



EUROPEAN
HEMATOLOGY
ASSOCIATION

EUROPEAN HEMATOLOGY EXAM 2021 REPORT



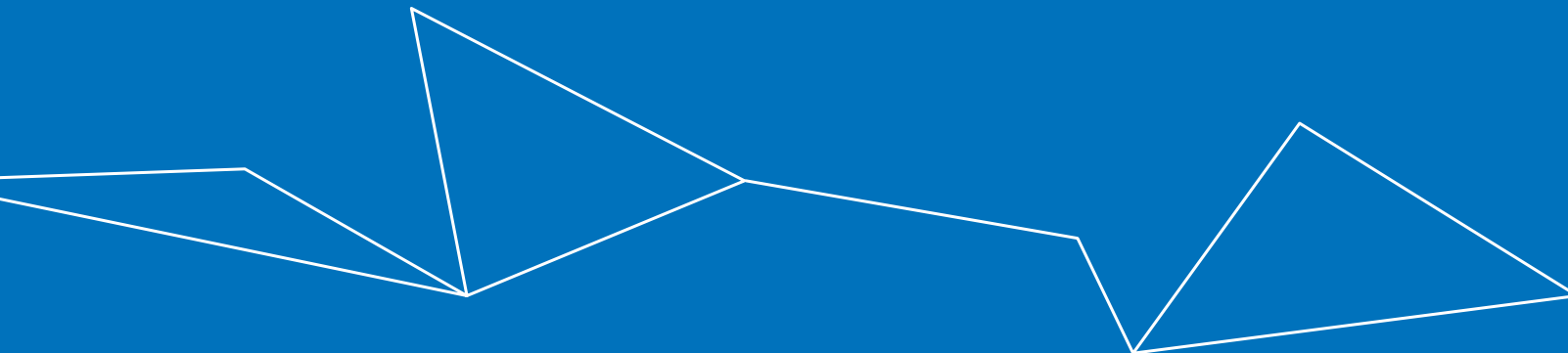
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| THE EXAM



Introduction

The fifth European Hematology Exam took place on June 3, 2021. In 2021, the EHA Congress was virtual, and no main exam session could take place. National hematology societies were offered the possibility to organize a session for candidates residing in their countries.

Format

The exam consists of 100 multiple choice questions testing the candidates' knowledge in all eight sections of the [European Hematology Curriculum](#). The participants have 2,5 hours to complete the exam. The strength of this method is that it allows testing of a large sample size of items within a limited time, as well as the assessment of knowledge in several areas with high reproducibility. Moreover, it can be used in a web-based format with automatic objective correcting and scoring.

This resulted in 188 candidates taking the exam simultaneously at 15 locations:

Switzerland (Bern)	Bulgaria (Sofia)
Turkey (Ankara)	Portugal (Lisbon)
Spain (Madrid)	Saudi Arabia (Riyadh)
Greece (Athens)	Kuwait (Kuwait City)
Iraq (Baghdad)	Lithuania (Vilnius)
Armenia (Yerevan)	Luxembourg (Differdange)
Albania (Tirana)*	Croatia (Zagreb)*
Egypt (Cairo)*	

*New locations

Exam candidate

"It was a useful and a very good opportunity to test myself and to learn new things."

Candidates

As national hematology societies organized the sessions, and no main session took place, candidates could only participate if they resided in one of the organizing countries. The number of candidates per country is listed in Table 1.

Country	Nr
Albania	6
Armenia	6
Bulgaria	4
Croatia	1
Egypt	11
Greece	7
Iraq	17
Kuwait	8
Lithuania	2
Luxembourg	1
Portugal	27
Saudi Arabia	21
Spain	45
Switzerland	15
Turkey	17
TOTAL	188



Examination day in Switzerland.



The exam location in Portugal



The exam location in Kuwait.

Table 1. List of candidates of the fifth European Hematology Exam according to the country of residence (= exam location).

The exam is aimed at hematologists who recently finalized specialty training. Figure 1 shows that this is the largest group of participants. However, mid-career and senior hematologists, as well as junior hematology residents, are also interested in examining their knowledge.

