

Report on the ESMO Examination 2022 in Medical Oncology

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1. Introduction

This report was prepared by the Institute of Medical Education, University of Bern, Switzerland. The 2022 examination in Medical Oncology conducted by the European Society for Medical Oncology (ESMO) took place on September 10th, 2022, in the locations Aarau, Athens, Baghdad, Cairo, Chennai, Heidelberg, Ljubljana, Madrid, Manchester, Milan, Moscow, Paris, Stockholm and Utrecht. 532 candidates participated in this examination, which consisted of 100 multiple choice questions written in English, French, Slovenian and Spanish.

2. Method

2.1 Candidates

532 candidates participated in the examination: 27 in Aarau, 8 in Athens, 15 in Baghdad, 19 in Cairo, 134 in Chennai, 8 in Heidelberg, 11 in Ljubljana, 25 in Madrid, 15 in Manchester, 14 in Milan, 23 in Moscow, 226 in Paris, 4 in Stockholm and 3 in Utrecht.

2.2 Format

The examination 2022 was composed of 100 multiple choice questions: 75 type A questions (single choice), and 25 type K' questions (quadruple correct/incorrect decision).

3. Performance of measurement

The diagrams on page 7 give an overview of the psychometric properties of the examination for the group of Western European. This group was chosen for the keyvalidation and the pass/fail limit. The upper diagram shows the distribution of the items in terms of difficulty, the diagram underneath in terms of the discrimination index. At the bottom of this page the reliability (Cronbach's Alpha = 0.86), and the standard error of measurement (3.8) are given. The reliability for the total group is 0.87, the standard error of measurement is 4.0.

4. Results

4.1 Score distribution

The score distribution is shown on page 8. On average, candidates answered correctly to 60.7% (2021: 61.6%) of the questions, with a standard deviation of 11.8% (2021: 12.4%).

4.2 Passing score

On November 8, 2022, the ESMO Examination Working Group discussed the questions which displayed statistical deviations. For content reasons, six A questions were eliminated from the evaluation. Therefore, 94 questions remained in the analysis and final evaluation of each candidate.

After psychometric analysis of the difficulty of the examination, analysis of the Rasch model, as well as the difference between mean and pass/fail limit in the last years, the Examination Working Group decided to set the pass/fail limit at 53.2% correct answers (2021: 55.2%), in order to keep the passing requirement fair and comparable to previous years.

412 attendees (77.4%) passed the examination, and 120 attendees (22.6%) failed the examination (2021: 74.6% passed and 25.4% failed).

4.3 Detailed analyses

From page 9 on, the score distributions for the different locations of the examination are given. The score distributions in percent are shown in the following table.

Location	n	Mean %	SD %	success %
Aarau	27	68.3	11.5	92.6
Athens	8	75.3	12.0	87.5
Baghdad	15	57.1	8.3	66.7
Cairo	19	51.6	8.5	52.6
Chennai	134	58.4	12.8	69.4
Heidelberg	8	65.2	8.8	87.5
Ljubljana	11	68.4	9.9	90.9
Madrid	25	62.9	6.5	100.0
Manchester	15	57.9	12.5	73.3
Milan	14	62.0	4.9	100.0
Moscow	23	52.3	12.6	47.8
Paris	226	61.8	11.1	81.0
Stockholm	4	61.2	1.4	100.0
Utrecht	3	59.6	8.3	66.7
Total	532	60.7	11.8	77.4

The candidates were then grouped into 5 regions according to the address given upon inscription. The countries with the largest numbers of attendees were rated separately. In comparison to the year 2021, there were less candidates from Egypt, Germany & Switzerland, Spain & Portugal, but more candidates from India and other countries. Candidates from Switzerland and Germany were rated together, as well as candidates from Spain and Portugal. These score distributions are shown on page 12. The score distributions in percent are shown in the following table.

Region	n	Mean %	SD %	success %
Egypt	16	52.8	9.5	62.5
Germany and Switzerland	50	66.2	12.6	88.0
India	132	58.8	12.7	70.5
Spain and Portugal	80	62.1	8.3	88.8
Other countries	254	60.6	11.7	76.4
Total	532	60.7	11.8	77.4

The blueprint analyses are shown on pages 13 and 14. On the graph concerning blueprint 1, it can be seen that candidates had more difficulties answering questions on “Central nervous system malignancies” than questions on “Endocrine cancers”.

For the graph concerning blueprint 2, a further example shows that questions on “Biology, Immunology, Pathology incl. Tumour Markers, Laboratory medicine” were answered correctly more often than those on “Screening and prevention”. However, this does not allow conclusion on the origin of these differences: The attendees could have performed better in some fields, or the questions were more difficult. Comparisons are also difficult because some fields are represented by few questions (e.g. “Gynecologic malignancies”, “Head and neck cancers”, “Central nervous system malignancies”, “Carcinoma of unknown primary site” are represented by 1-3 items).

The graphs on page 15 show the expected as well as the true values for each field in blueprint 1, separated for each location. It can be seen that candidates from all different locations performed similar: They could exceed the expected values in several blueprint fields, ranging from 5 out of 13 blueprint fields in Heidelberg, Stockholm and Utrecht to 8 out of 13 in Athens, Cairo and Moscow. Candidates from the other locations lie in between.

4.4 Differentiated feedback to the individual candidate

Feedback letters with their individual results detailed according to blueprint 1 were given to all candidates. An example of such a feedback letter is given on page 16.

