



---

<sup>b</sup>  
**UNIVERSITÄT  
BERN**

Faculty of Medicine  
Institute of Medical Education  
**Assessment and Evaluation Unit**

# Report on the ESMO Examination 2020 in Medical Oncology

Rabea Krings, Dr. phil.

# Content

<b>1. Introduction</b> .....	<b>3</b>
<b>2. Method</b> .....	<b>3</b>
2.1 Candidates .....	3
2.2 Format.....	3
<b>3. Performance of measurement</b> .....	<b>3</b>
<b>4. Results</b> .....	<b>4</b>
4.1 Score distribution .....	4
4.2 Passing score .....	4
4.3 Detailed analyses .....	4
4.4 Differentiated feedback to the individual candidate .....	5
<b>5. Summary</b> .....	<b>6</b>
<b>Difficulty distribution, Difficulty/discrimination index diagram</b> .....	<b>7</b>
<b>Score distribution total</b> .....	<b>8</b>
<b>Score distribution (location)</b> .....	<b>9</b>
<b>Composition of the exam (Blueprint 1)</b> .....	<b>10</b>
<b>Composition of the exam (Blueprint 2)</b> .....	<b>11</b>
<b>Composition of the exam &amp; Subscores</b> .....	<b>12</b>
<b>Sample feedback letter</b> .....	<b>13</b>

## **1. Introduction**

This report was prepared by the Institute of Medical Education, University of Bern, Switzerland. The 2020 examination in Medical Oncology conducted by the European Society for Medical Oncology (ESMO) took place on September 19th, 2020, in the locations Ljubljana and Olten. 33 candidates participated in this examination, which consisted of 100 multiple choice questions written in English, German, French and Spanish.

## **2. Method**

### **2.1 Candidates**

33 candidates participated in the examination: 5 in Ljubljana and 28 in Olten.

### **2.2 Format**

The examination 2020 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 of the entire group. The entire group was chosen for the keyvalidation and the determination of 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 = 0.81), and the standard error of measurement (3.9) are given.

## 4. Results

### 4.1 Score distribution

The score distribution is shown on page 8. On average, candidates answered correctly to 67.1% (2019: 59.0%) of the questions, with a standard deviation of 9.4% (2019: 12.0%).

### 4.2 Passing score

On November 10, 2020, the ESMO Examination Working Group discussed the questions which displayed statistical deviations. For content reasons, three type A and three type Kprime 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 58.5% correct answers (2019: 52.6%), in order to keep the passing requirement fair and comparable to previous years.

28 attendees (84.8%) passed the examination, and 5 attendees (15.2%) failed the examination (2019: 73.0% passed and 27.0% failed).

### 4.3 Detailed analyses

On page 9, the score distributions for the different locations of the examination are given (in absolute points).

These results are shown in the following table (relative score) as well.

Location	n	Mean %	SD %	success %
Ljubljana	5	68.9	11.0	80.0
Olten	28	66.8	9.3	85.7
Total	33	67.1	9.4	84.8

Because of the small sample size, there was no analyses about candidates' regions.

The blueprint analyses are shown on pages 10 and 11. On the graph concerning blueprint 1, it can be seen that candidates had more difficulties answering questions on “Hematologic malignancies”, “Carcinoma of unknown primary site“, and “Breast cancer“ than questions on “Endocrine cancers”, “Gynecologic malignancies “, “Central nervous system malignancies “, and “Chest malignancies”.

For the graph concerning blueprint 2, a further example shows that questions on “Epidemiology, Etiology, clinical research” were answered correctly less often than those about all other fields. 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 malignencis”, “Head and neck cancers”, “Central nervous system malignencis”, “Skin cancers”, “Sarkomas”, “Carcinoma of unknown primary site”, “Endocrine cancers”, “Epidemiology, Etiology, Clinical research “, “Screening and prevention”, and “Geriatric oncology, Cancer in adolescents and young adults, Cancer and pregnancy” are represented by 2-4 items).

