

2023

## A Survey of Internal Medicine Residents Comparing Virtual Academic Half Day to Traditional Academic Half Day Model

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### Recommended Citation

Verghese B, Thabet SN. A Survey of Internal Medicine Residents Comparing Virtual Academic Half Day to Traditional Academic Half Day Model. *Advances in Clinical Medical Research and Healthcare Delivery*. 2023; 3(4). doi: 10.53785/2769-2779.1187.

ISSN: 2769-2779

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# A Survey of Internal Medicine Residents Comparing Virtual Academic Half Day to Traditional Academic Half Day Model

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## Abstract

**Introduction.** Resident educational activities vary from institute to institute, with daily noon conferences or weekly academic half-day (AHD) models where dedicated protected time is available for resident teaching. The COVID-19 pandemic limited in-person educational activities, forcing residency programs to move toward virtual options, including the academic half-day (AHD). This survey-based cohort study aimed to understand residents' perception of virtual versus in-person AHD for educational activities during residency.

**Methods.** The survey was emailed to 72 Internal Medicine residency program residents at our institute during the first week of March, 2022. The responses were analyzed using descriptive statistics, Pearson's chi-square test, and Fisher's exact test.

**Results.** Sixty-one residents responded to the survey and 59 were included in the analysis. Of the residents, 47.5 % (n = 28) were satisfied with their virtual learning experience, 23.7% (n=14) felt that it could be better, and 28.8% (n=17) were neutral about the virtual AHD experience. The 2nd and 3rd-year residents preferred a virtual model despite being earlier, indicating that an in-person AHD had more advantages than a virtual one. While 40.4% of all residents preferred AHD to be in person, 31.6% wanted it to be virtual, and 28.1% preferred a hybrid model.

**Conclusions.** Virtual AHD using Zoom is a satisfactory alternative to in-patient AHD if the quality of talks can be improved. Residents performing clinical work during virtual AHD are challenging, and innovative solutions should be identified to prevent this from occurring.

## Keywords

Academic Half Day, Resident Education, Virtual Teaching, Innovation, Resident Satisfaction

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## Conflict of Interest Statement

None

## Cover Page Footnote

None

## ARTICLE

# A Survey of Internal Medicine Residents Comparing Virtual Academic Half Day to Traditional Academic Half Day Model

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## 1. Introduction

Resident educational activities vary from institute to institute, with daily noon conferences or weekly academic half-day (AHD) models, where dedicated protected time is available for resident teaching.<sup>1</sup> The weekly AHD model has begun to replace daily conferences/lectures in many residency programs in the United States.<sup>2</sup> It has improved attendance in educational activities and resident and faculty satisfaction.<sup>3</sup> The COVID-19 pandemic limited in-person educational activities, forcing residency programs to move toward virtual options, including AHD. Many programs increased

the number of virtual educational activities despite minimal experience.<sup>4</sup> A study on virtual morning reports showed that, overall, only 18% of residents preferred virtual morning reports, while 42% preferred them to be in-person.<sup>5</sup> Little is known about residents' perceptions of virtual AHD.

In this survey-based cohort study, we aimed to understand residents' perception of virtual versus in-person AHD.

## 2. Participants

The AHD at our Institute is structured every Tuesday from 12:30 to 4:30 PM. It is a dedicated educational time protected for the residents, during

Accepted 20 September 2023.  
Available online ■■■

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<https://doi.org/10.53785/2769-2779.1187>  
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which they are not expected to perform any clinical activity. This is mandatory for all residents except those on vacation, doing night shifts, or working in the Intensive Care Unit (ICU). During the pandemic, this was switched to a virtual model on a web-based teleconference application (Zoom®) where residents could attend to their laptops or mobile devices. The second-and third-year residents had experience with both in-person and virtual AHD, but the first-year residents were exposed only to virtual AHD.

### 3. Survey design

The survey was designed to evaluate four domains of AHD: resident education, interaction with peers/speakers, challenges of the online platform to deliver AHD, and the future direction of AHD. It consisted of 20 questions assessing all domains mentioned (Supplement 1). The authors designed the survey based on previously published studies assessing virtual educational activities, including conferences and morning reports 5, and reframed it based on local needs.

### 4. Data collection

The survey was emailed to all internal medicine residency program residents at our institute during

the first week of March, 2022. The survey was sent to 72 residents (24 in each training year). They received a daily reminder to complete the survey for one week, and the completion was voluntary and anonymous. The study data were collected and managed using REDCap electronic data capture tools hosted at our institute.<sup>6</sup> The Institutional Review Board granted the study an exempt status.