5. Summary

532 candidates participated in the 2022 written examination in Medical Oncology by the European Society for Medical Oncology, in Aarau, Athens, Baghdad, Cairo, Chennai, Heidelberg, Ljubljana, Madrid, Manchester, Milan, Moscow, Paris, Stockholm and Utrecht. The exam consisted of 100 multiple choice questions, six items had to be eliminated from the evaluation. The exam shows a reliability of 0.87 (Cronbach's Alpha).

On average, candidates answered correctly to 60.7% of the questions, with a standard deviation of 11.8%.

The pass/fail limit was set at 53.2%. 412 (77.4%) candidates passed the examination.

The next examination will be held on Saturday, 21st October 2023.

Difficulty distribution, Difficulty/discrimination index diagram of Western European

ESMO

10.09.2022
Western_EU

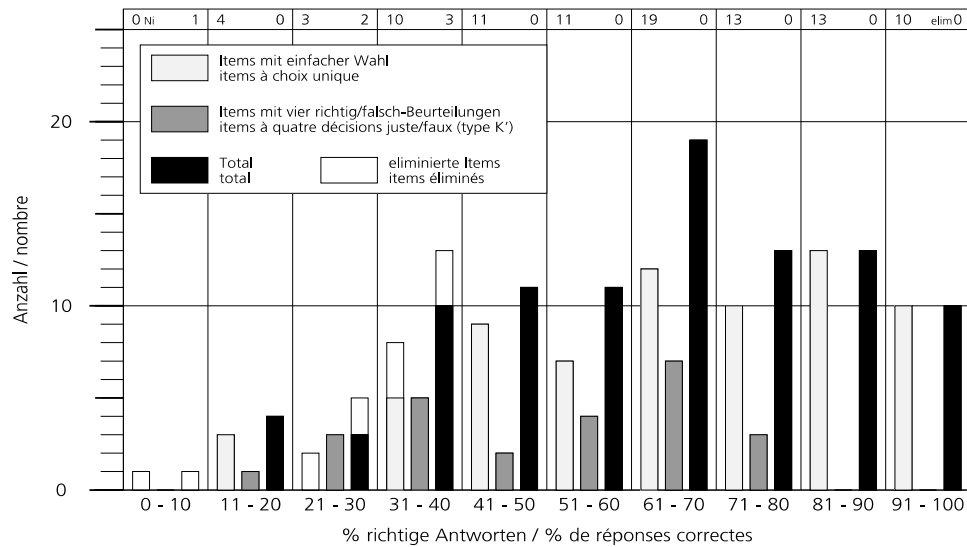
Examination in Medical Oncology

Schwierigkeitsverteilung

K' Halbpunktbewertung

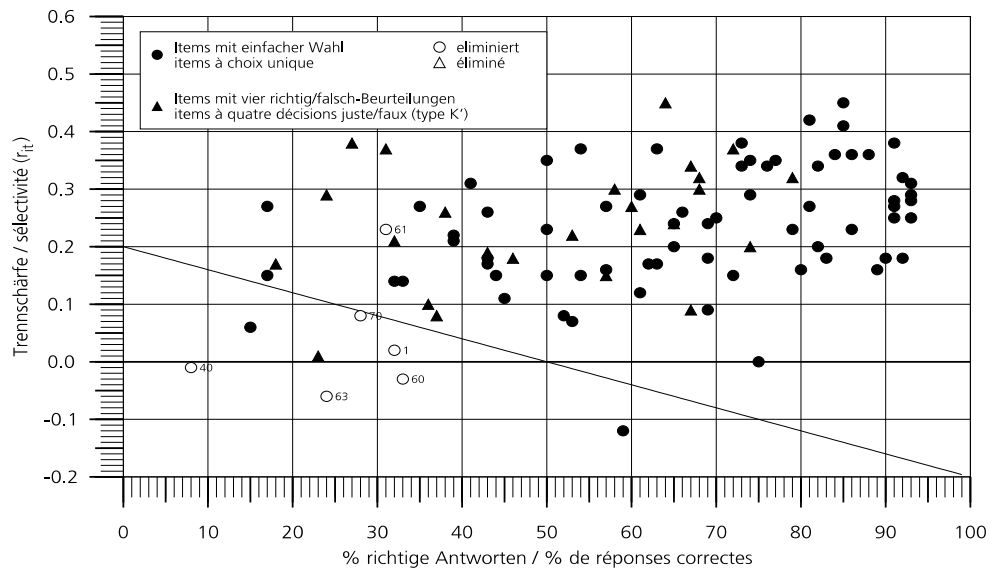
Distribution de difficulté

K' évaluation à demi-points



Schwierigkeits-/Trennschärfediagramm

Diagramme difficulté/sélectivité



Reliabilität (CRONBACH-alpha)

0.860

auf 100 Items gerechnet

0.868

Standardmessfehler ($s_e = s_x \sqrt{1-r_{tt}}$)