The graphs on page 12 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 the two different locations performed very similar. They could exceed the expected values in several blueprint fields. However, with regard to the small sample size, the results should be interpreted carefully.

#### **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 13.

## 5. Summary

33 candidates participated in the 2020 written examination in Medical Oncology by the European Society for Medical Oncology, in Ljubljana and Olten.

The exam consisted of 100 multiple choice questions, six items had to be eliminated from the evaluation. The exam shows a reliability of 0.81 (Cronbach's Alpha).

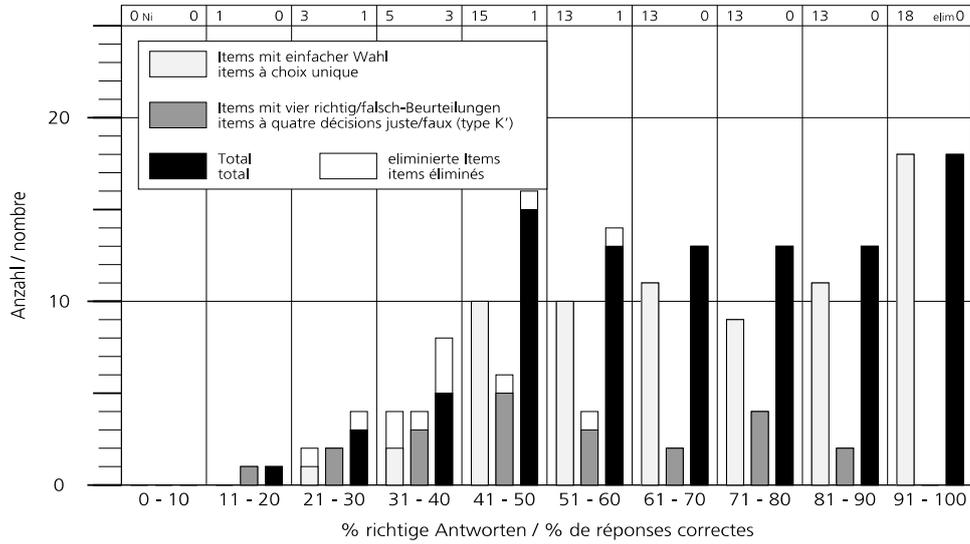
On average, candidates answered correctly to 67.1% of the questions, with a standard deviation of 9.4%.

The pass/fail limit was set at 58.5%. 28 (84.8%) candidates passed the examination.

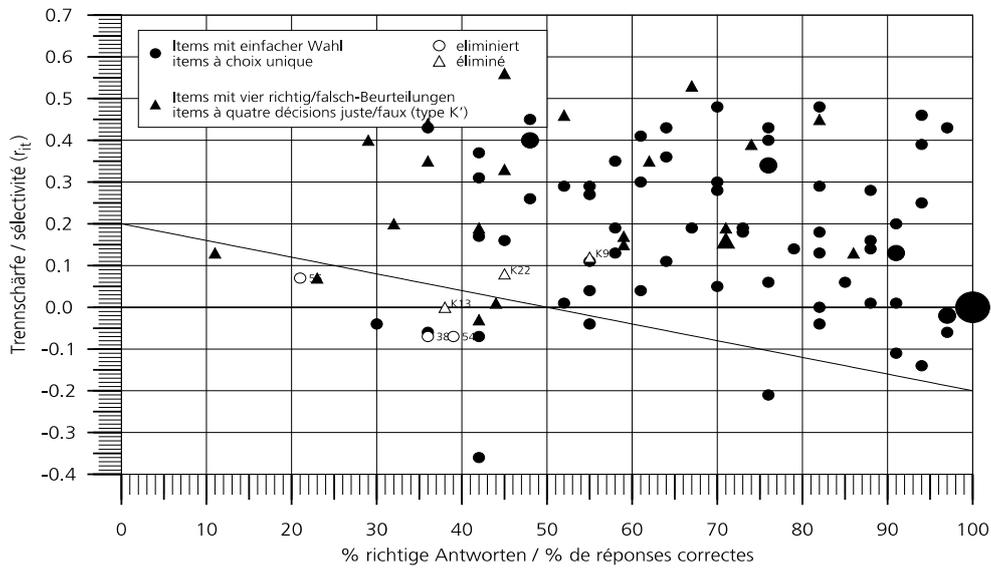
The next examination will be held on Saturday, 18th September 2021.

