

When Do Ophthalmology Residents Study to Prepare for The National Exam?

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ABSTRACT

Background: Hospital clinical services are the focus of ophthalmology residents' work who have limited time to study. We have been offering residents a progress test since 2022 to help with their studies, particularly while preparing for the annual national exams.

Aims: To report the time allotted to ophthalmology residents to complete the progress exam and to notify educational institutes about the suggested amount of time that residents should spend studying.

Case Discussion: Data was gathered and examined from the online progress test that was accessible via the Gadjah Mada e-learning (GAMEL) platform. The exam consisted of sixty multiple-choice questions and was available for access 24 hours a day for two weeks. This study used both descriptive and quantitative analysis to examine the test's duration, scores, and completion time.

Results: Overall, 42 out of 55 residents (76.4%) and 42 out of 56 residents (75.0%) finished the progress test, completing a total of 60 and 51 test attempts in 2022 and 2023, respectively. The mean score attained ranged from 3.3 to 70.0. The majority of locals (65.8%) took the test between 16 and 23 Western Indonesian Time (WIT), followed by 19.8% and 14.4% between 09 and 16.00 and 03 and 09.00 WIT. The exam took 55.2 +/- 20.9 minutes on average to finish.

Conclusion: The majority of ophthalmology residents take less than an hour on average to complete the progress exam after working hours. Programs for preparing for national exams might be planned during this period to best accommodate residents.

Keywords: progress test, online access time, ophthalmology resident

PRACTICE POINTS

- Online progress exams for theoretical learning have been demonstrated to be a successful learning tool for ophthalmology residents, especially during hectic periods when providing clinical services.
- The majority of resident access times for online progress tests are after clinical services, namely in the afternoon and evening from 16.00 to 23.00 WIT.

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INTRODUCTION

In the Department of Ophthalmology, most of the learning takes place in practice areas. Clinical learning provides an opportunity for them to develop the skills and professional attitudes of an ophthalmologist.¹ The challenge is that guidance between the supervisor and the ophthalmology resident is often hampered due to busy clinical services.

Meanwhile, the Department of Ophthalmology aims to produce medical specialists who have professional knowledge, skills, and attitudes, so that they can solve problems scientifically and apply their knowledge optimally to the community following their specialization. To achieve specialist medical competence, professional skills and attitudes need to be balanced with an understanding of knowledge. One of the optimizations that can be done is by innovating learning media technology.²

Learning media technology can be used as a clinical learning medium to bridge the relationship between residents and supervisors. Through learning media technology, residents can carry out self-directed learning, and supervisors can identify progress in knowledge and analyze cases from the total score obtained by residents.³

Since 2017, the Learning Management System (LMS) has been pioneered in the Department of Ophthalmology to facilitate self-directed learning of ophthalmology residents. During the COVID-19 pandemic, LMS was increasingly being developed by simulating random ophthalmology case questions that required analysis and understanding of theoretical knowledge in answering them. Starting in 2022, ophthalmology residents are required to access the LMS at least once, which is called an online progress test. The online progress test can be accessed in two weeks at the end of each semester to prepare for national exams and competency tests. Within two weeks, residents can access the progress test anytime and anywhere. With this reference, the progress of student abilities can be measured, developed, and evaluated.⁴

CASE DESCRIPTION

The study was conducted at Gadjah Mada University's Department of Ophthalmology, Faculty of Medicine, Public Health, and Nursing, from August 2022 to April 2023. The research subjects were all accessing ophthalmology residents online progress test within the research timeframe. The number of residents accessing the online progress test in 2022 will be 60 residents and in 2023 there will be 51 residents. The curriculum for the ophthalmology doctor education program is 8 semesters, where at the end of each semester there is a final station exam, and at the end of the study period you have to take local and national exams. The stages that must be taken consist of cataract, cornea, and refractive surgery; infection and immunology; glaucoma; vitreo-retinal; neuro-ophthalmology; refraction and vision optimization; oncology; oculoplasty and reconstruction; pediatric ophthalmology; strabismus; and community ophthalmology.

We retrieved and examined data from the online progress test that was accessible on the Gadjah Mada e-Learning (GAMEL) platform. The exam had sixty multiple-choice questions and was available for two weeks, 24 hours a day. This research provides descriptive and quantitative analysis of the number of residents taking the online progress exam, the attention level of resident scores in each semester, and the resident's available time to complete the test.

Table 1 displays the results of the online progress test that GAMEL makes available, and it is explained below. The majority of residents in ophthalmology take their time doing the progress exam, which takes an average of less than an hour (55.2±20.9 minutes) after working hours. The online progress exam was finished by 42 out of 55 residents (76.4%) and 42 out of 56 residents (75.0%) in 2022 and 2023, respectively, after a total of 60 and 51 test attempts. The obtained mean score ranged from 3.3 to 70.0. 65.8% of the people took the test between 16 and 23 Western Indonesian Time (WIT), followed by 19.8% and 14.4% between 09 and 16.00 and 03 and 9.00 WIT.