± 3.8

auf 100 Items gerechnet

± 4.0

Fiabilité (r_{tt})

calculée pour 100 items

Erreur type ($s_e = s_x \sqrt{1-r_{tt}}$)

calculée pour 100 items

Score distribution total

ESMO

10.09.2022
Total

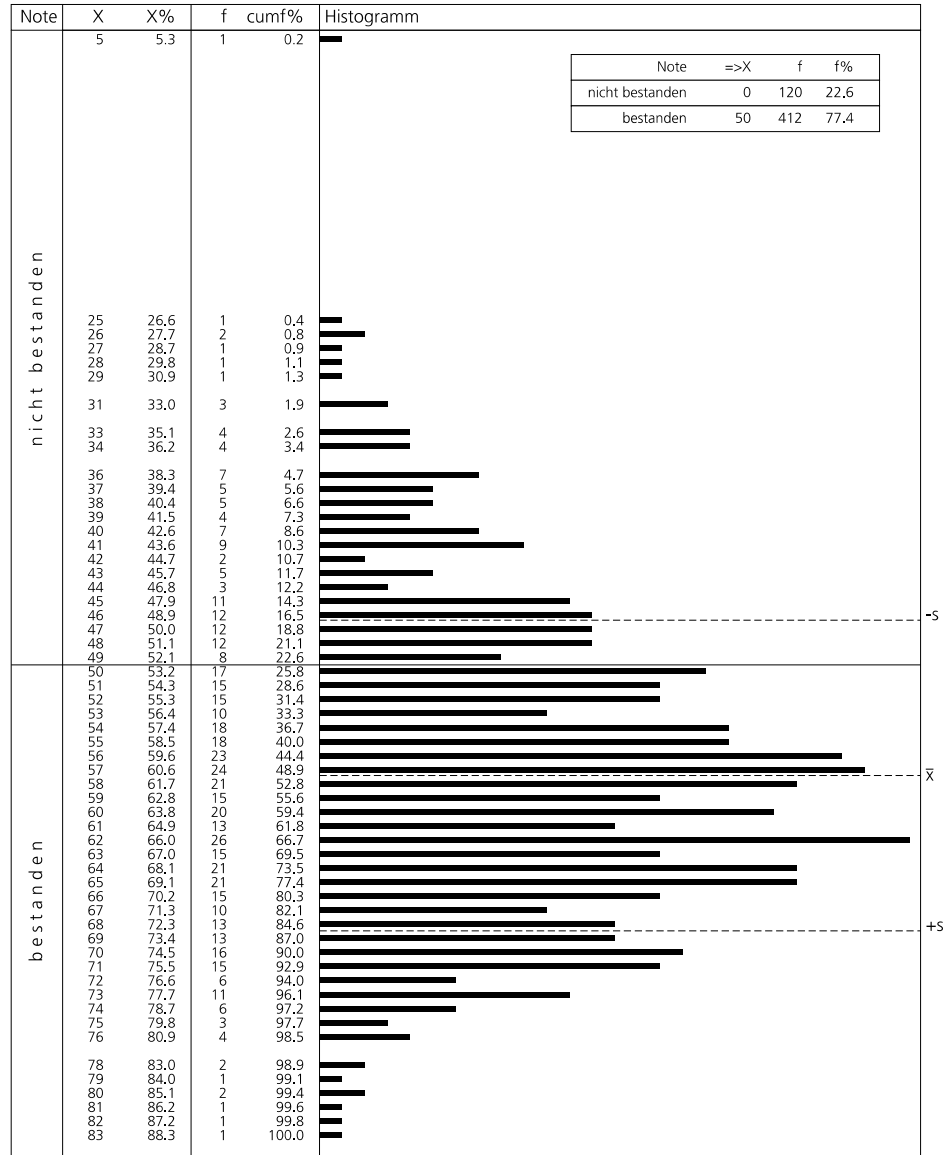
Examination in Medical Oncology

Punkte- und Notenverteilung

Répartition des points et des notes

K' Halbpunktbewertung

K' évaluation à demi-points

Anzahl KandidatInnen
mögliches Punktemaximum N_p 532
 N_i 94nombre de candidats
score maximum possible

