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**UNIVERSITÄT
BERN**

Faculty of Medicine
Institute of Medical Education
Assessment and Evaluation Unit

Report on the ESMO Examination 2017 in Medical Oncology

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Introduction

This report was prepared by the Institute of Medical Education, University of Bern, Switzerland. The 2017 examination in Medical Oncology conducted by the European Society for Medical Oncology (ESMO) took place on September 9th, 2017, in the locations Berlin, Cairo, Chennai, Madrid, and Olten. 360 candidates participated in this examination, which consisted of 100 multiple choice questions written in English.

Method

2.1 Candidates

360 candidates participated in the examination: 20 in Berlin, 30 in Cairo, 100 in Chennai, 178 in Madrid, and 32 in Olten.

2.2 Format

The examination 2017 was composed of 100 multiple choice questions: 75 type A questions (single choice), and 25 type K' questions (quadruple correct/incorrect decision).

Performance of measurement

The diagrams on page 7 give an overview of the psychometric properties of the examination. 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 = 0.88), and the standard error of measurement (4.0) are given.

Results

4.1 Score distribution

The score distribution is shown on page 8. On average, candidates answered correctly to 59.2% (2016: 59.8%) of the questions, with a standard deviation of 12.0% (2016: 12.1%).

4.2 Passing score

On November 7, 2017, the ESMO Examination Working Group discussed the questions which displayed statistical deviations. For content reasons, one A question was eliminated from the evaluation. The key of two items had to be changed because it was incorrect and for four Kprim items, one of the four answers was counted as correct, nevertheless it was answered positively or negatively because both alternatives were evaluated as correct. Therefore, 99 questions remained in the analysis and final evaluation of each candidate. After psychometric analysis of the difficulty of the examination, in particular with the Rasch model, the Examination Working Group decided to set the pass/fail limit at 53.5% correct answers (2016: 54.6%), in order to keep the passing requirement fair and comparable to previous years.

257 attendees (71.4%) passed the examination, and 103 attendees (28.6%) failed the examination (2016: 69.8% passed and 30.2% failed).

4.3 Detailed analyses

On page 9, the score distributions for the different locations of the examination are given. These results are shown in the following table as well.

Location	n	Mean %	SD %	success %
Berlin	20	58.0	12.9	80.0
Cairo	30	53.3	9.9	60.0
Chennai	100	56.0	11.7	57.0
Madrid	178	61.3	11.7	78.1
Olten	32	63.3	12.1	84.4
Total	360	59.2	12.0	71.4

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 last year, there were less candidates from Germany and Switzerland and other countries, but more candidates from India, Spain and Portugal. Because only five

groups are possible, candidates from Switzerland and Germany were rated together, as well as candidates from Spain and Portugal. These score distributions are shown on page 10, and in the following table.

Region	n	Mean %	SD %	success %
Egypt	29	53.9	9.5	62.1
Germany and Switzerland	53	64.3	11.4	90.6
India	98	53.4	11.3	59.2
Spain and Portugal	66	63.9	10.6	86.4
Other countries	114	57.9	12.1	66.7
Total	360	59.2	12.0	71.4

The blueprint analyses are shown on pages 11 and 12. On the graph concerning blueprint 1, it can be seen that candidates had more difficulties answering questions on “Gynecologic malignancies” than questions on “Carcinoma of unknown primary site”. For the graph concerning blueprint 2, a further example shows that questions on “Other issues” and “Clinic, Differential Diagnosis, Staging, Imaging” were answered correctly more often than those about “Biology, Immunology, Pathology incl. Tumour Markers, Laboratory medicine”. 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. “Other issues”, “Epidemiology, Etiology, Clinical research”, “Geriatric oncology, Cancer in adolescents and young adults, Cancer and pregnancy” and “Screening and prevention” are represented by 1-4 items).

The graph on page 13 shows 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 very similar. They could exceed the expected values in several blueprint fields, ranging from 5 out of 13 blueprint fields in Chennai to 8 out of 13 in Madrid. 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 14.

Summary

360 candidates participated in the 2017 written examination in Medical Oncology by the European Society for Medical Oncology, in Berlin, Cairo, Chennai, Madrid, and Olten.

