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Implementation of an academic half day in a vascular surgery residency program improves trainee and faculty satisfaction with surgical indications conference ☆

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ABSTRACT

Background: The Accreditation Council for Graduate Medical Education mandates scheduled didactics for residency programs but allows flexibility in implementation. Work-hour restrictions, patient care duties, and operative schedules create barriers to attendance for surgical trainees. We explored vascular surgery trainees and faculty perceptions on trainees operative preparation and participation, and overall fund of knowledge after implementing an academic half day conference (AHD) schedule.

Methods: The vascular surgery conference at a single academic institution was changed from three 1-hour conferences weekly, to a single protected, 3-hour conference once weekly. Faculty and trainees were surveyed before and 5 months after implementing the new AHD schedule.

Results: Overall satisfaction improved after initiating the AHD (4 of 4 trainees, 3 of 4 faculty). All trainees (n = 4) and faculty (n = 4) believed the AHD conference format was worthwhile. Most trainees believed the AHD format improved their Vascular Surgery in Service Training Exam preparation (3 of 4), fund of knowledge (4 of 4), and operative preparation (3 of 4). More trainees than faculty tended to feel that the AHD interfered with operative participation (3 of 4 trainees vs 1 of 4 faculty). Neither group agreed that the conference was optimally scheduled.

Conclusion: This single-institution, pilot study suggests a positive association in the attitudes of most vascular surgery trainees and faculty regarding preparation for the Vascular Surgery In-Training Exam and overall fund of knowledge after implementing a protected AHD schedule. Further research is needed to understand the impact of the AHD conference on operative experience and training exam scores.

Background

The Accreditation Council for Graduate Medical Education (ACGME) mandates educational didactics as part of the core curriculum in surgery residency programs. Current program requirements, however, only specify the need for "regularly scheduled didactic sessions"; this allows programs the flexibility to design educational sessions suited to the local environment.[1] Traditionally, education sessions have been structured in a classic, lecture-based conference that occurs periodically throughout the week. With increased demands on residency training programs, more residency programs have instituted a weekly academic half day (AHD) conference schedule to concentrate learning within a single period.[2,3]

Challenges to optimize resident time in educational conferences have been described in the literature but previously within non-surgery training programs.[3-5] Limited studies address these issues within a surgery training environment.[6,7] No studies evaluate this issue within vascular surgery. Commonly cited barriers to maintaining effective educational conferences include inconsistent resident attendance, interference with clinical responsibilities, and duty hour restrictions.[2]

In this pilot study, we reviewed the perceptions of vascular surgery trainees and faculty on the educational value of a surgical indications conference after integration into an AHD format at a single institution.

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Methods

Setting and subjects

The Division of Vascular Surgery at the University of Wisconsin offers graduate vascular surgery training through both an integrated vascular surgery residency, as well as through a traditional vascular surgery fellowship. The trainees have clinical responsibilities at the University Hospital, the Veterans Affairs (VA) Hospital, and a private practice community hospital. The VA Hospital is connected to the University Hospital by an enclosed footbridge. The private practice community hospital is within a 10-minute drive from the University Hospital.

Seven vascular surgery faculty participate regularly in resident educational conferences. At the time of this study, there were 5 trainees in the integrated residency program (postgraduate year [PGY]-1 through PGY-5) and 1 trainee in the fellowship program (PGY-6), for a total of 6 vascular surgery trainees during the 2015 academic year.

Description of educational conference program

Traditionally, the educational conferences for the University of Wisconsin vascular surgery training programs took place during 3, separate, 1-hour sessions per week: Monday at 7:00 AM, Wednesday at 4:30 PM, and Thursday at 5:00 PM. The Monday and Wednesday conferences involved a traditional didactic lecture that alternated research topics with a morbidity and mortality conference. The conference on Thursday evening was a case-based discussion of indications to perform operations, preoperative planning, and operative technique. At this indications conference, all operative cases scheduled for the upcoming week were reviewed. The indications conference was led by the senior PGY-4, PGY-5 residents, and the PGY-6 fellow. Learning goals and objectives for the indications conference were not prespecified; however, the indications conference was intended to help trainees improve their fund of knowledge of the indications to perform an operation and their ability to formulate operative plans independently, and to increase overall preparation for assigned operations.