Year completion specialty training

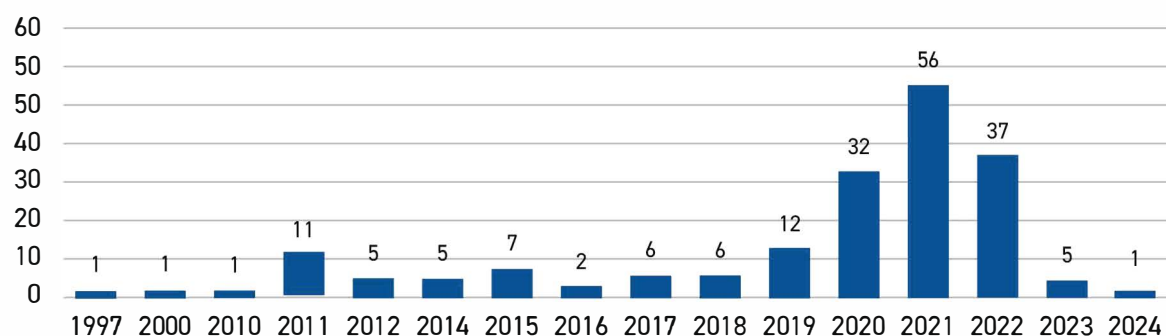


Figure 1. Number of candidates per year of completion specialty training

Parallel sessions

In 2018, the Swiss Society of Hematology (SSH) took the initiative to organize a parallel session in Bern, Switzerland. This session was open to all Swiss candidates and served as a successful pilot for the implementation of the European Hematology Exam as part of the official Swiss end-of-training exam.

In 2019, four more national hematology societies organized parallel sessions to give an opportunity to participate to local candidates who could not attend the Congress.

Why did local organizers decide to organize an exam session?

"It is not always easy for young fellows to attend EHA meetings, this parallel exam encourages them to attend and test their knowledge."

– Local Exam organizer

In 2020, the experience gained in organizing parallel sessions in previous years proved to be instrumental in offering the exam when organizing a main session was not possible. Twelve national societies decided to collaborate with EHA and organized a session. In 2021, we continued to build on that experience and the exam took place in fifteen countries simultaneously.

We have evaluated the collaboration with the national societies through a survey. 14 of them responded. Seven of the national societies indicated that they want to organize a session in 2022, and seven more are considering it. All of them recommend national societies in other countries to organize a session. The national societies also said communication and collaboration with the EHA Office was experienced as particularly good.

What did local organizers appreciate?

"The communication of EHA staff with us and the participants and the technical system worked very well."

– Local Exam organizer

National hematology societies of other countries are welcome to [contact EHA](#) to discuss the implementation of the European Hematology Exam as part of their national exams and/or organize local parallel sessions.



The Exam location in Albania.



QUALITY ASSURANCE

Question writing and review process

To ensure that the items (questions, answer options, and keys) are of high scientific and educational quality, adhere to the European recommended level, and cover the Curriculum's full spectrum, EHA established a question Writers Group, consisting of 20 experienced hematologists. Educationalists trained them in how to write good exam questions. In pairs, these writers worked on questions and reviewed each other's questions. Questions were added to a database. The Curriculum-Exam Committee selected the final 100 questions (which represented Curriculum sections) and performed a second and third review. Ultimately, a final check was done by the Chairs of the EHA Education Committee, Curriculum-Exam Committee, and Question Writers Group.

Analysis of the results

To guarantee independent assessment of the quality of the exam and passing score definition, EHA collaborates with Cito¹, an internationally recognized professional research and knowledge institute in the field of educational measurement and testing. Cito's Psychometric Research- and Knowledge Center performed the psychometric analysis of the exam. This analysis takes place after the exam, as it is based on the answers given by candidates.

Item (question) analysis

To evaluate each item's quality, Cito calculated Rit and Rir values²: the correlation between item score and exam score. The higher this correlation, the better the item delineates candidates on the measured ability. In addition, Cito calculated the P-value (the popularity³ of the alternative that is being considered correct) of each item. Usually, the correct response is the response that is most given. Therefore, if one of the incorrect answers is more popular than the correct answer, this is remarkable. Based on this analysis, 11 questions showed a deviant or remarkable pattern. This does not necessarily mean that those questions are incorrect; this is a signal to investigate these items further. In a thorough scientific review, the Chairs of the EHA Education Committee, Curriculum-Exam Committee, and Question Writers Group reviewed all remarkable items. They concluded that one was ambiguous. This question was, for this reason, not considered in the final scores. The other remarkable items were correct.

1. <https://www.cito.com/>

2. Rit: uses exam score with the evaluated item score, Rir: without the evaluated item score

3. Defined as the percentages of responses

Reliability

In classical test theory, two well-known measures for reliability are Cronbach's alpha and Guttman's lambda-2. For this exam, Cronbach's alpha is 0.89 and Guttman's lambda-2 is 0.90. These values can be considered good for low-stakes as well as for high stakes exams by the European Federation of Psychologists' Association (EFPA) Review Model⁴ and the standards of the Dutch Committee of Test Matters⁵ (COTAN).