The exam consisted of 100 multiple choice questions, one item had to be eliminated from the evaluation. The exam shows a reliability of 0.88 (Cronbach's Alpha).

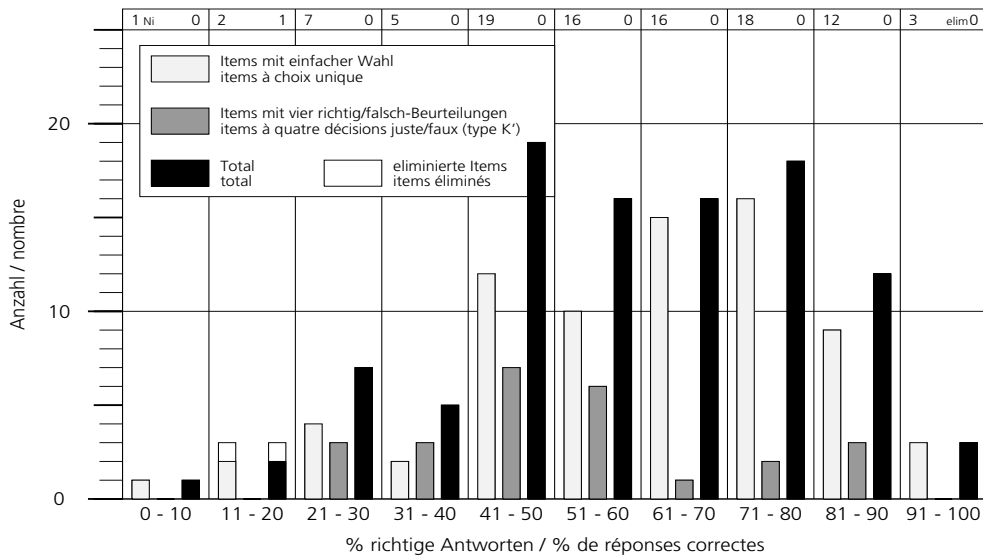
On average, candidates answered correctly to 59.2% of the questions, with a standard deviation of 12.0%.

The pass/fail limit was set at 53.5%. 257 (71.4%) candidates passed the examination.

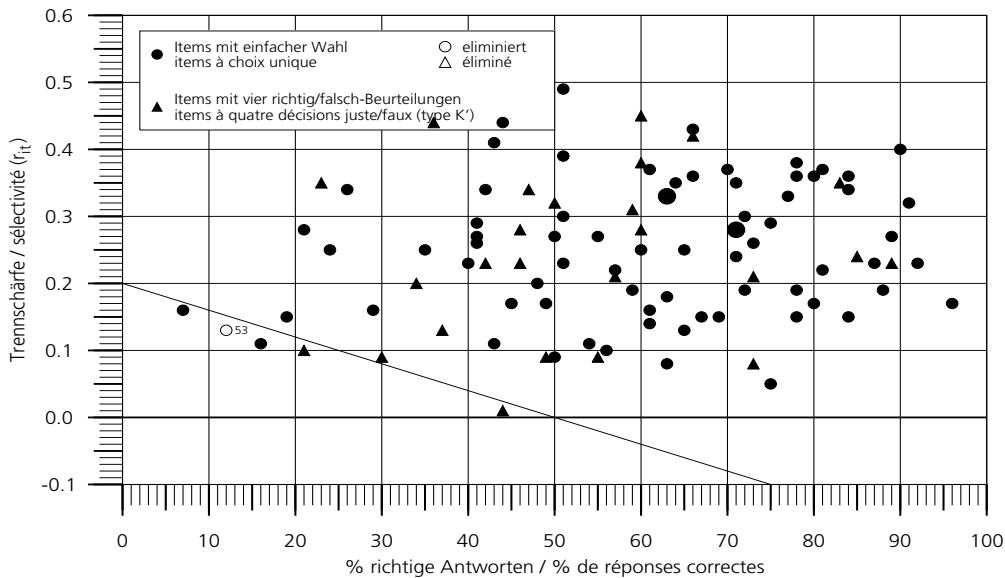
The next examination will be held on Saturday, 20th October 2018.