Trainees were required to attend all scheduled educational conferences, including when on nonvascular surgery rotations and when at the VA and community hospitals. Faculty were expected to participate in the teaching conference whenever they did not have conflicting clinical obligations, such as obligations in their clinic or operating room (OR). Attendance requirements were not strictly enforced and no consequences were conferred for nonparticipation by trainees or faculty.

The problem

The director of the residency program and other faculty noted that trainee attendance at all 3 scheduled conference times was inconsistent even though trainees were "required" to attend. Consistent attendance at the evening conferences was problematic. Trainees often continued to assist in operations in lieu of participating in the educational conferences. Additionally, faculty attendance at the evening indications conferences was inconsistent and dependent on clinical obligations. Because of busy operative schedules, the indications conference scheduled on Thursday evenings was particularly challenging for both trainees and faculty to attend. The indications conference frequently began late, extended beyond the scheduled time, and placed an additional burden on trainee work hours.

The intervention

The schedule for the vascular surgery educational conferences was changed from 1-hour conferences 3 times weekly to a single 3-hour conference once weekly on Monday mornings. This change was implemented in January 2015, halfway through the academic year. The new conference design is consistent with an AHD, as described previously in the literature.[2] The content of the new conference included a traditional core knowledge-based didactic, an morbidity and mortality conference, and a division research conference, and the indications conference. Previously, residents were assigned operative cases for the upcoming week after the indications conference was held. With the new AHD schedule, the indications conference occurred on Monday morning after trainees had already been assigned operative cases for the upcoming week. Theoretically, this schedule change allowed advanced preparation and increased active participation during the discussion portion of the indications conference. No new expectation for advanced preparation was communicated to the trainees.

A pre- and post-study design was used to assess the perceptions of the trainees and faculty concerning the educational value of the indications component of the vascular surgery teaching conference before and 5 months after integration into the AHD structure within a vascular surgery training program. This study was evaluated through the Quality Improvement/Program Evaluation Self-Certification Tool of the University of Wisconsin-Madison. This study did not require review by the University of Wisconsin Institutional Review Board. Participation of the trainees and faculty was voluntary, and all responses were anonymous.

Survey instrument

The objective of the survey was to determine the satisfaction of the trainees and faculty with the indications conference before and after implementing an AHD schedule.

The survey instrument was designed through a deliberative process with input from vascular surgery faculty and residents, in consultation with a PhD-trained educator. Based on focused discussions with these stakeholders, survey items were developed to measure various factors influencing faculty and trainee satisfaction with the indications conference, where "satisfaction" was compared with the prior conference format. The survey consisted of 10 questions with response options on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree" (Fig). The survey was piloted on general surgery residents and revised for clarity based on their feedback.

Collection of data

The educational conference schedule was changed on January 1, 2015. Before implementing the change, the preintervention survey was distributed to all faculty and trainees. The same survey was distributed again 5 months after the implementation of the AHD conference schedule.

Hard copies of the survey were provided to all trainees and faculty through academic mailboxes and returned anonymously through the vascular surgery division administrator. To improve response rate, electronic copies were provided in an E-mail reminder 2 weeks after initial distribution.

We chose not to collect data on the Vascular Surgery In-Training Exam (VSITE) scores or ACGME operative case logs pre- and postintervention because of small sample size and anonymity concerns. In addition, data on conference attendance pre-AHD were not available for review.

Data analysis

Responses to the Likert scale survey items, which provided ordinal data on respondents' attitudes were collapsed and recoded as categorical data because of the small sample size and limited

Likert-scale questions with response options including:

Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), Strongly Disagree (1)

Indications Conference...

1. ...improves my preparedness for the operations I assist on
2. ...improves my preparedness for the VSITE
3. ...improves my overall fund of knowledge
4. ...interferes with my ability to participate in the OR
5. ...improves my ability to independently formulate operative plans
6. ...interferes with my ability to provide adequate patient care
7. ...is scheduled on the optimal day of the week
8. ...is scheduled at the optimal time of day
9. ...is a worthwhile educational conference
10. Overall, I am satisfied with indications conference

Fig. Survey Instrument.

range of responses. Responses were sorted as strongly agree + agree (agree); neutral; and disagree + strongly disagree (disagree). Responses were then analyzed using descriptive statistics. No statistical analysis was performed because of small sample size.