Table 1. Data from the online progress test available from GAMEL

	2022	2023
Residents, N(%)	42 (76.4)	42 (75.0)
Gender (Female), (Male) N(%)	41 (68.3) 19 (31.7)	32 (62.8) 19 (37.2)
Semester grade, N(%)		
1	9 (15)	9 (17.7)
2	8 (13.3)	12 (23.5)
3	5 (8.3)	6 (11.8)
4	6 (10.0)	13 (25.5)
5	6 (10.0)	1 (2.0)
6	9 (15.0)	0
7	10 (16.7)	7 (13.7)
8	1 (1.7)	1 (2.0)
>8	6 (10.0)	2 (3.9)
Total test attempts, N	60	51
Test score, mean (min-max)	44.77 (3.3 - 70.0)	41.7 (0 - 63.3)
Test score per semester grade, mean (min-max)		
1	35.00 (3.3 - 50.0)	32.41 (25.0 - 40.0)
2	45.56 (11.67 - 56.67)	35.42 (0.0 - 51.67)
3	48.67 (38.3 - 63.3)	50.00 (35.0 - 63.3)
4	54.16 (45.0 - 68.3)	49.23 (23.3 - 63.3)
5	41.67 (33.33 - 51.67)	48.3 (48.3 - 48.3)
6	50.93 (25.0 - 70.0)	46.2 (0.0 - 61.67)
7	47.50 (28.33 - 61.67)	0
8	0	53.3 (53.3 - 53.3)
>8	35.28 (11.67 - 60.0)	22.5 (15.0 - 30.0)
p-values (ANOVA)	0.121	0.015
Time to complete test (minutes), mean (min-max)	59.56 (5.0 - 100.0)	50.25 (6.0 - 60.0)
Time to complete test per semester grade (minutes), mean (min-max)		
1	62 (36 - 100)	35.3 (6 - 57)
2	83 (56 - 100)	56.9 (40 - 60)
3	67.4 (44 - 96)	48.5 (34 - 60)
4	68.5 (48 - 99)	57.8 (49 - 60)
5	51.5 (35 - 70)	59 (59 - 59)
6	67.1 (5 - 99)	53.4 (36 - 60)
7	45.8 (12 - 68)	0
8	0	59 (59 - 59)
>8	36.7 (5 - 75)	14 (14 - 14)
p-values	0.0052 (ANOVA)	0.0012 (Kruskall Wallis)
Time of access, N(%)		
09.00 - 16.00	12 (20.0)	10 (19.61)
16.00 - 23.00	35 (58.33)	38 (74.51)
23.00 - 03.00	0	0
03.00 - 09.00	13 (21.67)	3 (5.88)

DISCUSSION

Most of the ophthalmology residents allocate time to participate in online progress tests, and some of them access it more than once. They complete the online progress tests after working hours, with an average duration of under one hour. National exam preparation programs can be scheduled during this time to enhance resident engagement. The residents' busyness in serving patients at the clinic does not diminish their willingness to self-study by working on online progress tests that can be accessed with time and place flexibility.⁵

Generally, residents prefer this flexibility as it allows them to adapt to their own time and opportunities they have.⁶ With the e-learning concept used in these online progress tests, residents can be encouraged in their learning enthusiasm and increase their awareness to self-study creatively to deepen their understanding of the material.⁷ A study showed that 147 residents had an improvement in theoretical understanding reflected through improved exam scores in the group that accessed e-learning frequently.⁶ Supervisors are also more flexible in reviewing residents' learning progress by identifying knowledge progression through case analysis abilities, correct and incorrect answer items, and total scores obtained because they are automatically recorded through the system.⁸

The weakness of online progress tests is the lack of a specific time limit for completing them, so there are still residents who take more than 60 minutes out of a total of 60 questions. The weakness of the online progress test is the fixed test time limitation. An automatic additional time setting could be applied in order to help the resident who need more than 60 minutes to answer 60 questions, as simulate resident's local and national exam. Further efforts needed for development include adding discussion features between residents and supervisors so that residents can get the necessary feedback.¹⁰ Question banks need to be developed to improve the objectivity of the results of online progress test scores.¹¹

CONCLUSIONS

The test took 55.2±20.9 minutes on average to finish. The majority of residents in ophthalmology

participated in this test, and some of them did so more than once. They took an average of less than an hour to complete the online progress exam after working hours (16.00 to 23.00). Programs for preparing for national exams might be organized now to improve resident engagement.

RECOMMENDATIONS

Improving the progress of the progress test being developed by adding more question banks and creating an even better system so ophthalmology residents can access their case discussions.

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COMPETING INTEREST

There is no conflict of interest.

AUTHORS' CONTRIBUTION

Doni Widyandana – research implementation, corresponding author and publication.

Felicia Widyaputri – collecting data and data analysis.

Supanji – developing paper.

Muhammad Bayu Sasongko – developing paper.

Irmastuti Lukitaning Alam – collecting data and data analysis.

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