Difficulty distribution, Difficulty/discrimination index diagram

ESMO 09.09.2017 Examination in Medical Oncology
 Schwierigkeitsverteilung Total Distribution de difficulté
 K' Halbpunktbewertung K' évaluation à demi-points



Schwierigkeits-/Trennschärfediagramm Diagramme difficulté/sélectivité



Reliabilität (CRONBACH-alpha)	0.884	Fiabilité (r _{tt})
auf 100 Items gerechnet	0.885	calculée pour 100 items
Standardmessfehler (s _e = s _x √(1-r _{tt}))	± 4.0	Erreur type (s _e = s _x √(1-r _{tt}))
auf 100 Items gerechnet	± 4.1	calculée pour 100 items

Score distribution total

ESMO

09.09.2017
Total

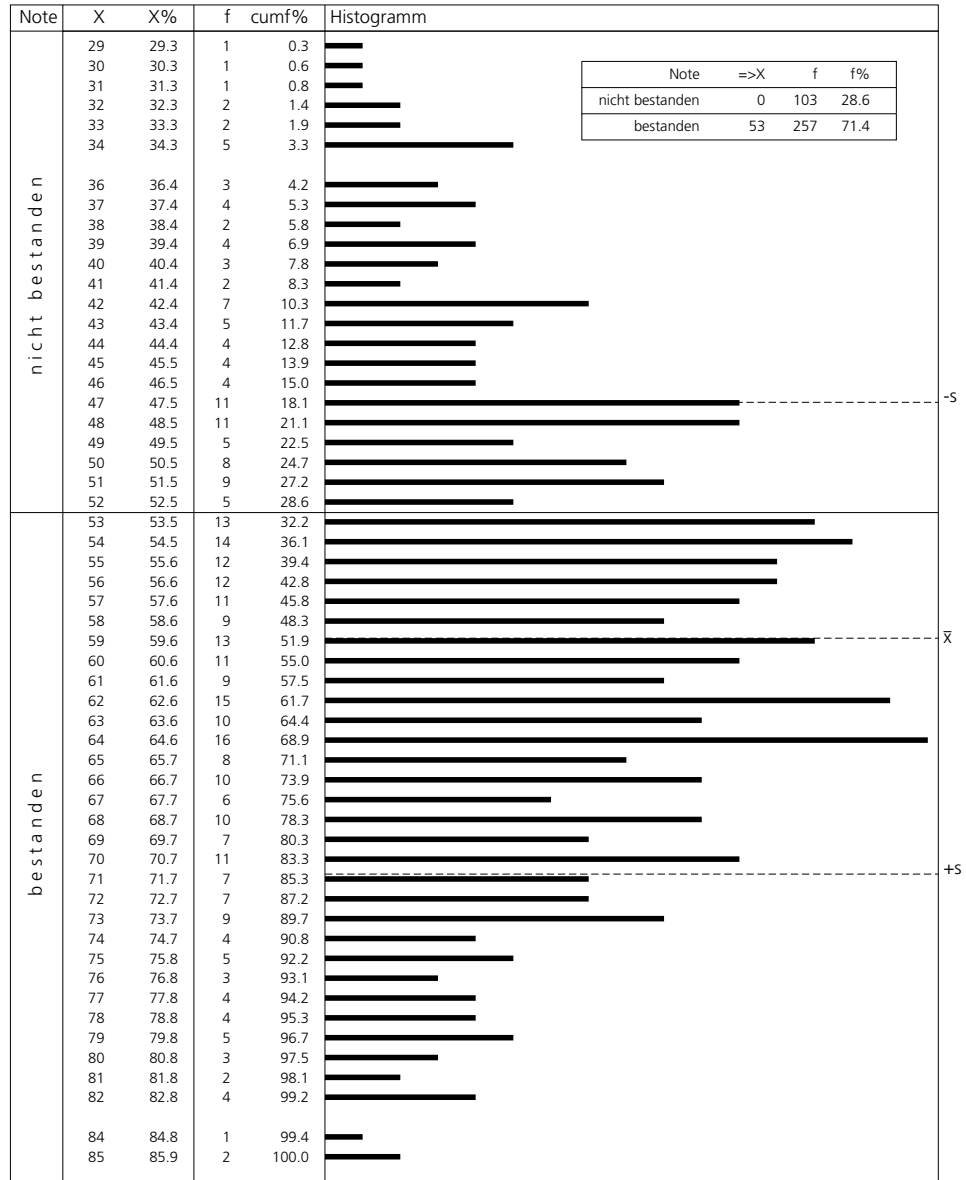
Examination in Medical Oncology

Punkte- und Notenverteilung

Répartition des points et des notes

K' Halbpunktbewertung

K' évaluation à demi-points



© AAE/MLL, 07.November 2017, 10:19

Anzahl KandidatInnen
mögliches Punkte maximum
Mittelwert
Standardabweichung

\bar{x} 58.6
s 11.89

N_p 360
 N_f 99

$\bar{x}_{\%}$ 59.19
 $S_{\%}$ 12.01

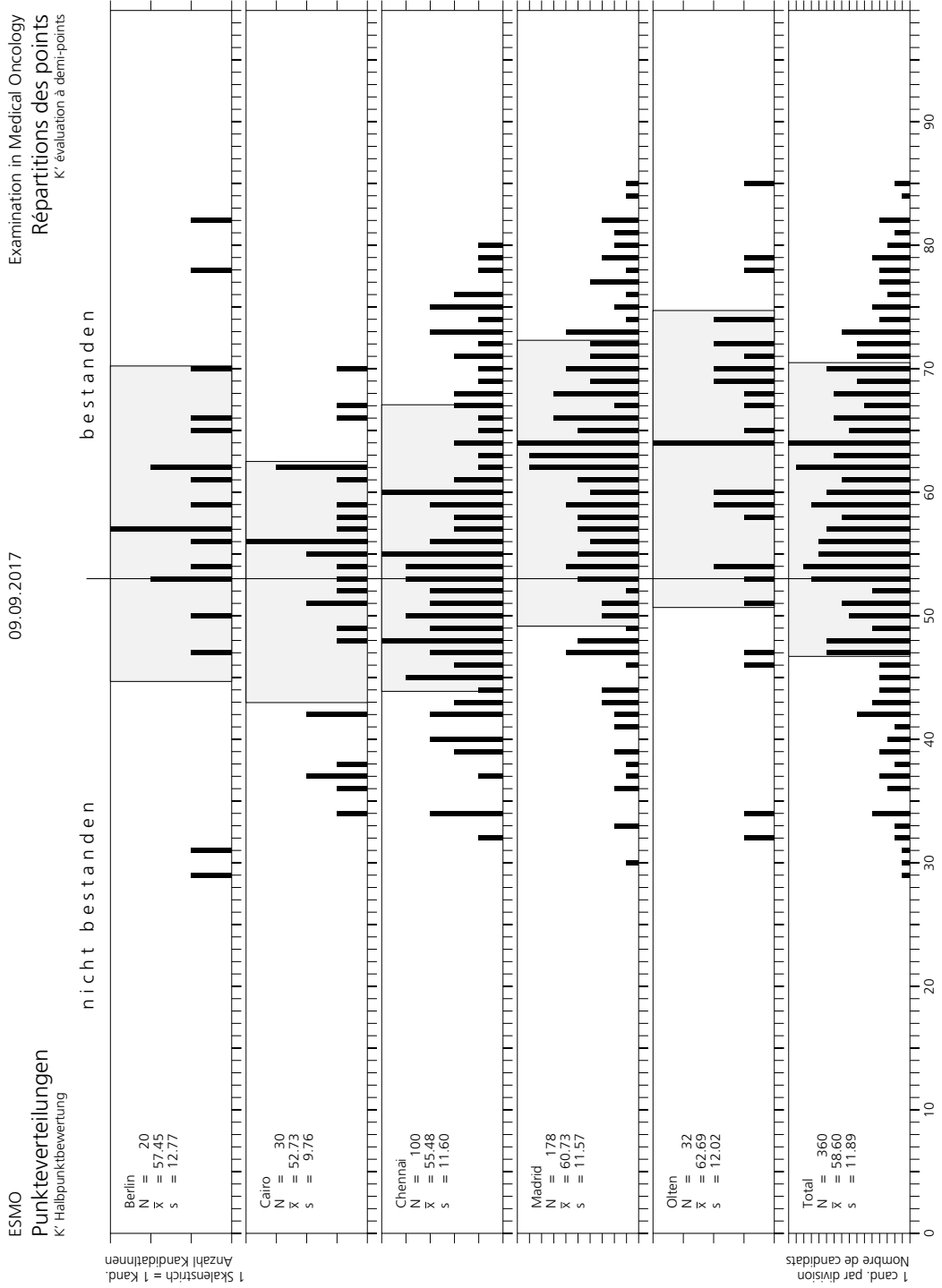
nombre de candidats
score maximum possible
moyenne
écart type