# Difficulty distribution, Difficulty/discrimination index diagram

ESMO 19.09.2020 Examination in Medical Oncology  
 Total Distribution de difficulté  
 K' Halbpunktbewertung K' évaluation à demi-points



Schwierigkeits-/Trennschärfediagramm Diagramme difficulté/sélectivité



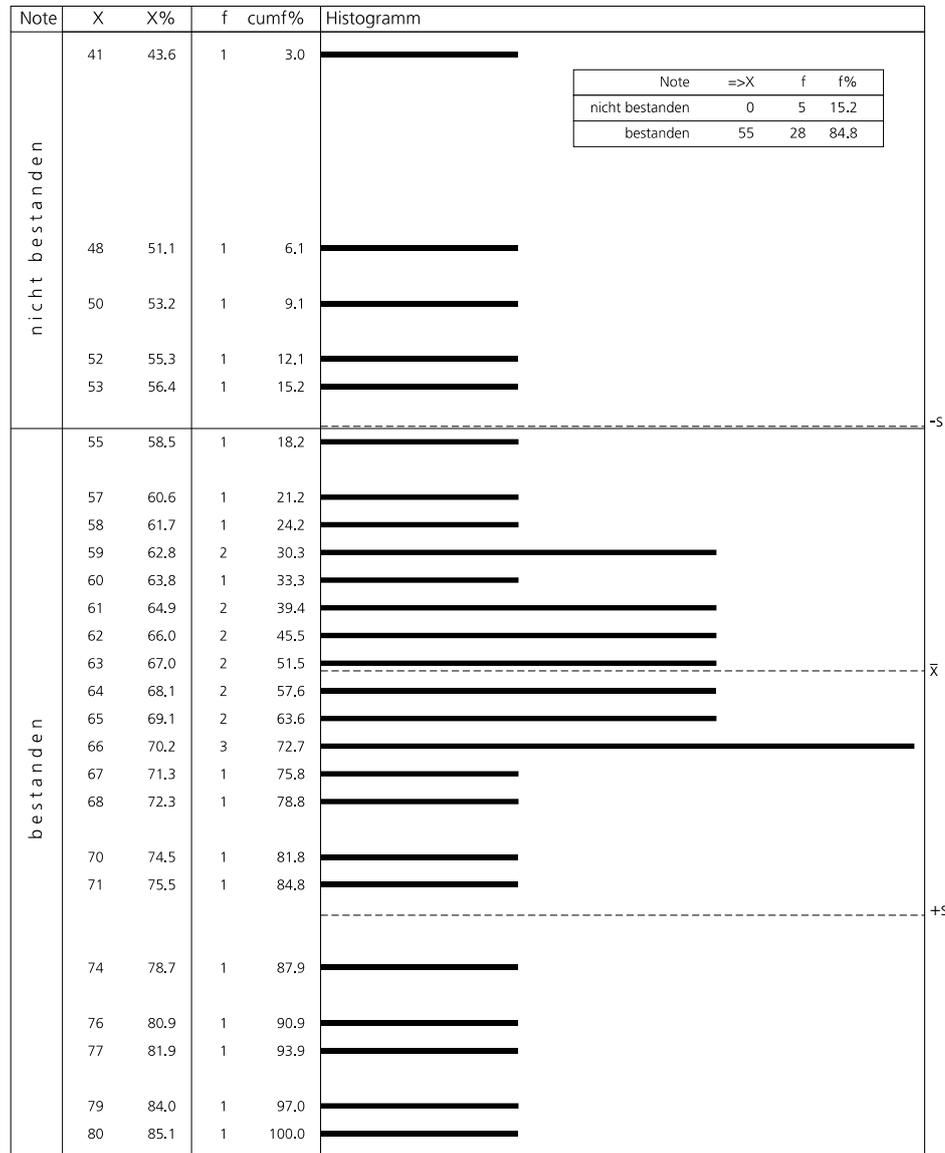
Reliabilität (CRONBACH-alpha)	0.810	Fiabilité ( $r_{tt}$ )
auf 100 Items gerechnet	0.819	calculée pour 100 items
Standardmessfehler ( $s_e = s_x \sqrt{1-r_{tt}}$ )	$\pm 3.9$	Erreur type ( $s_e = s_x \sqrt{1-r_{tt}}$ )
auf 100 Items gerechnet	$\pm 4.0$	calculée pour 100 items

