SUBJECT EXAMINATION PROGRAM

INTERNATIONAL FOUNDATIONS OF MEDICINE®(IFOM®)
CLINICAL SCIENCE EXAMINATION

INTERPRETATION GUIDELINES FOR MEDICAL SCHOOLS,
RESIDENCY PROGRAMS, AND OTHER ORGANIZATIONS

NBME®

The NBME® International Foundations of Medicine® (IFOM®) Clinical Science Examination (CSE) assesses the medical knowledge and understanding of clinical science considered essential for the provision of safe and effective patient care.

IFOM CSE Scores

The IFOM CSE score is an equated percent correct score that represents mastery of the content domain assessed by the examination. It is calculated as the percentage of items in the total content domain that would be answered correctly based on an examinee's proficiency level. Scores are placed on a classic percent correct metric (0-100%) to facilitate interpretation and use. This scale can easily be incorporated into grading schemes. IFOM CSE scores are equated across test administrations (statistically adjusted for variations in test form difficulty), so they can be used to compare and track school and examinee performance over time.

The IFOM CSE is administered in both paper-and-pencil and web formats and is offered in Portuguese, Spanish and International English. Caution should be used in the interpretation of scores as the modality and language of the test administration may affect performance for some examinees. In addition, the stakes associated with the IFOM CSE administration may affect performance for some examinees due to differences in preparation and motivation.

Precision of Scores

Measurement error is present on all tests, and the standard error of measurement (SEM) provides an index of the imprecision of scores. The SEM is approximately 5 points for the IFOM CSE. Using the SEM, it is possible to calculate a score interval that indicates how much a score might vary across repeated testing using different sets of items covering similar content. An interval expected to encompass about two thirds of scores observed on repeated testing may be found by adding and subtracting the SEM from the reported score.

The standard error of difference (SED) in scores is an index used to assess whether the difference between two scores is statistically meaningful. The SED is approximately 6 points for IFOM CSE. If the scores received by two examinees differ by at least one SED, it is unlikely that the examinees are equal in proficiency, since a difference this large would occur by chance less than 32% of the time.

Interpreting IFOM CSE Scores

The IFOM CSE is used for a variety of purposes by both individuals and institutions. Individuals use IFOM CSE for several purposes, including participation in exchange programs, application for post-graduate training programs and professional positions, and self-assessment relative to international standards. Medical schools use IFOM CSE for formative and summative assessment, curriculum evaluation and international benchmarking. Post-graduate programs use IFOM CSE for selection of graduates for training. Ministries of health/education use IFOM CSE as part of assessment for regional certification.

As implied based on the variety of uses of IFOM CSE, it is utilized for both high-stakes and low-stakes assessment purposes. The stakes for the examinee taking the IFOM CSE as well as differences in educational level, preparation and motivation may affect performance. These factors should be considered when interpreting performance and when comparing performance based on one use of IFOM CSE to performance based on a different use. These factors should also be considered when interpreting IFOM performance relative to the United States Medical Licensing Examination® (USMLE®) Step 2 Clinical Knowledge (CK) performance and the Step 2 CK passing standard. Step 2 CK is a very high-stakes examination that is taken after intense preparation. While the IFOM CSE score of 74 that corresponds approximately to the Step 2 CK passing standard is useful as a benchmark, stakes and preparation for IFOM CSE examinees may differ substantially and should be taken into consideration when making comparisons.

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International Comparison Group (ICG)

The International Comparison Group (ICG) included 4,026 examinees from Africa (1.1%), the Americas (28.3%), Asia including the Middle East (56.4%), Europe (12.1%) and Oceania (2.1%) taking the IFOM CSE in 2019-2023 during the final year of medical school. The mean score of the IFOM CSE ICG was 56 and the standard deviation was 16 points. As mentioned in the previous section, IFOM CSE is utilized for a variety of assessment purposes and the stakes as well as differences in educational level, preparation and motivation may affect performance. These factors should be considered when interpreting performance relative to the ICG as most ICG examinees tested for formative or summative purposes in a low-stakes context.

Examination Feedback

Each examinee is provided with a Performance Report showing the total test equated percent correct score and a Performance Profile displaying individual strengths and weaknesses for major content areas.

NBME sets a standard of competence for the IFOM CSE that approximates the Step 2 CK passing standard. The IFOM CSE score that best approximates the Step 2 CK passing standard is 74, as can be seen in the "Approximate Correspondence with USMLE Step 2 CK Performance" section of this Guide. Examinees whose IFOM CSE score is 74 or higher receive a _Certification in Clinical Science Knowledge_ along with their score report, in recognition of this achievement.