eliminierte Fragen (Nummern)

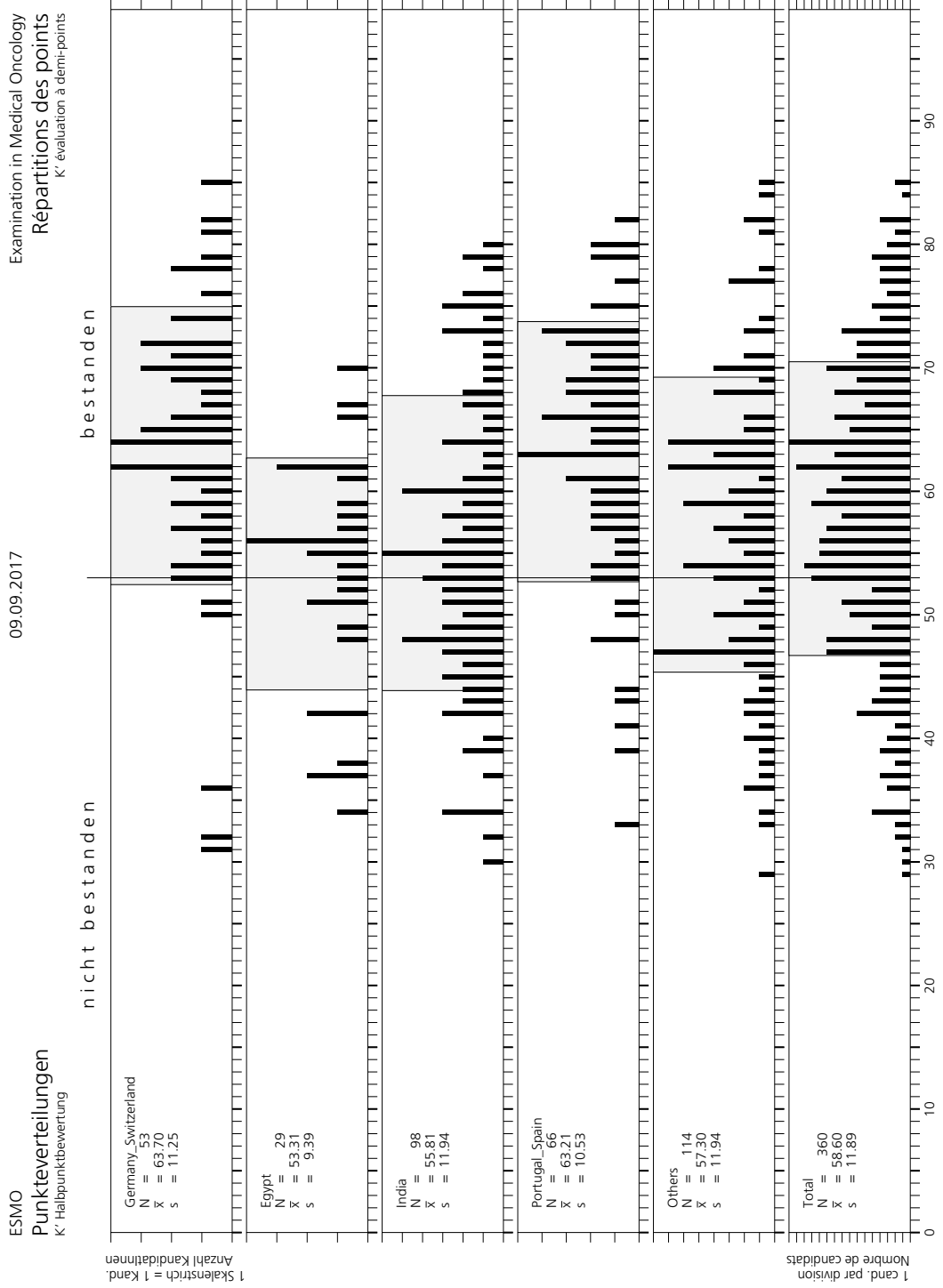
53

questions éliminées (numéros)

Score distribution (location)



Score distribution (region)



Composition of the exam (Blueprint 1)

ESMO

09.09.2017

Examination in Medical Oncology

Prüfungszusammensetzung nach Inhalt

K' Halbpunktbewertung

Code	Subscore	Items	K'[%]
1	Hematologic malignancies Hematologic malignancies	8	0.0
2	Chest malignancies Chest malignancies	9	11.1
3	Breast cancer Breast cancer	10	10.0
4	Gynecologic malignancies Gynecologic malignancies	7	14.3
5	Head and neck cancers Head and neck cancers	3*	66.7
6	Central nervous system malignancies Central nervous system malignancies	3*	0.0
7	Genitourinary cancers Genitourinary cancers	8	37.5