Mittelwert

 \bar{x} 57.05 $\bar{x}_{\%}$ 60.69

moyenne

Standardabweichung

 s 11.06 $s_{\%}$ 11.77

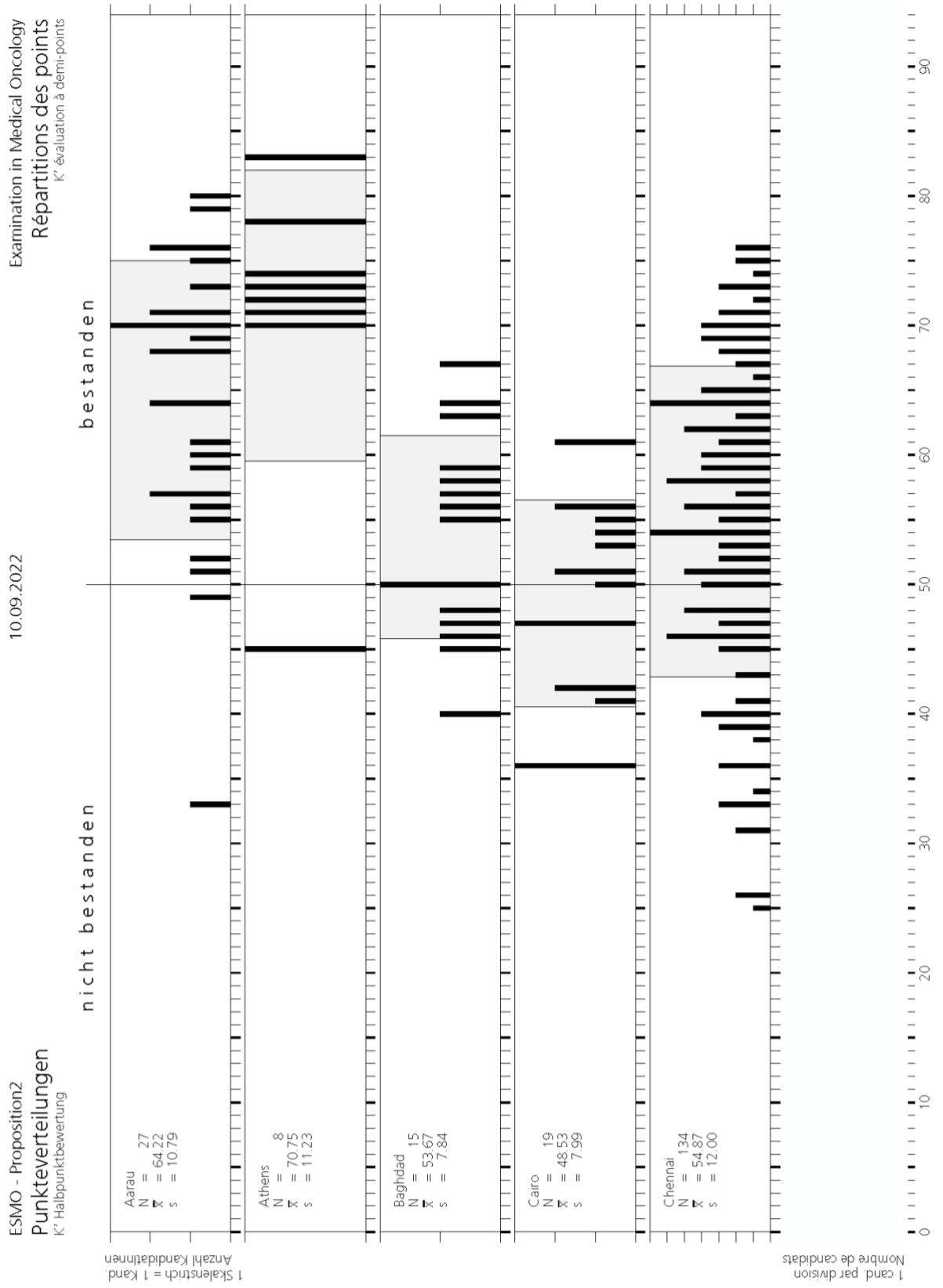
écart type

eliminierte Fragen (Nummern)

1, 40, 60, 61, 63, 70

questions éliminées (numéros)

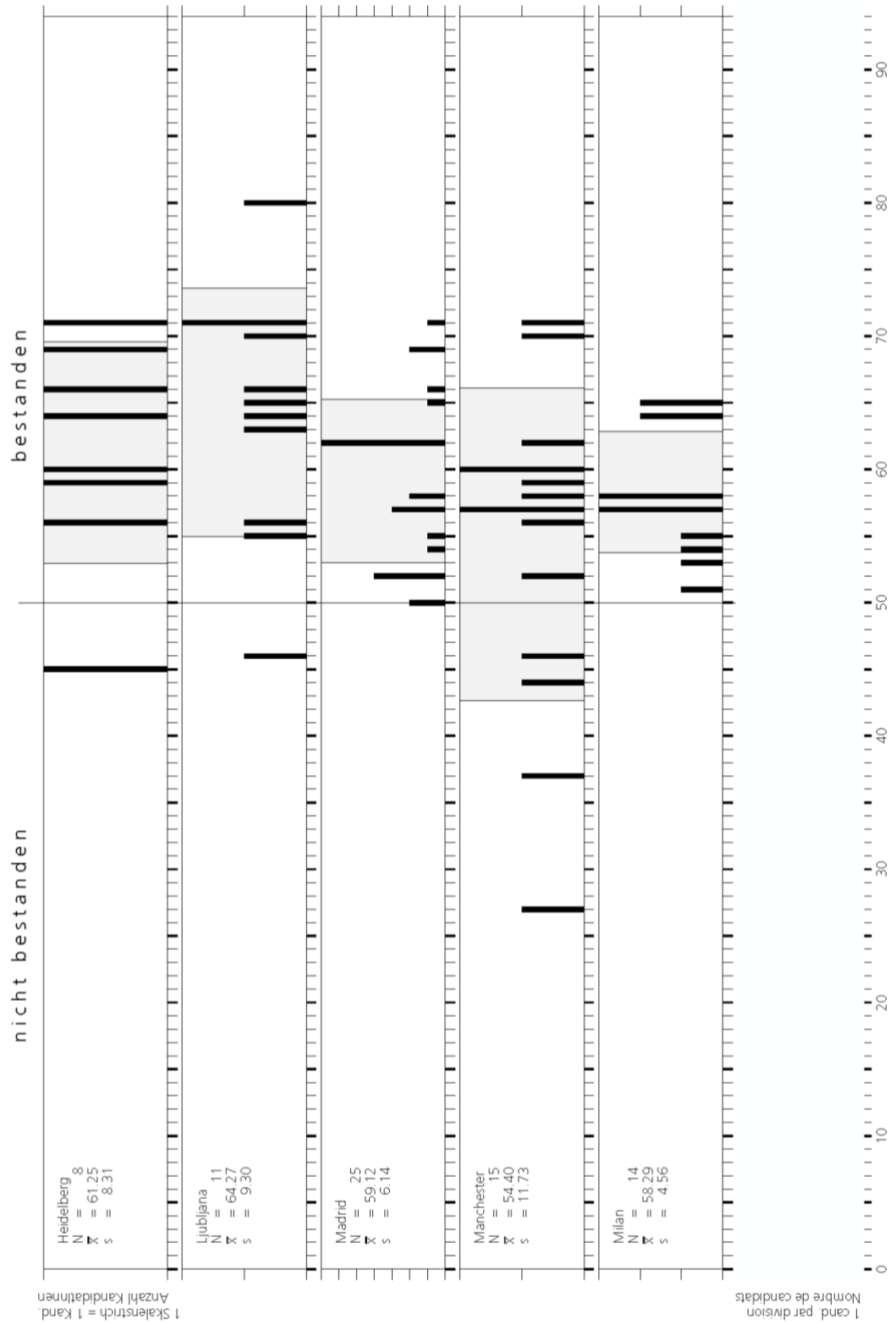
Score distribution (location)