### 5. Statistical analysis

Data were imported from REDcap and analyzed using IBM SPSS Statistics for Windows, version 29.0 (IBM Corp., Armonk, N.Y., USA). All items were summarized for each year of training and with all three years combined. Data were presented as frequencies, and when appropriate, Pearson's Chi-squared test and Fisher's Exact Test were used.

### 6. Results

The survey completion rate was 86.9% for first-year residents, 79.2% for second-year residents, and 77.3% for the 3rd year residents giving an overall complete response rate of 82.6%. Two incomplete responses were excluded from analysis.

The results showed that 28 (47.5%) respondents were satisfied with the overall learning experience on the virtual platform, 17 (28.8%) were neutral, and

Table 1. Year of training and breakdown of level of satisfaction with various activities during the Virtual AHD.

Characteristic	1st Year, n = 22	2 nd Year, n = 19	3rd Year, n = 18	Cumulative n = 59
<b>Overall learning experience</b>				
Can be better	3 (14%)	5 (26%)	6 (33%)	14 (24%)
Neutral	8 (36%)	3 (16%)	6 (33%)	17 (29%)
Satisfied	11 (50%)	11 (58%)	6 (33%)	28 (47%)
<b>Group learning</b>				
Can be better	3 (14%)	3 (16%)	3 (17%)	9 (15%)
Neutral	3 (14%)	4 (21%)	6 (33%)	13 (22%)
Satisfied	16 (73%)	12 (63%)	9 (50%)	37 (63%)
<b>Quality of talks</b>				
Can be better	5 (23%)	0 (0%)	1 (5.6%)	6 (10%)
Neutral	3 (14%)	5 (26%)	8 (44%)	16 (27%)
Satisfied	14 (64%)	14 (74%)	9 (50%)	37 (63%)
<b>Wellness activities</b>				
Can be better	10 (45%)	4 (21%)	5 (28%)	19 (32%)
Neutral	3 (14%)	5 (26%)	8 (44%)	16 (27%)
Satisfied	9 (41%)	10 (53%)	5 (28%)	24 (41%)
<b>Speaker interaction</b>				
Can be better	7 (32%)	4 (21%)	3 (17%)	14 (24%)
Neutral	5 (23%)	5 (26%)	9 (50%)	19 (32%)
Satisfied	10 (45%)	10 (53%)	6 (33%)	26 (44%)
<b>Level of participation</b>				
Can be better	6 (27%)	5 (26%)	5 (28%)	16 (27%)
Neutral	8 (36%)	4 (21%)	10 (56%)	22 (37%)
Satisfied	8 (36%)	10 (53%)	3 (17%)	21 (36%)
<b>Level of socialization</b>				
Can be better	10 (45%)	6 (32%)	6 (33%)	22 (37%)
Neutral	5 (23%)	6 (32%)	9 (50%)	20 (34%)
Satisfied	7 (32%)	7 (37%)	3 (17%)	17 (29%)

Table 2. Comparing virtual and in-person AHD activities.

Characteristic	2 nd Year, N = 19	3rd Year, N = 18	p-value
<b>Overall</b>			<0.001
In-person better	10 (53%)	10 (56%)	
No difference	2 (11%)	1 (5.6%)	
Online better	7 (37%)	7 (39%)	
<b>Group learning</b>			<0.001
In-person better	9 (47%)	9 (50%)	
No difference	0 (0%)	2 (11%)	
Online better	10 (53%)	7 (39%)	
<b>Level of participation</b>			<0.001
In-person better	8 (42%)	10 (56%)	
No difference	3 (16%)	1 (5.6%)	
Online better	8 (42%)	7 (39%)	
<b>Quality of talks</b>			<0.001
In-person better	10 (53%)	9 (50%)	
No difference	1 (5.3%)	3 (17%)	
Online better	8 (42%)	6 (33%)	
<b>Interaction with speaker</b>			<0.001
In-person better	11 (58%)	11 (61%)	
No difference	2 (11%)	1 (5.6%)	
Online better	6 (32%)	6 (33%)	
<b>Level of socialization</b>			<0.001
In-person better	13 (68%)	12 (67%)	
No difference	2 (11%)	1 (5.6%)	
Online better	4 (21%)	5 (28%)	

14 (23.7%) indicated that the overall learning experience on zoom could be better.

An individual breakdown of the survey responses by year of training is shown in Table 1. With the virtual platform, the residents were satisfied with

the overall experience, group learning, quality of talk, wellness activities, and interaction with the speaker. With the level of socialization, they felt that it could be better, and with their level of interaction, they were neutral.

