

EUROPEAN HEMATOLOGY EXAM 2023 REPORT

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| Introduction

The seventh European Hematology Exam took place on June 8, 2023. In total, 206 candidates took the exam in 2023. EHA was pleased to welcome 68 of them at the main session at the EHA Congress in Frankfurt, Germany. In parallel with the main session, national hematology societies from 13 countries organized a local exam session for candidates residing in their countries, which resulted in 138 candidates taking the exam at these local sessions. The main exam session and the parallel local sessions took place simultaneously.

The 13 parallel exam locations:

Armenia (Yerevan)

Bulgaria (Sofia)

Croatia (Zagreb)

Egypt (Cairo)

Estonia (Tallinn)

Greece (Athens)

Iraq (Baghdad)

Jordan (Amman) - new in 2023

Portugal (Lisbon)

Saudi Arabia (Riyadh)

Spain (Madrid)

Switzerland (Bern)

Türkiye (Istanbul)

| 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 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.

Three locations offered a session, but received no applications:

Albania

Lithuania

Luxembourg

| Candidates

For the parallel sessions, only candidates residing in the countries hosting an exam were eligible to participate. *Table 1* shows the number of candidates at the parallel exam locations. The main exam session took place in Frankfurt, Germany, at the EHA Hybrid Congress, and accommodated candidates from various countries (*Table 2*).

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

Country	Nr
Bulgaria	2
Croatia	1
Egypt	10
Estonia	1
Greece	8
Iraq	13
Jordan	14
Portugal	11
Saudi Arabia	23
Spain	22
Switzerland	14
Türkiye	19
TOTAL	138

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

Country	Nr
Austria	1
Azerbaijan	1
Belarus	1
Belgium	2
Brazil	1
Bulgaria	1
Croatia	1
Estonia	1
France	4
Germany	5
Greece	3
India	2
Ireland	1
Israel	1
Italy	2
Kuwait	1
Malaysia	2
Martinique	1
Netherlands	1
Pakistan	1
Portugal	10
Qatar	2
Romania	1
Singapore	1
Slovenia	3
Spain	7
Sweden	1
Switzerland	2
Thailand	1
Türkiye	2
United Arab Emirates	1
United Kingdom	4
TOTAL	68

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 of specialty training.

Figure 1b. Career phase 2023 Exam candidates.

| Parallel sessions

In 2018, the first parallel session of 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 2023, the exam took place at thirteen parallel sites. Following these sessions, eleven of the thirteen national societies that took part expressed their wish to participate again next year. The other two societies are still actively considering this. Twelve of the participating organizations would recommend that national societies in other countries organize a session. Nine societies experienced the communication and collaboration with the EHA Executive Office as excellent, and four 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 psychometrical analysis, four 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 no change was required in these questions. However, it was decided that one of them should be omitted based on the review of its content. Consequently, 99 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 0.89 and Guttman's lambda-2 is 0.89. 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 2023 exam could be placed on the same ability scale as the first six 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 47 (or more) items correct to pass the exam. This resulted in 92% of the candidates passing the exam.

Communication of results

Within six weeks after the exam, the candidates received an email with the pass-fail decision. The 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.

“In general, the whole process was well driven. Congratulations.”

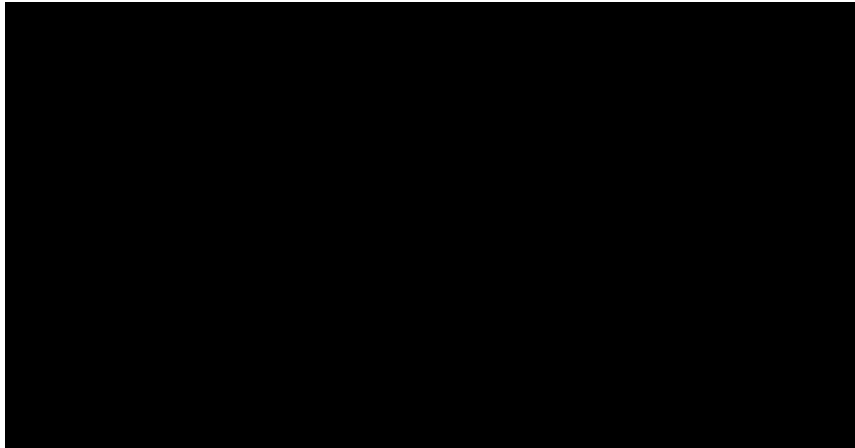
Quote from National Society Partner

4. See www.efpa.eu/ongoing-revision-european-test-review-model to download the official English language version EFPA 2013 Test Review Model Version 4.2.6.

5. See psynip.nl/wp-content/uploads/2021/11/COTAN-Beoordelingssysteem-2010.pdf (available in Dutch only)

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 (n=188):



Examination day in Switzerland

“I believe that the exam covered equally all basic knowledge a hematologist has to obtain during training period.”

Quote from Exam candidate

ACKNOWLEDGEMENT

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European Hematology Association (EHA)

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