8	Gastrointestinal cancers Gastrointestinal cancers	11	36.4
9	Skin cancers Skin cancers	5*	20.0
10	Sarcomas Sarcomas	5*	0.0
11	Carcinoma of unknown primary site Carcinoma of unknown primary site	4*	25.0
12	Endocrine cancers Endocrine cancers	4*	25.0
13	Others/Clinic Others/Clinic	22	45.5
	Total	99	25.3

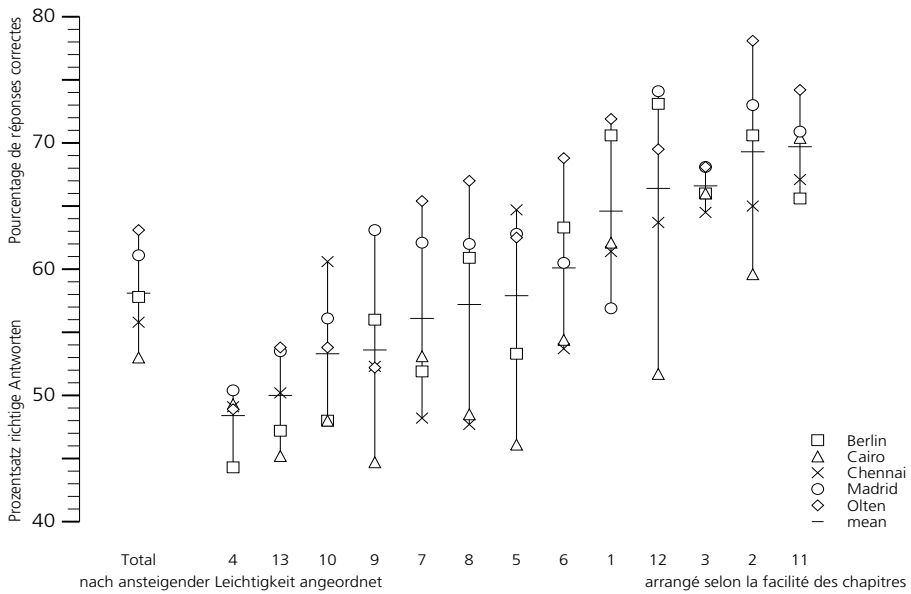
Composition de l'examen selon le contenu

K' évaluation à demi-points

* Bei kleinen Subscores ist die Aussagekraft eingeschränkt (Einfluss des Zufallsfehlers)
L'interprétation des petites chapitres devient incertaine (influence de l'erreur aléatoire)

Subscoreanalyse

Analyse par subscores



Composition of the exam (Blueprint 2)

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Prüfungszusammensetzung nach Inhalt²