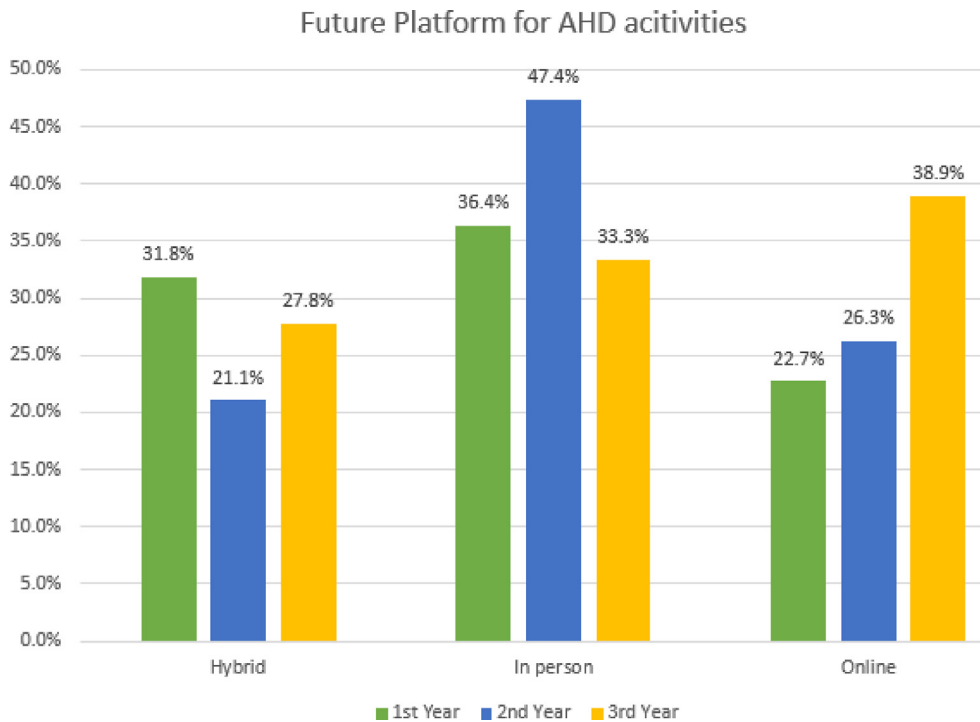


Fig. 1. Class-wise breakdown for future AHD platform.

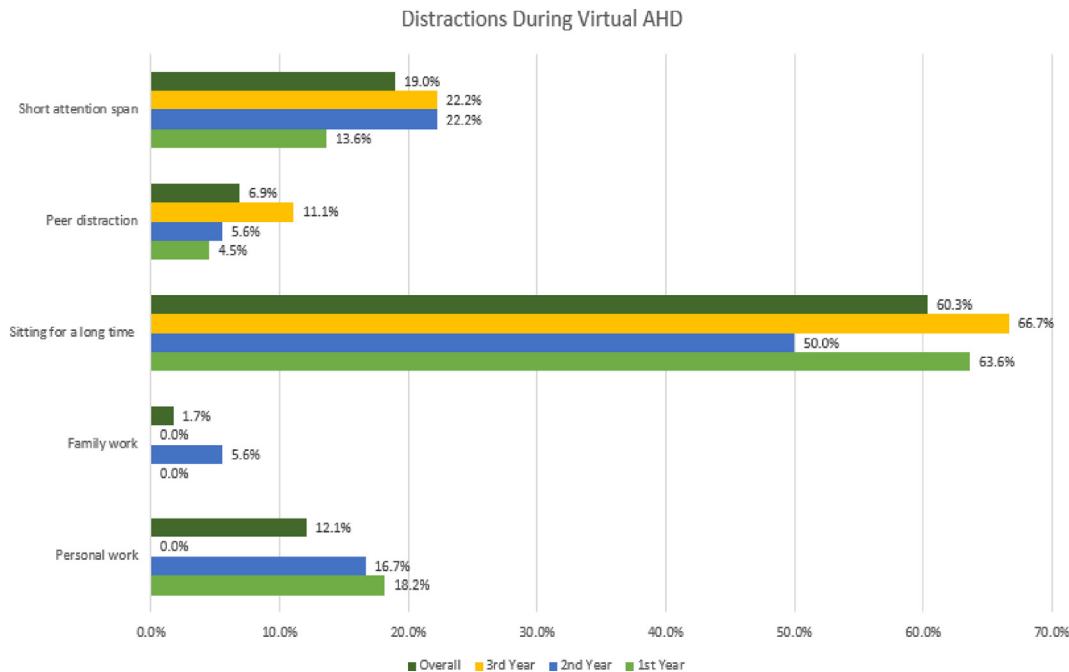


Fig. 2. Distractions during the virtual AHD.