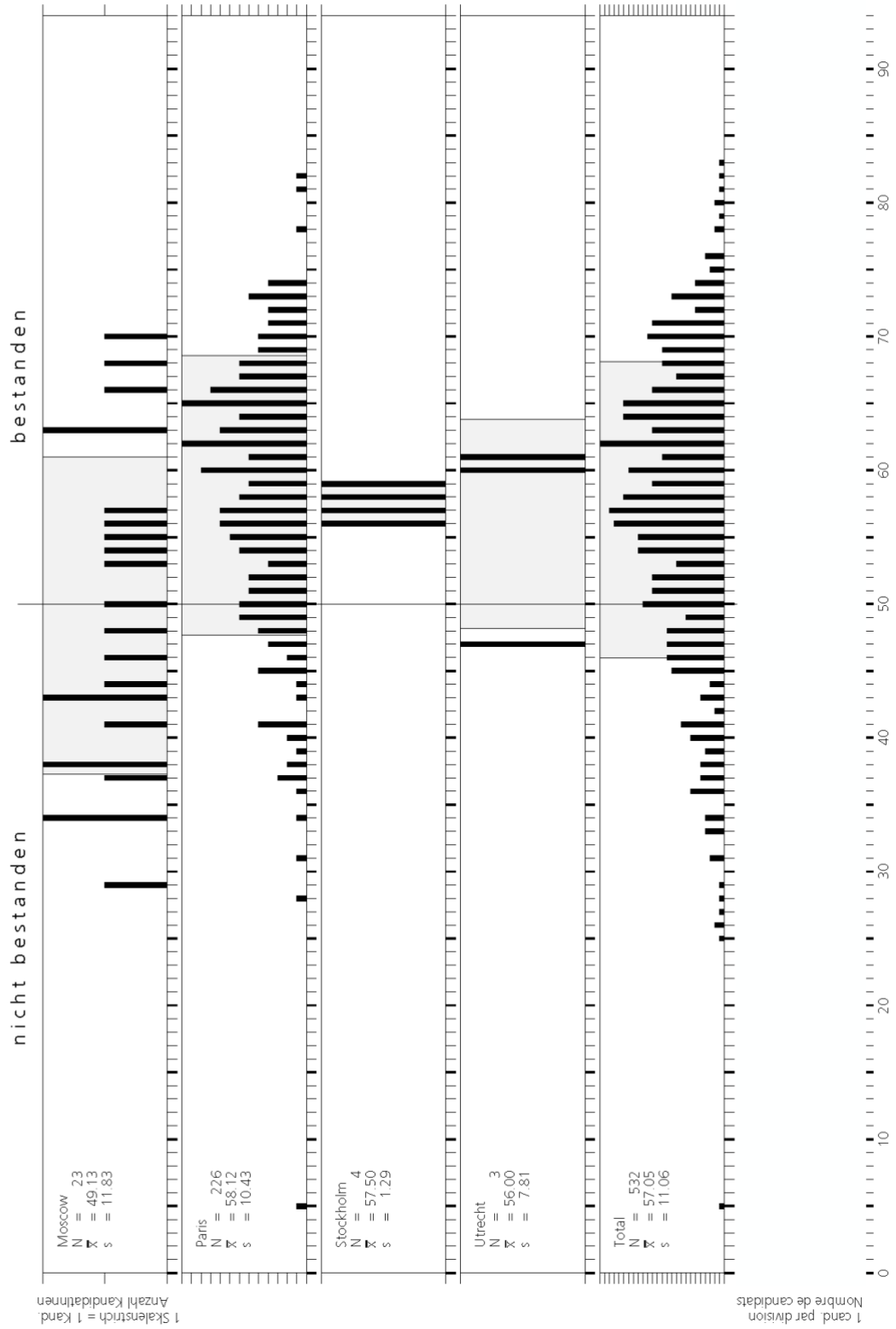


ESMO - Proposition2
Punkteverteilungen
K' Halbpunktbewertung

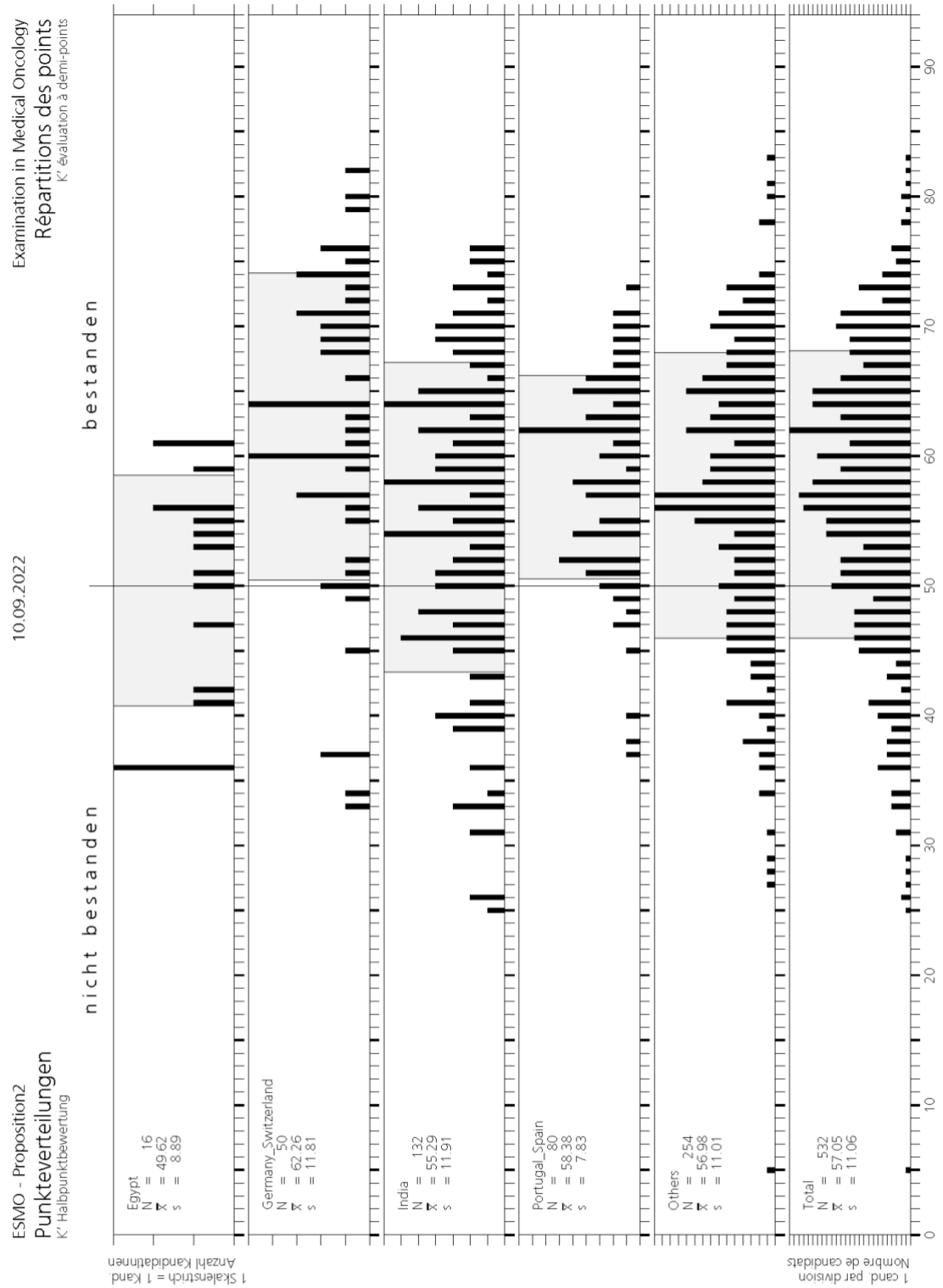
10.09.2022