# Score distribution total

ESMO

19.09.2020  
Total

Examination in Medical Oncology

Punkte- und Notenverteilung  
K: HalbpunktbewertungRépartition des points et des notes  
K: évaluation à demi-points

Anzahl KandidatInnen  
mögliches Punktemaximum  
Mittelwert  
Standardabweichung

$N_p$  33  
 $N_i$  94  
 $\bar{x}$  63.09  
 $s$  8.83  
 $\bar{x}_{90\%}$  67.12  
 $s_{90\%}$  9.39

nombre de candidats  
score maximum possible  
moyenne  
écart type

eliminierte Fragen (Nummern)

38, 54, 56, K9, K13, K22

questions éliminées (numéros)

# Score distribution (location)

ESMO

19.09.2020

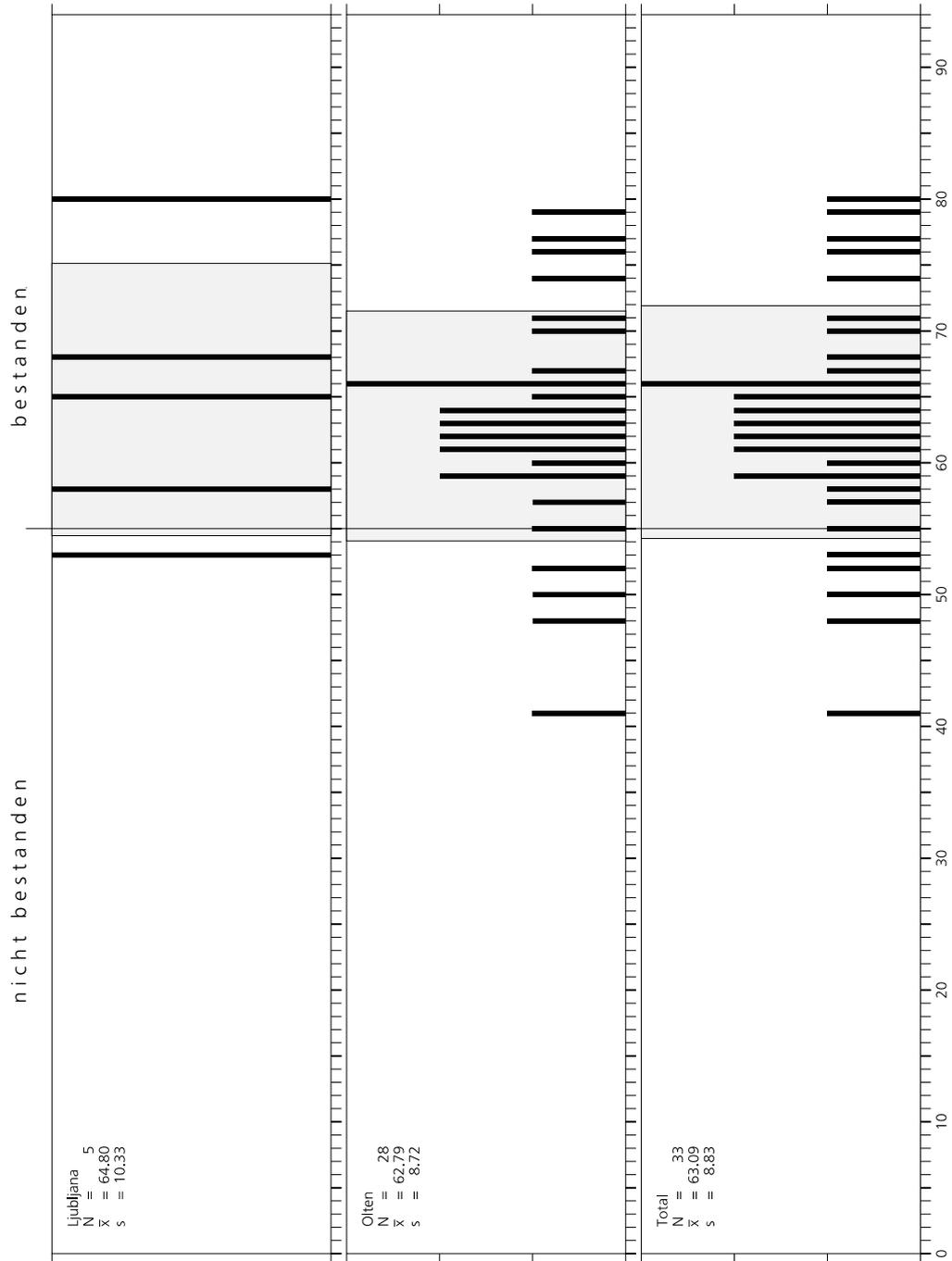
Examination in Medical Oncology

Punkteverteilungen

Répartitions des points

K' Halbpunktbewertung

K' évaluation à demi-points



Anzahl KandidatInnen  
1 Skalenstrich = 1 Kand.