Composition de l'examen selon le contenu²

K' Halbpunktbewertung

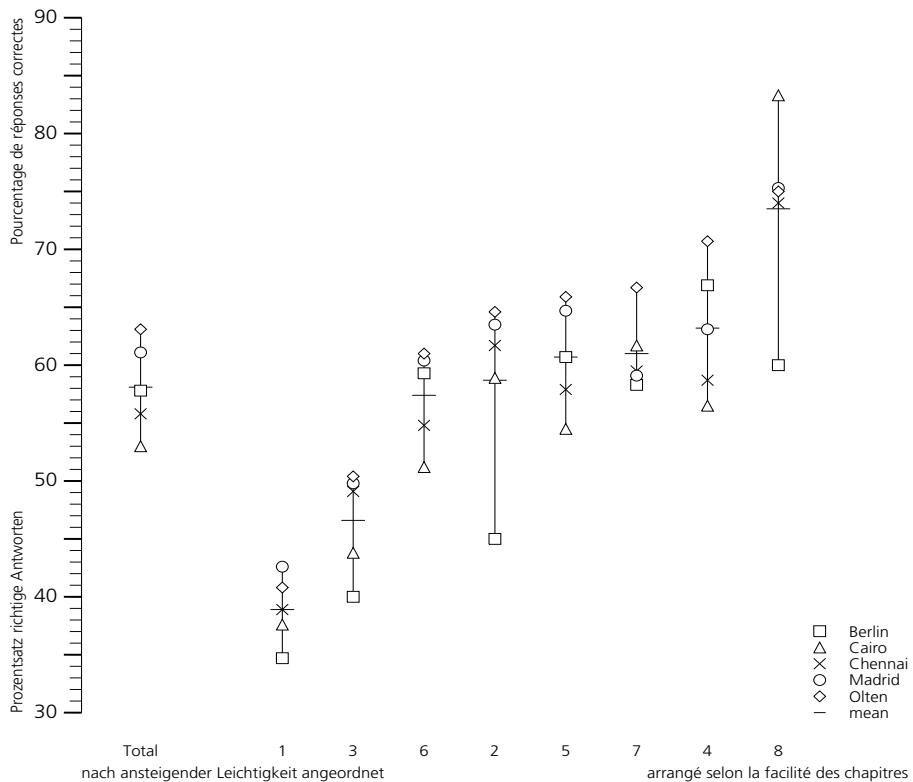
K' évaluation à demi-points

Code	Subscore	Items	K'[%]
1	Biology, Immunology, Pathology incl. Tumour Markers, Laboratory medicine	9	55.6
2	Epidemiology, Etiology, Clinical research	3*	0.0
3	Screening and prevention	4*	25.0
4	Clinic, Differential diagnosis, Staging, Imaging	16	25.0
5	Therapy, Surgery, Radiation oncology, Anticancer agents, Biologic therapy, Response assessment and follow up	48	18.8
6	Complications of treatment, Supportive and Palliative Care, Communication and Psychosocial issues	15	33.3
7	Geriatric oncology, Cancer in adolescents and young adults, Cancer and pregnancy, Aids associated malignancies	3*	33.3
8	Other issues	1*	0.0
Total		99	25.3

* Bei kleinen Subscores ist die Aussagekraft eingeschränkt (Einfluss des Zufallsfehlers)
L'interprétation des petites chapitres devient incertaine (influence de l'erreur aléatoire)