Results

The response rate for trainees and faculty was 5 of 6 and 5 of 7 preintervention and 4 of 6 and 4 of 7 postintervention, respectively.

The Table presents the responses for both trainees and faculty pre- and post-AHD. Before the AHD, only 1 of 5 trainees and 2 of 5 faculty were satisfied with the indications conference compared with all 4 trainees and 3 of 4 faculty after initiation of the new conference format. All surveyed faculty members believed the indications conference was worthwhile both before and after integration into an AHD. The number of trainees who had a positive perception increased from 3 of 5 to all 4 after the conference schedule changed.

Trainees and faculty agreed that the AHD format improved trainees preparation for the VSITE, improved fund of knowledge, and improved ability to formulate operative plans compared with the prior conference schedule. All 4 trainees and all 4 faculty agreed that the indications conference was worthwhile as part of the new AHD format compared with only 3 of 5 trainees with the earlier conference schedule. All 5 faculty believed the conference

Table
Trainee and faculty survey response.

		Trainee Pre ($n=5$) n (%)	Trainee Post ($n=4$) n (%)	Faculty Pre ($n=5$) n (%)	Faculty Post ($n=4$) n (%)
Improves my preparedness for the operations on which I assist	Agree	2 (40)	4 (100)	4 (80)	4 (100)
	Neutral	1 (20)	0	1 (20)	0
	Disagree	2 (40)	0	0	0
Improves my preparedness for the VSITE	Agree	2 (40)	3 (75)	3 (60)	3 (75)
	Neutral	2 (40)	1 (25)	1 (20)	1 (25)
	Disagree	1 (20)	0	1 (20)	0
Improves my overall fund of knowledge	Agree	2 (40)	4 (100)	5 (100)	4 (100)
	Neutral	2 (40)	0	0	0
	Disagree	1 (20)	0	0	0
Interferes with my ability to participate in the OR	Agree	0	3 (75)	1 (20)	1 (25)
	Neutral	1 (20)	0	1 (20)	1 (25)
	Disagree	4 (80)	1 (25)	3 (60)	2 (50)
Improves my ability to independently formulate operative plans	Agree	0	4 (100)	3 (60)	3 (75)
	Neutral	5 (100)	0	2 (40)	1 (25)
	Disagree	0	0	0	0
Interferes with my ability to provide adequate patient care	Agree	0	0	0	0
	Neutral	1 (20)	1 (25)	2 (40)	0
	Disagree	4 (80)	3 (75)	3 (60)	4 (100)
Is scheduled on the optimal day of the week	Agree	1 (20)	1 (25)	0	2 (50)
	Neutral	1 (20)	0	2 (40)	1 (25)
	Disagree	3 (60)	3 (75)	3 (60)	1 (25)
Is scheduled at the optimal time of day	Agree	1 (20)	0	0	3 (75)
	Neutral	1 (20)	1 (25)	2 (40)	1 (25)
	Disagree	3 (60)	3 (75)	3 (60)	0
Is a worthwhile educational conference	Agree	3 (60)	4 (100)	5 (100)	4 (100)
	Neutral	1 (20)	0	0	0
	Disagree	1 (20)	0	0	0
Overall, I am satisfied with indications conference	Agree	1 (20)	4 (100)	2 (40)	3 (75)
	Neutral	2 (40)	0	1 (20)	1 (25)
	Disagree	1 (20)	0	2 (40)	0

was worthwhile before AHD. More trainees agreed that the AHD interfered with OR participation compared with the prior conference schedule, 0 of 5 before AHD versus 3 of 4 after AHD. In contrast, fewer faculty members held the same perception of either conference design, 1 of 5 before AHD versus 1 of 4 after AHD. Most trainees (4 of 5 before AHD vs 3 of 4 after AHD) and faculty (3 of 5 before AHD ves all 4 after AHD) agreed that conference did not interfere with the ability of the trainees to provide patient care during either conference design.

One in 5 trainees and 0 of 5 faculty agreed that the original conference was scheduled on the optimal day of the week and optimal time of the day. Afterward, 3 of 4 faculty and 0 of 4 trainees believed the AHD was scheduled at an optimal time of day.