Examination in Medical Oncology
Répartitions des points
K' évaluation à demi-points





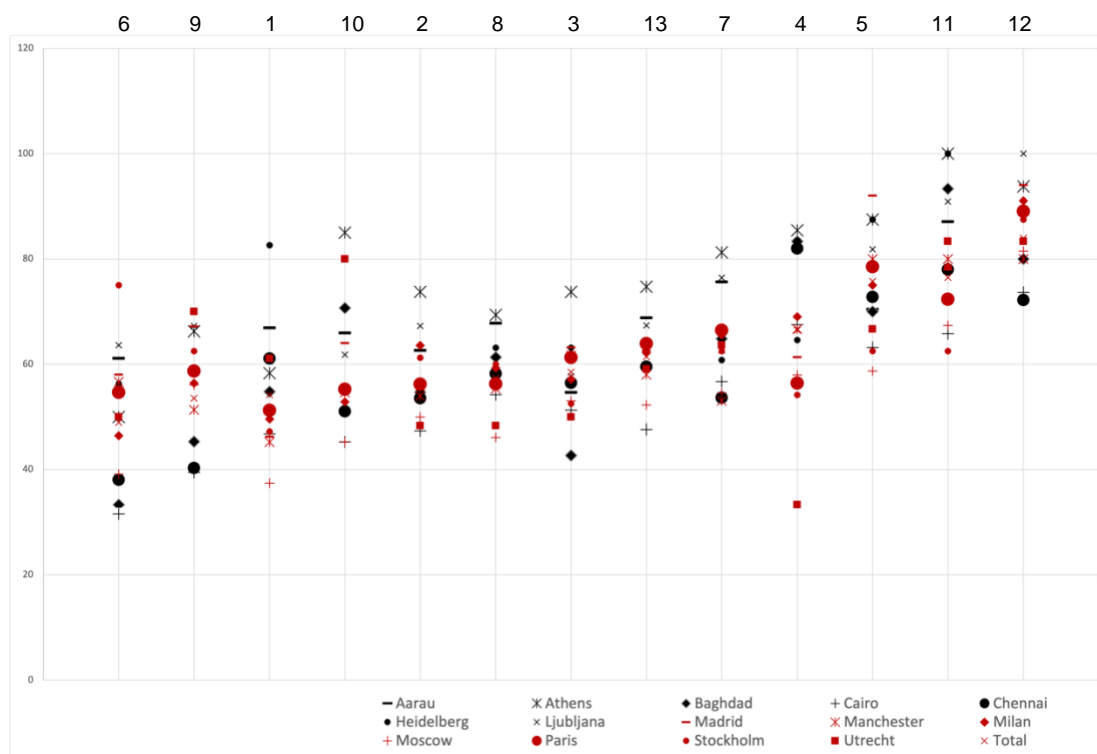
Score distribution (region)