Nombre de candidats  
1 cand. par division

# Composition of the exam (Blueprint 1)

ESMO

19.09.2020

Examination in Medical Oncology

## Prüfungszusammensetzung nach Inhalt

K' Halbpunktbewertung

## Composition de l'examen selon le contenu

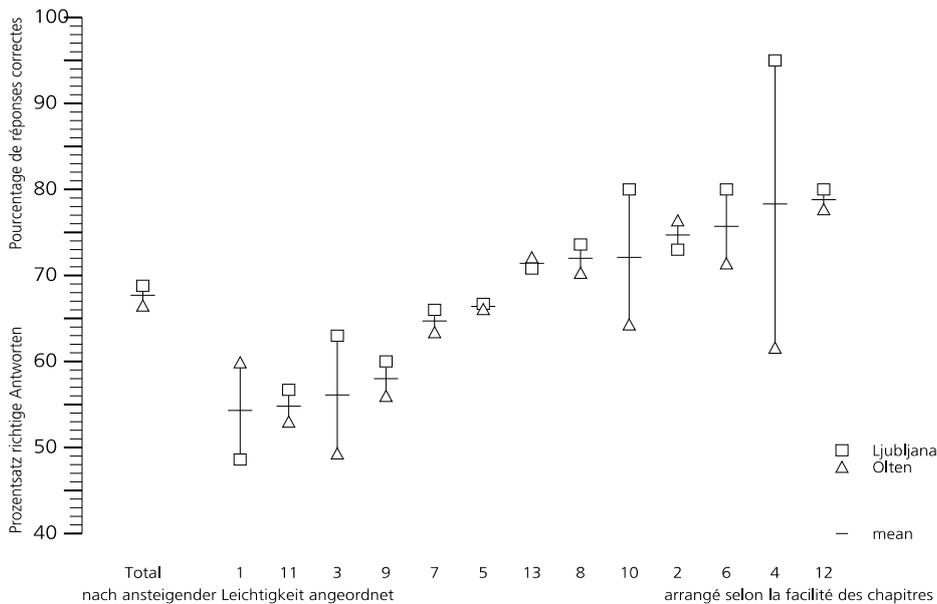
K' évaluation à demi-points

Code	Subscore	Items	K'[%]
1	Hematologic malignancies Hematologic malignancies	7	14.3
2	Chest malignancies Chest malignancies	10	30.0
3	Breast cancer Breast cancer	10	30.0
4	Gynecologic malignancies Gynecologic malignancies	2*	50.0
5	Head and neck cancers Head and neck cancers	3*	33.3
6	Central nervous system malignancies Central nervous system malignancies	2*	50.0
7	Genitourinary cancers Genitourinary cancers	10	40.0
8	Gastrointestinal cancers Gastrointestinal cancers	11	36.4
9	Skin cancers Skin cancers	3*	0.0
10	Sarcomas Sarcomas	3*	0.0
11	Carcinoma of unknown primary site Carcinoma of unknown primary site	3*	33.3
12	Endocrine cancers Endocrine cancers	4*	0.0
13	Others/Clinic Others/Clinic	26	11.5
	<b>Total</b>	<b>94</b>	<b>23.4</b>

\* 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)