All 4 trainees agreed that the AHD conference improved their preparedness for the operations on which they assist, as well as on overall satisfaction with conference. Four of 5 faculty reported agreement that the AHD conference improved trainees' preparedness for operations on which they assist.

Discussion

Batalden et al[2] provided a conceptual framework for the optimal design of the "academic half day" in their 2013 description of this approach to the scheduling of educational conferences at three internal medicine residencies. The operational elements of this framework included (1) protect time and space to facilitate learning, (2) nurture active learning, (3) choose and sequence curricular content deliberately, (4) develop faculty teaching skills, (5) encourage resident preparation and accountability, and (6) the ability to continuously evaluate and improve educational conference curricula.[2] Although this framework was not applied prospectively to inform the changes made to the vascular surgery conference schedule for our small pilot study, it can be utilized post hoc to understand the success of the intervention. The AHD implemented in this study incorporated elements of protected time, preparation and accountability of the trainees, and continuous improvement of the curricula. All 3 factors may account for the positive change in the perceptions of the trainees and faculty.

First, the AHD implemented in this pilot study provided protected time for trainees. Scheduling conferences at the beginning of the day and week before operative cases began enabled trainees to attend the AHD without the need to excuse themselves from an operation in progress. Leaving an operation in progress is stigmatized within the culture of surgery, and trainees may feel uncomfortable doing so for educational purposes. Thus, a morning start time and a once-weekly occurrence of conferences within the framework of an AHD eliminated the need for trainees to leave the operating room mid-case. That said, 3 of 4 trainees were concerned that the AHD interfered with their ability to participate in operative cases. The reason for this concern is unclear. One possible explanation for these findings in this study is that 2 vascular surgeons performed major and rare operative cases that were scheduled routinely during the AHD time block. Alternatively, trainees may be generally dissatisfied with requirement to attend a conference at the expense of participating in operations regardless of the day of the week or time of day. Further investigation of operative case numbers before and after the AHD would be required to investigate whether operative exposure to unique cases was a possible cause for the residents' concerns regarding the timing of the conference.

The timing of the AHD encouraged resident preparation and accountability for learning through the assignment of operative cases before the indications conference. In the preintervention conference schedule, trainees did not know which cases they would be assigned in the upcoming week before discussing them at the indications conference. The schedule change incorporated the indications conference into the AHD and allowed trainees to know their assignments in advance of the conference and, theoretically, to prepare for the discussion in advance. An expectation for advanced preparation for the indications conference, however, was not communicated to the trainees. Thus, the finding that trainees' perception of ability to formulate an operative plan and prepare for the OR improved with the implementation of the AHD supports the concept that a simple time change could affect trainees' perceptions of educational experiences.

Finally, the implementation and maintenance of the AHD employed a continuous improvement approach to the development and evaluation of the curriculum, using qualitative and quantitative feedback to assess the perceptions of the residents and the faculty concerning the change in curriculum. The AHD concept could be strengthened further by nurturing active learning among the trainees. During conference proceedings, active learning is encouraged through the Socratic method of teaching; however, no specific changes were made or evaluated in this regard. Faculty development is also an area to consider in further developing the success of the AHD. Faculty will be needed to deliver content and to support the curricula long-term. Faculty support of the AHD format is critical to success. Finally, this intervention did not select and sequence curricular content deliberately. More detailed delineation of content and timing of the didactic components of the AHD should be considered in future work.

This study has several important limitations. First, this article reports on a very small pilot study in which the number of participants was far too small for any formal statistical analysis. Second, this study was unable to assess whether the attendance of trainees and faculty was affected by the change in the conference schedule. Data on attendance before the intervention were not available. Finally, assessment of the ACGME operative case logs of the trainees pre- and postintervention may have elucidated whether the AHD affected the trainees' ability to participate in operative cases.

In conclusion, this single-institution experience suggests that implementation of an AHD conference format improves overall satisfaction of both trainees and faculty with educational conferences within a vascular surgery training program. Both trainees and faculty demonstrated positive perceptions related to the ability of trainees to prepare for OR, prepare for the VSITE, independently formulate operative plans, and improve their overall fund of knowledge after integration of the surgical indications conference into an AHD schedule. The optimal time and day of conference has yet to be determined and may be institution dependent. Further work is needed to understand the impact of an AHD block conference schedule on operative exposure and pass rates of the in-service training exam within surgical training.

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