When the second-and third-year residents were asked to compare their in-person AHD learning experience with the virtual platform, 54% preferred in-person AHD, 37.8% virtual AHD, and 8.1% said it made no difference which was statistically significant with a  $p < 0.001$ .

The individual breakdown of the questions showed a similar theme where the 2nd and 3rd-year residents felt that in-person AHD was better than the virtual AHD (Table 2).

When asked which AHD model the residents preferred moving forward, 40.4% preferred it to be in person, 31.6% wanted it virtual, and 28.1% wanted a hybrid model. On further breakdown based on the resident year, it was surprising that most of the 3rd year residents preferred the virtual model despite having rated the in-person AHD model better (Fig. 1).

We asked additional questions to identify distractions during the AHD (Fig. 2). Most residents felt that sitting for a prolonged period was their main distraction (63.6%).

When asked if residents were doing clinical work during their virtual AHD, 47.5% of the residents admitted to such work, with most of them being first-year residents (68.2%) (Fig. 3).

## 7. Discussion

In this survey-based cohort study, we assessed internal medicine resident's perceptions of virtual

AHD during the COVID-19 pandemic era. The responses suggest that most residents were satisfied with their virtual AHD experience, except with regard to socialization with their peers and the level of participation during the AHD activity. These results are consistent with those of another study that assessed virtual morning reports.<sup>5</sup> Interestingly, while most of the residents preferred to have an in-person AHD, most of the 3rd year residents still preferred to have a virtual AHD, despite earlier indicating that an in-person AHD had more advantages than a virtual model. We believe this is because the 3rd year residents have been previously exposed to the topics discussed in the AHD and focus on leaving work at the earliest. It is also possible that since we were in the middle of the pandemic, the virtual option was thought to be the safest.

While 40.4% of all the residents preferred AHD to be in person, 31.6% wanted it to be virtual, and 28.1% preferred a hybrid model, indicating that a majority of the residents would be ok with some degree of a virtual component in the AHDs. A hybrid model brings a variety into their learning, and residents on offsite and ICU rotations can join an AHD.

One of the main challenges of virtual AHD is that 52.5% of the residents reported taking care of clinical work during AHD. Access to computers and electronic medical records during virtual AHD makes it easier for residents to become distracted by clinical work. Among the residents, 63.6% reported being distracted by sitting in front of the screen for a

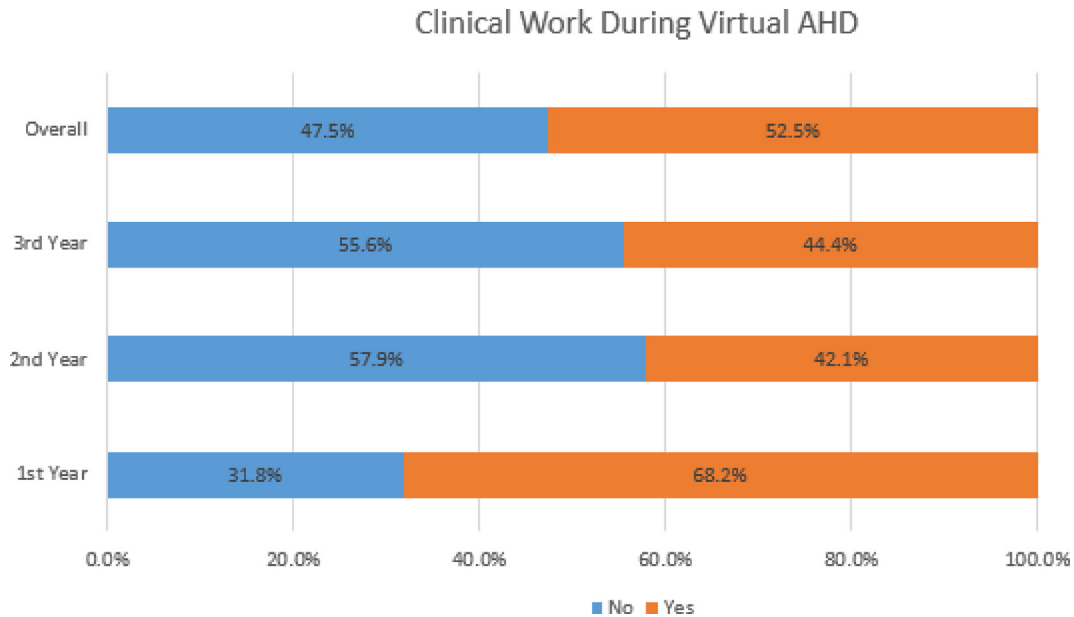


Fig. 3. Clinical work during the virtual AHD.