ESMO

19.09.2020

Examination in Medical Oncology

## Prüfungszusammensetzung nach Inhalt<sup>2</sup>

K' Halbpunktbewertung

## Composition de l'examen selon le contenu<sup>2</sup>

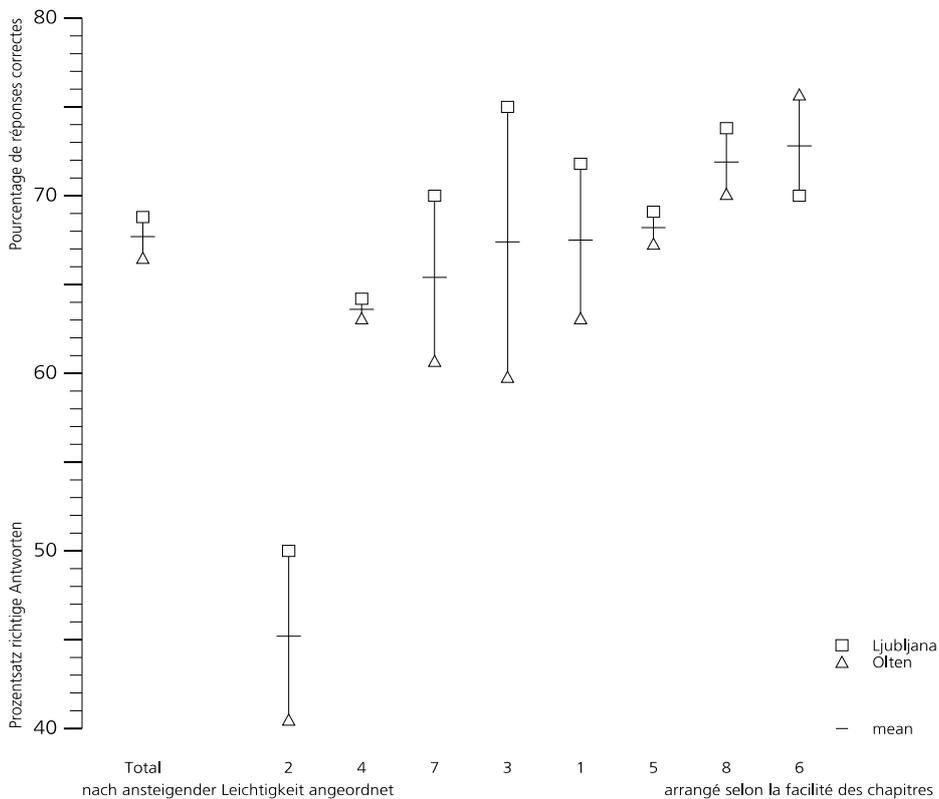
K' évaluation à demi-points

Code	Subscore	Items	K'[%]
1	Biology, Immunology, Pathology incl. Tumour Markers, Laboratory medicine Biology, Immunology, Pathology incl. Tumour Markers, Laboratory medicine	11	27.3
2	Epidemiology, Etiology, Clinical research Epidemiology, Etiology, Clinical research	3*	100.0
3	Screening and prevention Screening and prevention	2*	50.0
4	Clinic, Differential diagnosis, Staging, Imaging Clinic, Differential diagnosis, Staging, Imaging	12	25.0
5	Therapy, Surgery, Radiation oncology, Anticancer agents, Biologic therapy, Response assessment and follow up Therapy, Surgery, Radiation oncology, Anticancer agents, Biologic therapy, Response assessment and follow up	43	20.9
6	Complications of treatment, Supportive and Palliative Care, Communication and Psychosocial issues Complications of treatment, Supportive and Palliative Care, Communication and Psychosocial issues	13	15.4
7	Geriatric oncology, Cancer in adolescents and young adults, Cancer and pregnancy, Aids associated malignancies Geriatric oncology, Cancer in adolescents and young adults, Cancer and pregnancy, Aids associated malignancies	2*	0.0
8	Other issues Other issues	8	12.5
<b>Total</b>		<b>94</b>	<b>23.4</b>

\* 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