Composition of the exam (Blueprint 1)

Subscore		Number of items
1	Hematologic malignancies	9
2	Chest malignancies	10
3	Breast cancer	10
4	Gynecologic malignancies	3
5	Head and neck cancers	2
6	Central nervous system malignancies	1
7	Genitourinary cancers	11
8	Gastrointestinal cancers	10
9	Skin cancers	5
10	Sarcomas	5
11	Carcinoma of unknown primary site	2
12	Endocrine cancers	4
13	Others/Clinic	22

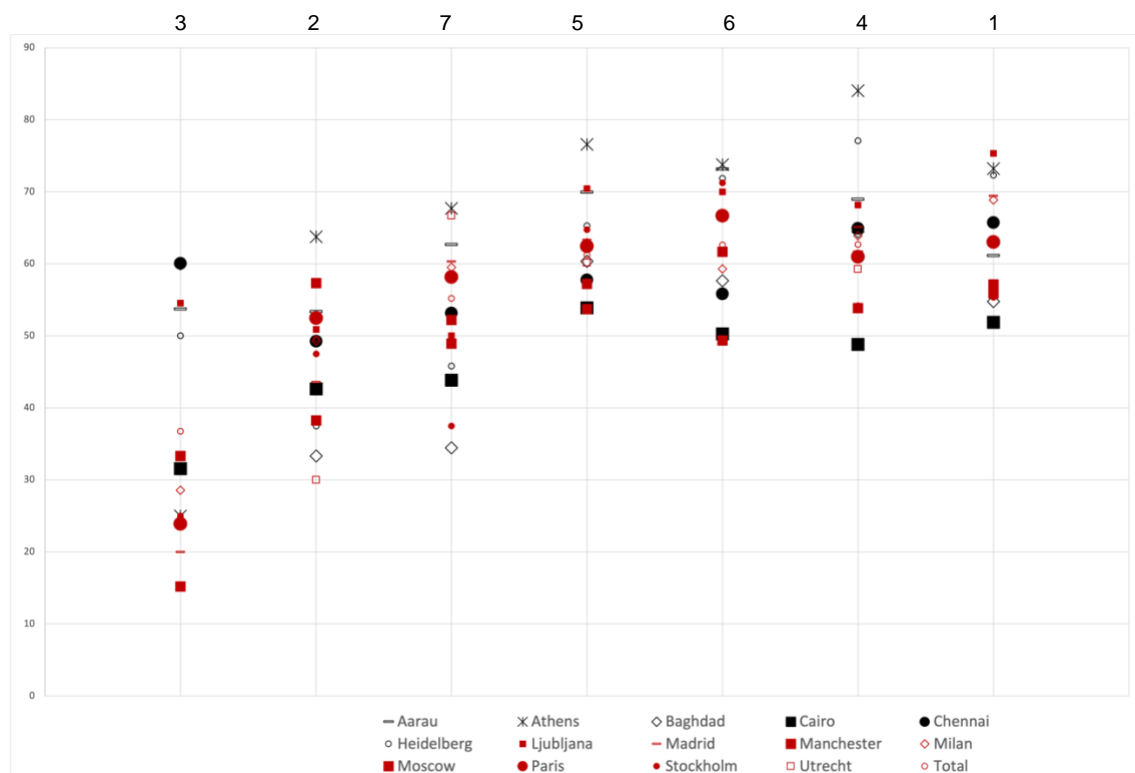
Subscoreanalysis sorted by performance in ascending order



Composition of the exam (Blueprint 2)