The IFOM CSE score is not the same as, and cannot be used in place of, a Step 2 CK score. Examinees wishing to obtain a Step 2 CK score for any purpose must register for and take the USMLE separately.

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Interpreting Norms

- Norms are provided to aid in the interpretation of examinee performance.
- They make it possible to compare examinees' scores with the performance of a norm group.
- Norm group characteristics:
  - International Comparison Group (ICG) examinees who took a form of this examination in a low-stakes context during 2019-2023.

Using the Table

- To use the table, locate an examinee's score in the column labeled "Equated Percent Correct Score" and note the entry in the adjacent column labeled "Percentile Ranks." This number indicates the percentage of examinees that scored below the examinee's equated percent correct score.

Equated Percent Correct Scores

	ICG
Number of Examinees	4,026
Mean	56
SD	16

Equated Percent Correct Score	Percentile Ranks	Equated Percent Correct Score	Percentile Ranks
100	100	60	59
99	100	59	57
98	100	58	55
97	100	57	53
96	100	56	51
95	100	55	49
94	100	54	47
93	100	53	44
92	100	52	42
91	99	51	40
90	99	50	38
89	99	49	36
88	98	48	33
87	98	47	32
86	97	46	30
85	97	45	28
84	96	44	25
83	95	43	23
82	94	42	21
81	93	41	20
80	92	40	17
79	91	39	16
78	89	38	14
77	88	37	13
76	87	36	11
75	86	35	9
74	84	34	9
73	83	33	7
72	81	32	6
71	79	31	5
70	77	30	4
69	76	29	4
68	73	28	3
67	72	27	2
66	70	26	2
65	69	25	1
64	67	24	1
63	65	23	1
62	63	22	0
61	61	21 and below	0

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Approximate Correspondence with USMLE Step 2 CK Performance

The IFOM CSE is intended to determine an examinee's relative areas of strength and weakness in general areas of clinical science, not to predict performance on the Step 2 CK examination, and the content covered by the two examinations is somewhat different. However, because there is substantial overlap in content coverage and many IFOM items were previously used on Step 2 CK, it is possible to roughly project IFOM performance onto the Step 2 CK score scale. The table below provides this information.

To use the table, locate an IFOM score in the associated column and look up the corresponding entry in the column labeled Step 2 CK Scale. For example, if an examinee's score is 56, the corresponding entry of 159 indicates that the examinee's performance on the IFOM CSE corresponds approximately to a Step 2 CK score of 159. The IFOM CSE score is not the same as, and cannot be used in place of, a Step 2 CK score.

IFOM Score	Step 2 CK Scale	IFOM Score	Step 2 CK Scale	IFOM Score	Step 2 CK Scale
100	289	73	211	46	128
99	287	72	208	45	124
98	285	71	205	44	120
97	283	70	203	43	117
96	281	69	200	42	115
95	279	68	196	41	112
94	276	67	193	40	109
93	273	66	190	39	105
92	270	65	187	38	102
91	267	64	184	37	99
90	264	63	181	36	96
89	262	62	178	35	93
88	258	61	175	34	89
87	254	60	172	33	86
86	252	59	169	32	83
85	250	58	165	31	80
84	246	57	162	30	76
83	243	56	159	29	73
82	239	55	156	28	71
81	236	54	153	27	67
80	233	53	149	26	63
79	230	52	146	25	60
78	227	51	143	24	56
77	224	50	140	23	53
76	221	49	137	22	51
75	218	48	134	21	47
74	215	47	131	20	44

Mean Performance of examinees from U.S. and Canadian medical schools taking Step 2 CK for the first time in the 2022-2023 academic year is 248.

The Step 2 CK Passing Standard as of 7/1/2022 is 214.

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Interpretation of Box Plots on Group Performance Report and Performance Summary Profile

- The "box" represents the middle 50% of all observed scores;
- The upper boundary of the box indicates the 75th percentile of the score distribution, the lower boundary indicates the 25th percentile; the box is referred to as the inter-quartile range (IQR);
- The line in the box indicates the median, or the 50th percentile of the distribution;
- The ends of the lines extending from the box, or "whiskers," represent the highest and lowest values that are not more than 1.5 x the IQR interval from either end of the box.

Guidelines for the Use of IFOM CSE Scores for Decisions

When comparing student performance, it is generally appropriate to consider IFOM CSE results in conjunction with other criteria such as grades, rather than using test scores as the sole basis for decisions. Test scores should be viewed as approximate, not exact, measures of medical knowledge; consequently, small differences in IFOM CSE scores alone should not be used as the basis for decisions about students, or for selecting one student over another.