Subscoreanalyse

Analyse par subscores



Composition of the exam & Subscores

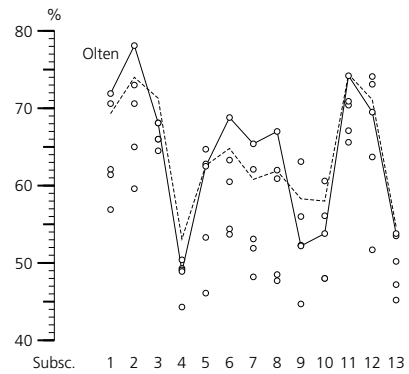
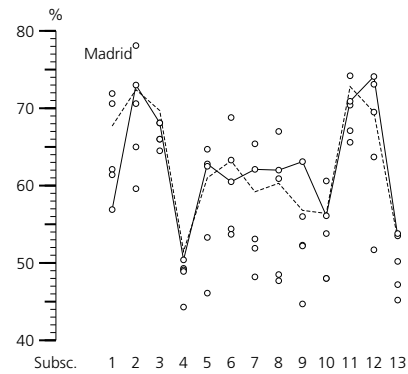
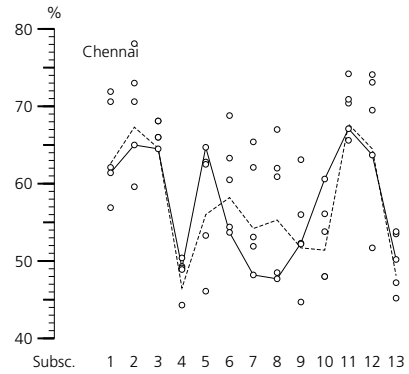
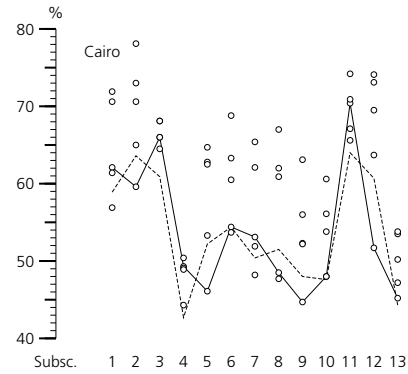
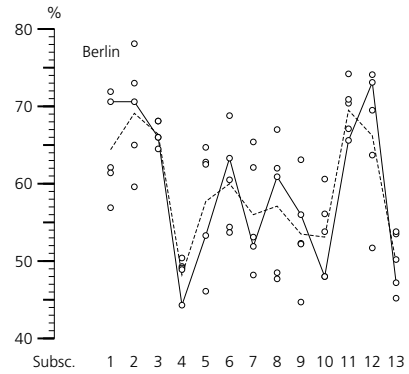
ESMO Subscoreanalyse nach Inhalt

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

09.09.2017

Items	K[%]
8	0.0
9	11.1
10	10.0
7	14.3
3	66.7
3	0.0
8	37.5
11	36.4
5	20.0
5	0.0
4	25.0
4	25.0
22	45.5
99	25.3

Examination in Medical Oncology Analyse par subscores selon le contenu Evaluation avec des demi-points



— erzielte Leistung
- - - erwartete Leistung

— performance réalisée
- - - performance attendue

Sample feedback letter

ESMO Head Office
Education Department
Via Luigi Taddei 4
CH 6962 Viganello-Lugano / Switzerland

Maxima Muster
Lindenhofspital
Länggasse 99
Schweiz

Feedback on your detailed exam results

On September 9, 2017 you participated in the ESMO examination in Madrid. In order to pass, 53 out of 99 questions had to be answered correctly (53.5%). 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 arrows tell you how your results compare to those of the other candidates.

- ↗ You belong to the top 25 %
- ⇒ You belong to the mean (50 % of all participants)
- ↘ You belong to the bottom 25 %, but not to the weakest 5 %
- ↓ You belong to the weakest 5 %
- * Subscores with less than 6 questions will not be evaluated because of too small measuring reliability.

ESMO Examination in Medical Oncology, September 2017

55 Muster Maxima

Points	of	success	subscore	
				total score: 50
				result: failed
2.0	8.0	↘	Hematologic malignancies	
5.0	9.0	⇒	Chest malignancies	
6.0	10.0	⇒	Breast cancer	
3.0	7.0	↘	Gynecologic malignancies	
2.0	3.0	*	Head and neck cancers	
1.0	3.0	*	Central nervous system malignancies	
2.0	8.0	↘	Genitourinary cancers	
8.5	11.0	↗	Gastrointestinal cancers	
3.0	5.0	*	Skin cancers	
1.0	5.0	*	Sarcomas	
3.5	4.0	*	Carcinoma of unknown primary site	
3.0	4.0	*	Endocrine cancers	
10.0	22.0	⇒	Others/Clinic	

Miklos Pless, Chair, ESMO Examination Working Group