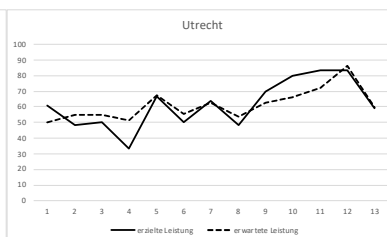
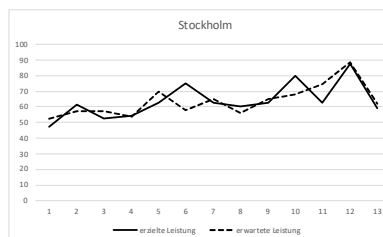
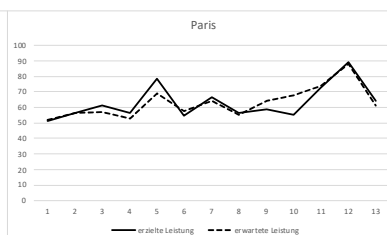
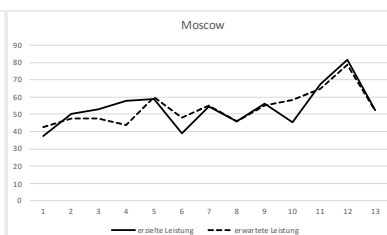
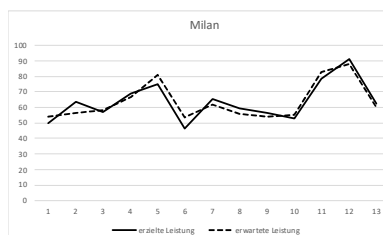
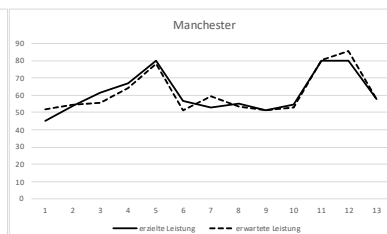
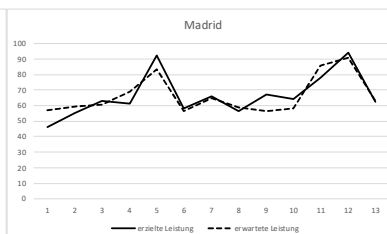
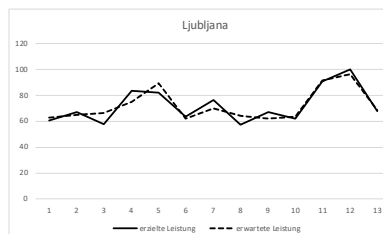
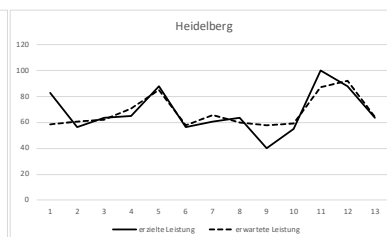
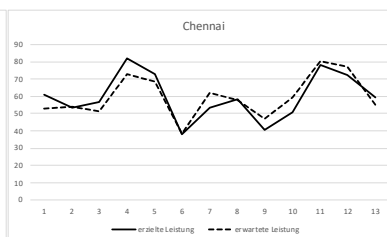
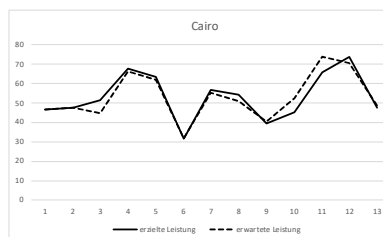
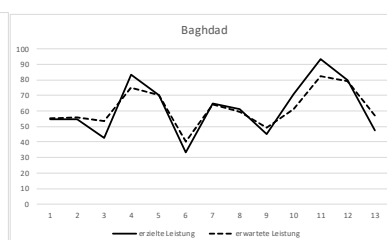
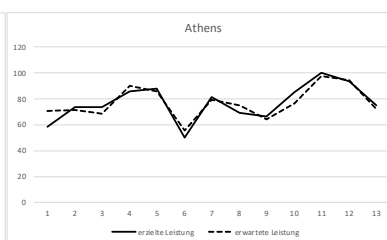
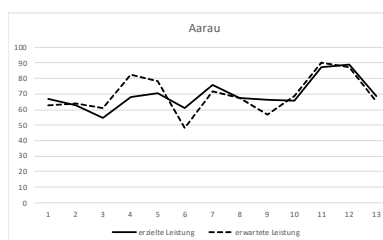
Subscore		Number of items
1	Biology, Immunology, Pathology incl. Tumour Markers, Laboratory medicine	7
2	Epidemiology, Etiology, Clinical research	5
3	Screening and prevention	1
4	Clinic, Differential diagnosis, Staging, Imaging	9
5	Therapy, Surgery, Radiation oncology, Anticancer agents, Biologic therapy, Response assessment and follow up	56
6	Complications of treatment, Supportive and Palliative Care, Communication and Psychosocial issues	10
7	Other issues	6
8	Biology, Immunology, Pathology incl. Tumour Markers, Laboratory medicine	4

Subscoreanalysis sorted by performance in ascending order



Composition of the exam & Subscores according to location

Subscore		Number of items
1	Hematologic malignancies	9
2	Chest malignancies	10
3	Breast cancer	10
4	Gynecologic malignancies	3
5	Head and neck cancers	2
6	Central nervous system malignancies	1
7	Genitourinary cancers	11
8	Gastrointestinal cancers	10
9	Skin cancers	5
10	Sarcomas	5
11	Carcinoma of unknown primary site	2
12	Endocrine cancers	4
13	Others/Clinic	22



Sample feedback letter

ESMO Head Office
Education Department
Via Ginevra 4
CH 6900 Lugano / Switzerland

Musterfrau Maxime
Bundesgasse 99
300 Bern
Switzerland

Feedback on your detailed exam results

On September 10, 2022 you participated in the ESMO examination in Paris. In order to pass, 50 out of 94 questions had to be answered correctly (53.2%). Your results are shown in detail in the table below. Questions have been grouped into 'subsets / subscores' according to their content.

The column labelled 'points / of' indicates the number of points you obtained out of the maximum number of possible points in each subset.

In the 'success' column, the numbers tell you how your results compare to those of the other candidates.

- 1 You belong to the top 25 %
- 2 You belong to the mean (50 % of all participants)
- 3 You belong to the bottom 25 %, but not to the weakest 5 %
- 4 You belong to the weakest 5 %
- 0 Subscores with less than 6 questions will not be evaluated because of too small measuring reliability.

ESMO examination, September 10, 2022

666 Musterfrau Maxime

Points	of	success	subscore	
				total score: 55
				result: passed
5.5	9.0	2	Hematologic malignancies	
5.5	10.0	2	Chest malignancies	
6.0	10.0	2	Breast cancer	
1.0	3.0	0	Gynecologic malignancies	
1.0	2.0	0	Head and neck cancers	
0.0	1.0	0	Central nervous system malignancies	
6.0	11.0	2	Genitourinary cancers	
6.5	10.0	2	Gastrointestinal cancers	
3.0	5.0	0	Skin cancers	
3.0	5.0	0	Sarcomas	
1.0	2.0	0	Carcinoma of unknown primary site	
4.0	4.0	0	Endocrine cancers	
12.5	22.0	2	Others/Clinic	

Viviane Hess, Chair, ESMO Examination Working Group