K' Halbpunktbewertung

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

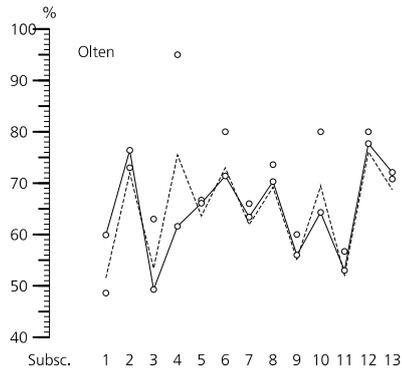
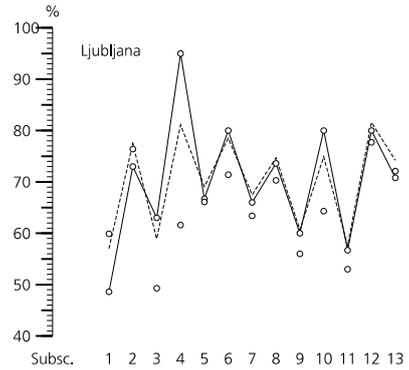
19.09.2020

Items K'[%]

7	14.3
10	30.0
10	30.0
2	50.0
3	33.3
2	50.0
10	40.0
11	36.4
3	0.0
3	0.0
3	33.3
4	0.0
26	11.5
94	23.4

## Examination in Medical Oncology Analyse par subscores selon le contenu

K' évaluation à demi-points



— erzielte Leistung  
- - - erwartete Leistung

— performance réalisée  
- - - performance attendue

## Sample feedback letter

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

Muster Max  
Bundesstrasse 99  
3000 Bern  
Switzerland

### Feedback on your detailed exam results

On September 19, 2020 you participated in the ESMO examination in Olten. In order to pass, 55 out of 94 questions had to be answered correctly (58.5%). 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 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, September 19, 2020

99 Muster Max

Points	of	success	subscore	
				total score: 47.5
				result: failed
2.5	7.0	2	Hematologic malignancies	
4.5	10.0	4	Chest malignancies	
5.5	10.0	2	Breast cancer	
1.0	2.0	0	Gynecologic malignancies	
1.5	3.0	0	Head and neck cancers	
1.0	2.0	0	Central nervous system malignancies	
3.5	10.0	3	Genitourinary cancers	
5.5	11.0	3	Gastrointestinal cancers	
1.0	3.0	0	Skin cancers	
2.0	3.0	0	Sarcomas	
1.0	3.0	0	Carcinoma of unknown primary site	
2.0	4.0	0	Endocrine cancers	
16.5	26.0	3	Others/Clinic	