were the most supportive group in both overall satisfaction and preference for night float. This preference is likely explained by fellows enjoying significant quality of life benefits because of night float. This phenomenon may explain why fellows thought learning opportunities were adequate, despite previous descriptions of residency night float reporting less educational emphasis (21,22). Alumni and faculty were more concerned about preparation for future practice and patient safety. In fact, many current

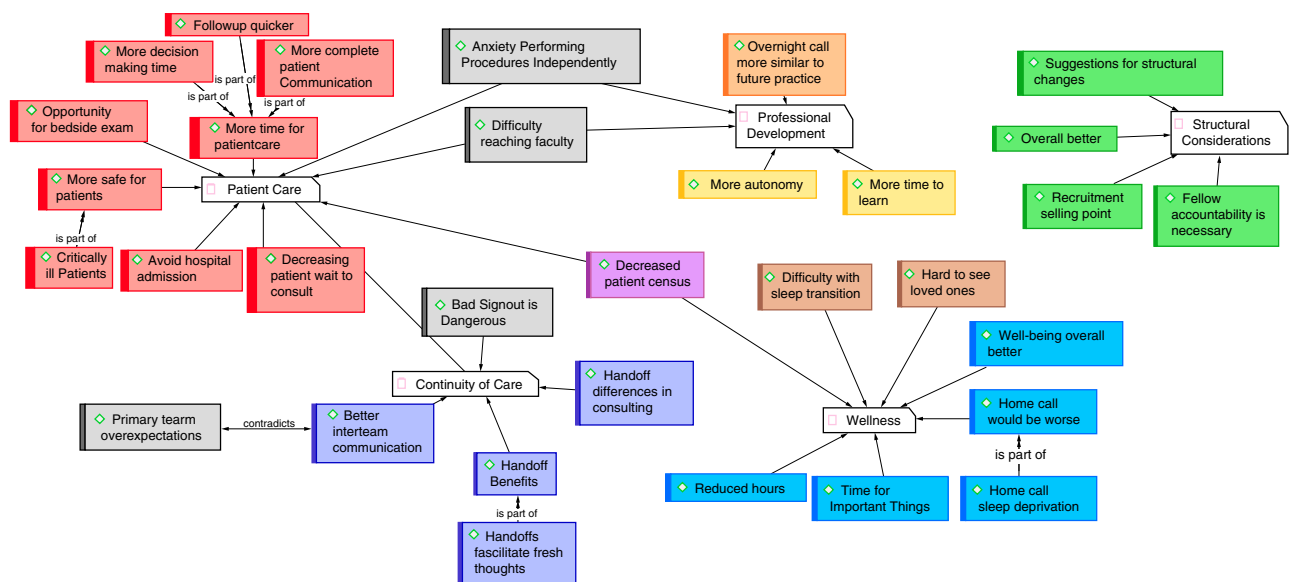


Figure 1. | Connections between themes of the nephrology night float observed by Johns Hopkins nephrology fellows. Figure represents the network of themes and their associated codes identified from a focus group of Johns Hopkins nephrology fellows.

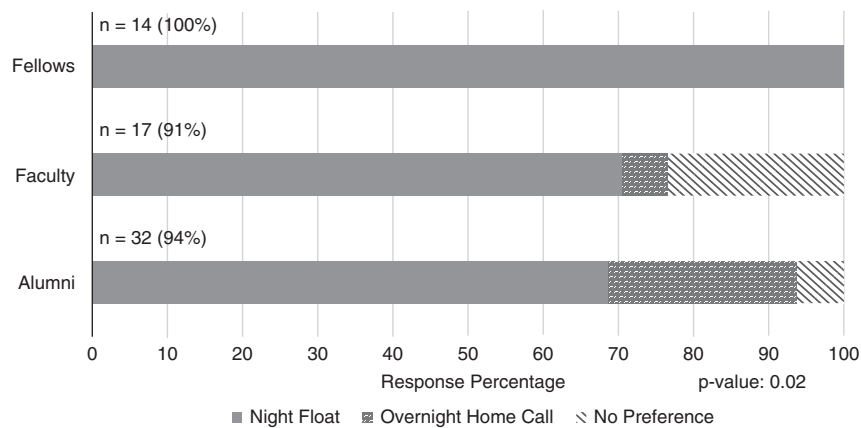


Figure 2. | Preference for night float over home call for Johns Hopkins nephrology fellows, faculty, and alumni. Survey responses of Johns Hopkins nephrology fellows, faculty, and alumni. These represent the proportion of each response to the question, “My preference for call is: Night Float, Overnight Home Call, No Preference.” *P* value by Fisher exact test comparing all three groups.

fellows state they are interested in academic medicine; however, many of our alumni are in private practice. Thus, there is a potential for night float to inadequately prepare trainees for independent practice. This discrepancy in perceptions on night float has also been seen in the residency literature. In one study, residents felt night float decreased fatigue and improved patient care, whereas faculty members were uncertain or disagreed (9). Ultimately, studies have not examined the true effect of night float on patient outcomes once trainees have entered independent practice.

