

EUROPEAN HEMATOLOGY EXAM 2022 REPORT

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| Introduction

The sixth European Hematology Exam took place on June 10, 2022. In 2020 and 2021, no main session could take place due to the pandemic and the virtual format of the Congress. In 2022, EHA was pleased to welcome 58 candidates to the main session at the EHA Congress in Vienna, Austria. Additionally, 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 on all eight sections of the [European Hematology Curriculum](#). Participants had 2.5 hours to complete the exam. The strength of this timed 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, the method can be used in a web-based format with automatic objective correcting and scoring.

166 candidates took the exam simultaneously at 12 locations:

Albania (Tirana)

Austria (Vienna)

Bulgaria (Sofia)

Egypt (Cairo)

Estonia (Tallinn) - *New in 2022*

Finland (Helsinki) - *New in 2022*

Greece (Athens)

Iraq (Baghdad)

Portugal (Lisbon)

Spain (Madrid)

Switzerland (Bern)

Türkiye (Istanbul)



Four locations offered a session, but received no applications:

Armenia

Croatia

Luxembourg

Sweden



| Candidates

For the parallel sessions, only candidates residing in countries hosting an exam were eligible to participate. *Table 1* shows the number of candidates per location. The main session for the exam took place in Vienna, Austria, at the EHA Congress, facilitated candidates from various countries (*Table 2*).

Table 1: Number of candidates, per location (exam location = country of residence)

Country	Nr
Albania	1
Bulgaria	3
Egypt	9
Estonia	2
Finland	2
Greece	10
Iraq	27
Portugal	5
Spain	22
Switzerland	15
Türkiye	12
TOTAL	108

Table 2: Country of residence of the candidates, who took the exam at the main session (EHA Congress in Vienna)

Country	Nr
Austria	3
Azerbaijan	2
Bahrain	1
Belgium	1
Bulgaria	5
Estonia	1
Germany	1
Greece	3
India	1
Netherlands	1
Pakistan	1
Paraguay	1
Portugal	13
Qatar	2
Romania	2
Slovenia	1
Spain	8
Switzerland	1
Tunisia	1
Türkiye	4
United Kingdom	4
United States of America	1
TOTAL	58



The main session took place at the EHA Congress in Vienna, Austria.



The parallel session in Spain.



The exam is aimed at hematologists who recently finalized their specialty training. *Figures 1a and 1b* show 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.



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

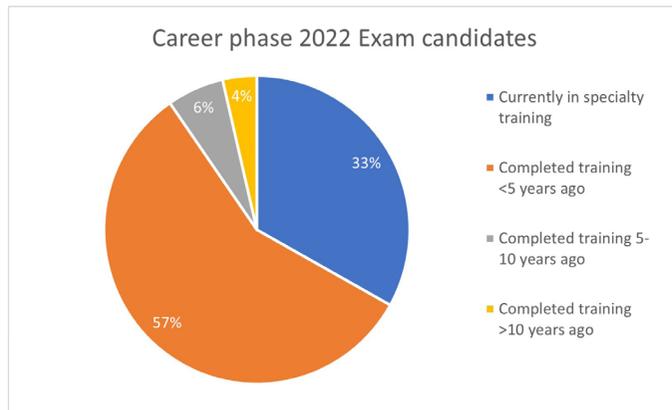


Figure 1b. Career phase 2022 Exam candidates.

| Parallel sessions

In 2018, the first parallel session for the exam was organized by the Swiss Society of Hematology. Since then, the European Hematology Exam is implemented as part of the official Swiss end-of-training exam. Many other national hematology societies followed the Swiss example and decided to organize parallel sessions, enabling local candidates, who are not able to travel to the congress, to take the exam.

In 2022, the exam took place at 11 parallel sites. Nine of the eleven national societies involved this year, expressed their wish for participation next year. Two other societies are considering it. Nine societies experienced the communication and collaboration with the EHA Executive Office as excellent, and two rated it as good.

Societies are welcome to [contact EHA](#) to discuss the possibilities for organizing a local parallel session.

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, a Question Writers Group has been established. For this group, 20 experienced hematologists were selected and trained by educationalists to write exam items. The writers worked in pairs on questions and reviewed each other's questions. All questions were added to a database. The Curriculum-Exam Committee selected the final 100 questions (which represented all Curriculum sections) and performed a second and third review. Ultimately, a final check was done by the Chair and Vice-Chair of the EHA Curriculum-Exam Committee and the Chair of the Question Writers Group.

| Psychometric analysis

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. CitoLab, Cito's research department, performed the psychometric analysis of the exam. This analysis always takes place after the exam, as it is based on the answers given by the candidates.



Item (question) analysis

To evaluate each item's quality, the correlation between its score and the exam score has been calculated (Rit and Rir values²). The higher this correlation, the better the item discriminates candidates on the ability that is being measured. In addition, the P-value (the popularity³ of the alternative that is being considered correct) of each item was calculated. Usually, the correct response is the most popular one. An item is remarkable if an alternative that is considered incorrect, is more popular. Based on this psychometrical

psychometrical analysis, 15 questions showed a slightly remarkable pattern. This does not necessarily mean that those questions are incorrect; but it is a signal to investigate the content of these items further. After a thorough scientific review, the Chair and Vice-Chair of the EHA Curriculum-Exam Committee and the Chair of the Question Writers Group concluded that all items were correct. No further action needed to be taken: all questions were included in the analysis.

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. Cronbach's alpha is 0.880 and Guttman's lambda-2 is 0.886. These values are considered good for a low stakes exam, and sufficient for high stakes exams by the European Federation of Psychologists' Association Review Model⁴ and the standards of the Dutch Committee of Test Matters⁵.

Standard setting

An equating procedure was applied to define the cut-off score, using item response theory (IRT), where the results of the 2022 exam could be placed on the same ability scale as the first five 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. The cut-off score was set at 56 (or more) items correct to pass the exam. This resulted in 83% of the candidates passing the exam.

Communication of results

Within 4-6 weeks after the exam, the candidates received an email with the pass-fail decision. Candidates who passed, received a certificate. All candidates have received information on their scores broken down by 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 value. These scores can only be considered an indication of performance and cannot be considered separate parts of the exam. Passing the exam is regarded as an extra quality stamp for hematologists; national authorities still grant the right to practice.

**“This year, as always,
the best was the
communication between
the two institutions.”**

Quote from National Society Partner

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.



CANDIDATE EXPERIENCE



At the end of the exam, candidates were asked to complete a short evaluation survey. The results of this survey showed that, from all candidates that replied (153):



found the exam either relevant (72%) or partly relevant (27%) to their hematology training.



experienced the exam setup as good or very good.



were able to finish the exam within 2.5 hours.



Parallel session Iraq.

“I found the exam quite useful in terms of revising general concepts acquired during our training.”

Quote from Exam candidate



ACKNOWLEDGEMENT



EHA would like to thank the following experts for their time and effort towards making the 2022 European Hematology Exam a success:

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Mariëlle Wondergem, The Netherlands
(Vice-chair)
Gunnar Birgegård, Sweden
Antonio Almeida, Portugal
Janaki Brolin, Sweden
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European Hematology Exam 2023

Currently, EHA is considering options for the organization of the 2023 European Hematology Exam, to allow as many candidates as possible to participate. More information will be available shortly on the [EHA website](#). We hope to see you next year.

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European Hematology Association (EHA)



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