Impact of a Pediatric Clerkship Academic Half Day on Third-Year Medical Students

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Abstract

The use of an academic half day (AHD) compared to a traditional noon conference (NC) has been studied in graduate medical education. Despite undergraduate medical education (UGME) use of AHDs there is no data to advocate for this teaching strategy. We explored the impact of an AHD on UGME during the pediatric clerkship rotation. During the 2017-18 academic year, 118 third-year medical students rotated on the pediatric clerkship rotation. Fifty-eight students were placed in the NC format and 60 in the AHD. NBME Subject Examination performance is similar for both groups (0.04 vs 0.23, F(1, 116)=1.31, p > 0.26). Attendance was significantly higher for AHD compared with NC (90.9% vs 73.3%, F(1, 114)=63.27, p<0.05). Additionally, the mean didactic rating is 3.81 for the AHD group, significantly higher than 3.60 for the NC group (F(1, 113)=6.56, p <0.05). The impact of an AHD in UGME appears promising and consistent with experiences of an AHD in graduate medical education on medical knowledge, attendance, and didactic satisfaction.

Keywords: Academic Half Day; Noon Conference; Undergraduate Medical Education

Introduction

Residency programs are evaluating the impact of didactic in an academic half day (AHD) format compared to a traditional noon conference (NC). Initial data suggest the AHD improves resident conference attendance, learner satisfaction, and learner knowledge.(Batalden, Warm and Logio, 2013; Moreno et al., 2013; Ha et al., 2014; Eid et al., 2015; Zastoupil et al., 2017; Robbins, Sullivan and Smith, 2018) Incorporation of an AHD into a pediatric clerkship rotation may have similar benefits for third-year medical students in undergraduate medical education (UGME).

To our knowledge, no published data is available to determine best didactic delivery methods for third-year medical students. The percentage of pediatric clerkship rotations currently incorporating an AHD is unknown. Despite
some institutions using the AHD as a primary means for UGME didactic delivery, no research has explored the impact of an AHD in UGME on learners. Thus it remains unclear if third-year medical students benefit from didactics in an AHD format compared to a NC.

During the 2017-2018 academic year we transitioned from a traditional NC format to an AHD format for didactic delivery during the pediatric clerkship rotation. Our goal was to determine if the AHD would improve student attendance and didactic satisfaction without compromising performance on the National Board of Medical Examiners (NBME) Subject Examination.

**Methods**

Curriculum Development

During the 2017-18 academic year, 118 third-year medical students rotated on the pediatric clerkship rotation. The rotation is 6 weeks in duration and students work across outpatient and inpatient settings. Students are expected to attend didactics unless a schedule conflict occurs.

For the first half of the year, 14-18 NC didactics were available to students. NC didactics were 1 hour in length and the number delivered was determined by faculty availability. The majority of faculty use PowerPoint presentations. Topics were determined by the Pediatric Clerkship Directors based on NBME Subject Examination topics, previous student NMBE Subject Examination performances, and student feedback. For the second half of the year, the majority of didactics occurred in an AHD format. AHD occurred weekly for a total of 6 AHDs with 2-3 didactics per AHD; 11-14 sessions were available to students. Similar to the NC, faculty availability determined the number of didactics delivered. Faculty, topics, delivery of didactic, and duration of sessions remained the same for both formats.

Impact of the AHD didactics was assessed by student attendance, learner satisfaction, and NBME Subject Examination performance. Student attendance was recorded for each didactic and attendance rate calculated for each student. Learner satisfaction was assessed by an online survey at the end of the clerkship rotation. Students were asked to "rate the quality of the rotation conferences/lectures" on a 1-4 scale, with "4" being "excellent." A free text was available for student comments. Student NBME Subject Examination performance was standardized using the national mean and standard deviation for the corresponding quarter as scores tend to increase during an academic year.

IRB was filed and approved through Wake Forest Baptist Medical Center.

Results/Analysis

A total of 118 students were included in this study. Fifty-eight students participated in the NC group and 60 in the AHD group. Analyses show low correlations between attendance rate, didactic ratings, and NBME Subject Examination performance. The correlation between NBME Subject Examination performance and didactic rating is 0.08 and the correlation between attendance and the didactic rating is 0.13. Separate linear regression analyses were conducted using SAS® to examine group differences in NBME Subject Examination performance, attendance rate, and didactic ratings.