long time. It is a well-known challenge that has existed for a long time, but has become more obvious with virtual meetings during the pandemic.<sup>7</sup> Some research suggests that people tend to lose focus after 10 minutes, and they make suggestions to improve focus, such as using the Anshel 20-20-20 rule and having interactive sessions.<sup>8,9</sup>

Our study had some limitations. This was a single-center study of only internal medicine residents, with a small sample size. There could also be a degree of recall bias in the 2nd and 3rd-year residents when they were asked to compare their in-person AHD experience with the virtual one. However, since the results were consistent between both groups, we are confident that it was insignificant.

## 8. Conclusion

In conclusion, virtual AHD using zoom appears to be a satisfactory alternative to in-person AHD for educational activities during residency. Residents performing clinical work during virtual AHD is challenge, and innovative solutions should be identified to prevent this from occurring. A hybrid model of virtual and in-person teaching activities could have a more significant benefit for resident education, and this should be explored further.

## Conflicts of interest

None.

## Supplement 1.

Survey Questionnaire.

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What year are you in?	<input type="radio"/> 1 <sup>st</sup> <input type="radio"/> 2 <sup>nd</sup> <input type="radio"/> 3 <sup>rd</sup>
Education (for R2s and R3s): Level of the overall learning you are getting:	<input type="radio"/> Satisfied. <input type="radio"/> Neutral. <input type="radio"/> Can be better.
Level of overall learning compared to in-person AHD:	<input type="radio"/> Virtual is better than in-person. <input type="radio"/> Virtual and in-person are the same. <input type="radio"/> In-person is better than virtual.
Group learning activities (TBL, Professor rounds .. etc):	<input type="radio"/> Satisfied. <input type="radio"/> Neutral. <input type="radio"/> Can be better.
Group learning activities compared to in-person:	<input type="radio"/> Virtual is better than in-person. <input type="radio"/> Virtual and in-person are the same. <input type="radio"/> In-person is better than virtual.
Level of participation:	<input type="radio"/> Satisfied. <input type="radio"/> Neutral. <input type="radio"/> Can be better.
<ul style="list-style-type: none"> <li>To ask questions, answer questions, raise a point for discussion, or make comments.</li> </ul>	



Level of participation compared to in-person AHD:

Lectures (for R2s and R3s):  
Quality of lectures:

Quality of lectures compared to in-person:

Level of participation:

- Attendings asking question, requesting residents to comment on labs/images/EKGs.

Level of participation compared to in-person AHD:

Are you taking care of clinical work during AHD?

What Distracts you during AHD (select all that applies)?

Social aspect (for R2s and R3s):

Do you look at educational activities as an opportunity to socialize:

Level of socialization:

Level of socialization compared to in-person AHD:

Do you turn your camera on during AHD:

What do you prefer for participation:

Wellness activities during virtual AHD:

Future (for R2s and R3s):

What do you prefer in the future:

- ☐ Virtual is better than in-person.
- ☐ Virtual and in-person are the same.
- ☐ In-person is better than virtual.

- ☐ Satisfied.
- ☐ Neutral.
- ☐ Can be better.
- ☐ Virtual is better than in-person.
- ☐ Virtual and in-person are the same.
- ☐ In-person is better than virtual.
- ☐ Satisfied.
- ☐ Neutral.
- ☐ Can be better.
- ☐ Virtual is better than in-person.
- ☐ Virtual and in-person are the same.
- ☐ In-person is better than virtual.
- ☐ Yes
- ☐ No
- ☐ Family.
- ☐ Clinical work.
- ☐ Long screen time/I cannot focus on the screen for time of AHD.
- ☐ Other (provide free writing)

- ☐ Yes.
- ☐ No.
- ☐ Satisfied.
- ☐ Neutral.
- ☐ Can be better.
- ☐ Virtual is better than in-person.
- ☐ Virtual and in-person are the same.
- ☐ In-person is better than virtual.
- ☐ Yes.
- ☐ No.
- ☐ Audio + Video.
- ☐ Audio only.
- ☐ Chat box.
- ☐ Satisfied.
- ☐ Neutral.
- ☐ Can be better.

- ☐ In-person AHD.
- ☐ Virtual AHD.
- ☐ Hybrid AHD.

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