This study has several limitations. Structural limitations include that our study neither captures whether respondents had prior experience with night float during residency nor contains a true control group who experienced solely a traditional call structure. This is a single-institution study and may not be applicable to other fellowship programs with different structures, including their individual structure of night float. The focus group did not reach thematic saturation due to the small sample size, and there may be additional perspectives on night float that were not captured. The survey data, however, corroborate the focus

group findings and support the conclusion that the focus group acceptably captured the fellows’ perspectives. Survey responses may be influenced by social desirability bias causing underreporting of perceived bad behavior such as missing optional educational opportunities or detriment to patient care. In addition, several stakeholders were missing from this study: nurses and other healthcare practitioners; patients; and consulting services trainees, faculty, and their program directors. No focus group was conducted of faculty or alumni, so rich data on their perspectives were not collected. Finally, comparison data were not collected before the implementation of night float. These are areas of additional investigation for future studies.

As programs consider whether night float is a good fit, we recommend examining patient care needs, staffing, program culture, addressing feedback, and alternatives such as physician extenders and services without fellows. Programs must receive an adequate number of calls and nighttime

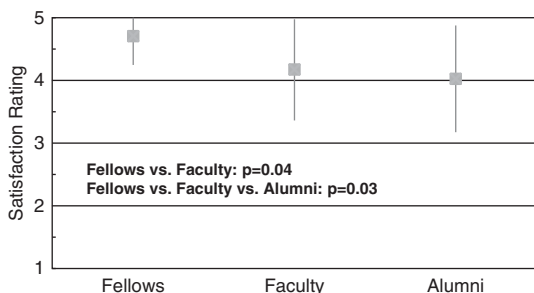


Figure 3. | Greater satisfaction with nephrology night float for Johns Hopkins nephrology fellows compared to faculty and alumni. Survey responses of Johns Hopkins nephrology fellows, faculty, and alumni. These represent the mean [SD] in response to the question, “Overall, what is your satisfaction with the night float call?” *P* values by *t* test or ANOVA.

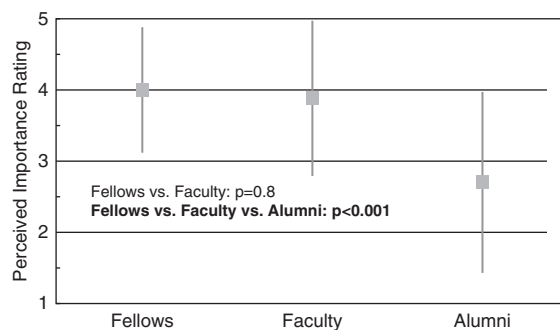


Figure 4. | Perceived importance of night float to the fellowship program is greater for Johns Hopkins nephrology fellows and faculty than alumni. Survey responses of Johns Hopkins nephrology fellows, faculty, and alumni. These represent the mean [SD] in response to the following questions: “In choosing your fellowship program, how important was the presence of night float call?” (for fellows and alumni) and “How important is the night call system in the fellowship program?” (for faculty). *P* values by *t* test or ANOVA.

consults to support changing from overnight home call. Too many weeks of night float service might be detrimental to clinic opportunities and daytime didactic sessions. An adequate number of fellows, which is more common at larger programs, is necessary to staff night float. Structured handoffs and admitting windows were important in our fellows' focus group for collegiality within the program and safe care transfers. Finally, current fellows and faculty must be receptive to such a change, including ensuring they understand where the educational needs will be met. Understanding how best to implement a night float's educational curriculum has been conducted at the resident level (21,22), but not yet at the fellowship level.

In conclusion, this study provides support for a night float rather than a traditional overnight home call system. Other nephrology programs should consider implementing a night float. With more programs adopting such a system, nephrology fellows could experience a better quality of life without perceived detriment to patient care. In addition to the well-ness benefits for the trainee, such a feature might serve to lessen the perception that nephrology training has a misaligned work-life balance. This may help increase recruitment into the field.

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Author Contributions

D. Fine, D. Knicely, J. Plotkin, S. Sozio, and C. Sperati conceptualized the study and were responsible for investigation; J. Plotkin and S. Sozio were responsible for data curation, project administration, and supervision; J. Plotkin, S. Sozio, and E. Xu were responsible for formal analysis; S. Sozio was responsible for resources; and all authors wrote the original draft, reviewed and edited the manuscript, and were responsible for methodology and validation.

Disclosures

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Supplemental Material

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Supplemental Methods.

Supplemental Appendix 1. Visual representation of Johns Hopkins night service coverage.

Supplemental Appendix 2. Johns Hopkins nephrology fellows night float survey questions.

Supplemental Appendix 3. Johns Hopkins nephrology faculty night float survey questions.

Supplemental Appendix 4. Johns Hopkins nephrology alumni night float survey questions.

Supplemental Appendix 5. Johns Hopkins nephrology fellows night float focus group questions.

Supplemental Appendix 6. Expanded Johns Hopkins fellows' focus group quotations representing each theme about the night float.

Supplemental Appendix 7. Additional compiled reflections about the night float from Johns Hopkins nephrology faculty surveys.

Supplemental Appendix 8. Additional compiled reflections about the night float from Johns Hopkins nephrology alumni surveys.

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