4. See <http://assessment.efpa.eu/documents/> to download the official English language version EFPA 2013 Test Review Model Version 4.2.6. Translations of this version and a previous version (3.2.4) can also be found here.

5. See <https://www.psypip.nl/en/dutch-association-psychologists/about-nip/psychological-testing-cotan/>



Standard setting

An equating procedure was applied to define the cut-off score, using item response theory (IRT), where the results of the 2021 exam could be placed on the same ability scale as the first four exams. This means that candidates with the same ability have an equal chance of passing the exam, independently of the year they participated, taking into account the difficulty of the exam. This was allowed due to the specific test design that was used, and a sufficient fit of the IRT model. It resulted in a cut-off score of 54 (or more) items correct to pass the exam. This means that 142 candidates (76%) passed.

Communication of the results

Within 4-6 weeks after the exam, candidates received an email with the pass-fail decision. The candidates who passed received a certificate. Candidates received information on their scores per section of the European Hematology Curriculum. For this, Cito translated the overall cut-off score into a cut-off score per section, and the candidates received information on whether they scored above or below this cut-off score. (These scores can only be considered an indication and cannot be considered separate parts of the exam). While passing the exam is regarded as a quality stamp for hematologists, national authorities will grant the right to practice.

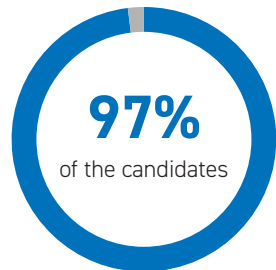
Exam candidate

“Amazing setup, clear questions and clear answers, good mix of easy and hard questions.”

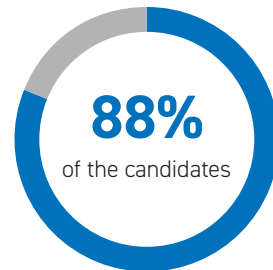
CANDIDATE EXPERIENCE



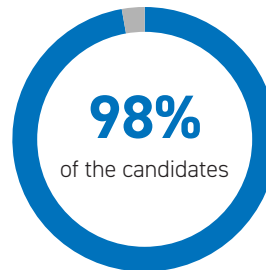
At the end of the exam, the candidates were asked to complete a short evaluation survey.
The results of this survey showed that:



found the exam relevant (73%) or partly relevant (24%) to their hematology training.



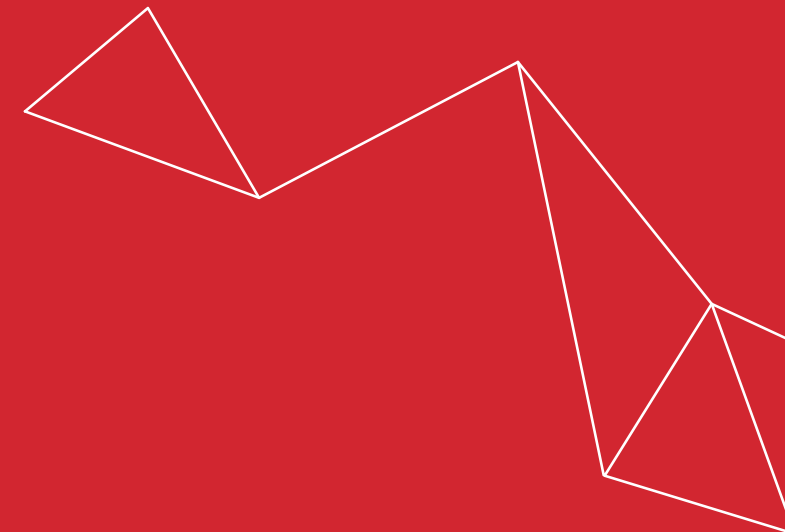
experienced the exam setup as good or very good.



were able to finish the exam within 2,5 hours.



The European Exam in Spain



Exam candidate

“Excellent exam with relevant and well-structured questions”

| ACKNOWLEDGEMENT



EHA would like to thank the following experts for their time and effort towards making the 2021 European Hematology Exam a success:

Curriculum-Exam Committee

José Tomás Navarro, Spain (Chair)
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Gunnar Birgegård, Sweden (Chair Question Writers Group)
Antonio Almeida, Portugal (Chair Education Committee)
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European Hematology Exam 2022

Currently, EHA is considering options for the organization of the 2022 European Hematology Exam to allow as many candidates as possible to participate. More information will be available as soon as possible on the [EHA website](#). We hope to see you next year.





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