Results are presented in **Table 1**. NBME Subject Examination performance is similar for both groups (0.04 vs 0.23, F(1, 116)=1.31, p > 0.26). Attendance was significantly higher for AHD compared with NC (90.9% vs 73.3%, F(1, 114)=63.27, p<0.05). Additionally, the mean didactic rating is 3.81 for the AHD group, significantly higher than
3.60 for the NC group (F(1, 113)=6.56, p <0.05).

### Table 1. Impact of AHD on Attendance, Learner Satisfaction, and NBME Subject Examination

| Students in the first half of the year (N=58) | Lecture attendance percent | Mean ratings for the survey question on rotation lecture (1-poor, 2-fair, 3-good, 4-excellent) | Shelf score (Z score) |
|---------------------------------------------|----------------------------|---------------------------------------------------------------------------------|---------------------|
| Students in the second half of the year (half day project) (N=58) | 73.32(STD=14.94)* | 3.60(STD=0.49)§ | 0.04(STD=0.80) |
| Students in the second half of the year (half day project) (N=58) | 90.90(STD=7.77)* | 3.81(STD=0.40) § | 0.23(STD=1.02) |

*significantly higher attendance rate for the students who attended academic half day project (p <0.001);
§significantly higher mean ratings for the survey question on the quality of rotation lecture (p <0.05)

Student feedback further supports the AHD over a NC didactic delivery. A NC student wrote "It's terribly distracting and diluting to need to figure out on a daily basis whose conference we need to attend, how many, when, what time, etc." while another wrote "Routine in this kind of thing is very helpful in allowing us to stay engaged on the wards." Regarding AHD a student wrote "I particularly enjoyed that they were all on one day and therefore we did not miss opportunities to learn from the residents and our patients in the afternoons."

### Discussion

Presenting didactic sessions in an AHD format during the third year pediatric clerkship rotation was associated with higher student attendance, improved perception of didactic quality, and similar student NBME Subject Examination performance. NBME Subject Examination performance and didactic attendance did not correlate with higher didactic ratings. This is the first study to assess the impact of an AHD on undergraduate medical education.

Several studies have demonstrated an AHD can positively impact resident attendance.(Moreno et al., 2013; Zastoupil et al., 2017) Learner perception of educational time has also been shown to improve in the AHD model.(Moreno et al., 2013; Ha et al., 2014; Eid et al., 2015; Robbins, Sullivan and Smith, 2018) Additional studies in graduate medical education have found the AHD may improve medical knowledge. (Batalden, Warm and Logio, 2013; Ha et al., 2014) (Eid et al., 2015; Robbins, Sullivan and Smith, 2018) A study by Winter et al. is the only AHD study which did not show significant improvement in resident knowledge.(Winter et al., 2007) Additional AHD benefits include a positive impact on faculty satisfaction (Batalden, Warm and Logio, 2013; Robbins, Sullivan and Smith, 2018) and social interaction benefits for learners.(Chen et al., 2015)

While this study had an excellent response rates, several limitations exist. While differences in student maturity in the second half of the year is accounted for using the Z-scores for the NBME Subject Examination, but may bias learner perception of didactic quality. While faculty presenters and didactic length remained identical, the AHD had less teaching topics compared to the NC didactics due to faculty availability. Due to lack of published studies on
AHDs in undergraduate medical education, other institutions may already incorporate AHDs be aware of the benefits. Further this project was performed at a single medical school and only in pediatrics limiting our ability to generalize these results.

**Conclusion**

This is the first study to assess the impact of an AHD in undergraduate medical education and results appear promising and consistent with experiences of an AHD in graduate medical education. Future studies should incorporate AHD into clerkship rotations to assess impact on not only learner satisfaction and medical knowledge, but consider evaluating the impact on faculty satisfaction and social aspects.

**Take Home Messages**

Clerkship directors should consider incorporation of an Academic Half Day to teach didactics to students in undergraduate medical education.

**Notes On Contributors**

Taylor Lammert, M.D. has started a Pediatric internship year at Cincinnati Children's Hospital.

Daniel P. Krowchuk, M.D. is Professor of Pediatrics and Dermatology at Wake Forest School of Medicine where he also serves as co-director of Pediatric Dermatology and Director of Adolescent Medicine. Dr. Krowchuk has more than 35 years' experience teaching pediatric residents and medical students with an emphasis on dermatologic problems affecting infants, children and adolescents.

Hong Gao, Ph.D. is Assistant Professor and the Director of Evaluations and Assessment at Wake Forest University School of Medicine where she oversees testing and evaluations for undergraduate medical education. Her more recent work focuses on medical school admission data and effectiveness of various instructional interventions in medical schools.

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Appendices

None.

Declarations

The author has declared that there are no conflicts of interest.

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Ethics Statement

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