

Evidence-Based Medicine Educational Environment Measure

Factor-7 model (EBMEEM-67)¹

Instructions and user-friendly questionnaire

Preparation of the questionnaire for use

Different terminologies are used in different parts of the world. The following are words used as synonyms in the questionnaire:

Graduate / Postgraduate: Someone who already has a first degree in Medicine

Resident / Registrar: Person who already has a first medical degree and is now specialising in a particular discipline or subspecialty

Faculty / Consultants: Specialists in a particular field responsible for the training of residents or registrars

Delete the variant that does not apply to your setting for all questions where relevant.

If the electronic version will be used, activate the "Protect Document" function.

Preparation of data for calculations

- Assign the following values to all item responses

Strongly disagree	0
Disagree	1
Neutral	2
Agree	3
Strongly agree	4

¹ Developed by the Medical Research Council Unit for Maternal and Infant Health Care Strategies, University of Pretoria, South Africa, for the World Health Organization

- Reverse the scores for items formulated in the negative as follows:

Item numbers to reverse: 3, 6, 8, 12, 22, 52, 57
4 becomes 1 3 becomes 2 2 remains 2 1 becomes 3 0 becomes 0

- Include in the analysis all respondents who have answered 41 or more items (items answered ≥ 41) of the possible 67 answers; or rephrased: exclude all respondents with 27 or more unanswered answers (items unanswered ≥ 27).
- Exclude respondents with more than 50% of the items unanswered for a particular subscale. Therefore, the minimum number of items answered per subscale should be as follows:

Subscale	Minimum number of items
1. Knowledge and learning materials	4
2. Learner support	5
3. General relationships and support	4
4. Institutional focus on EBM	7
5. Education, training and supervision	5
6. EBM application opportunities	6
7. Affirmation of EBM environment	3

- Calculate the score for a dimension by adding the scores of all the items on the 5-point Likert scale and divide by the number of non-missing items to obtain the mean score. The mean score is preferable, because calculating it in this manner, the user will automatically adjust for any missing values and the score would also be on the original 0-4 scale. Use the following items per dimension:

Subscale	Items numbers
1. Knowledge and learning materials	14, 23, 26, 31, 38, 40, 53, 65
2. Learner support	10, 15, 28, 30, 33, 42, 48, 50, 55, 58
3. General relationships and support	02, 09, 17, 21, 43, 45, 54, 60
4. Institutional focus on EBM	01, 18, 20, 24, 27, 29, 34, 36, 41, 47, 49, 51, 63, 67
5. Education, training and supervision	03, 04, 05, 07, 11, 16, 35, 39, 62, 64, 66
6. EBM application opportunities	13, 19, 25, 32, 37, 44, 46, 56, 59, 61
7. Affirmation of EBM environment	06, 08, 12, 22, 52, 57

Precautionary notes:

- Exercise care in cases where the number of respondents (sample size) is relatively small; the reason being that the assumptions (e.g. applying a classical ANOVA [Analysis of Variance]) of normality and homoscedasticity may not be met to an acceptable level. Applicable tests and/or transformations exist to address these issues. Another option in case the assumptions cannot be adhered to is to apply an applicable nonparametric procedure.
- For a pre-test and post-test scenario, we recommend for comparison purposes the calculation of differences between the scores obtained per subscale and the use of a suitable statistic such as t-statistic for paired values or a nonparametric alternative (e.g. Wilcoxon's Signed Rank statistic).

Instrument starts on next page.

EVIDENCE-BASED MEDICINE EDUCATIONAL ENVIRONMENT MEASURE 67 (EBMEEM-67)

Name of training institution in which you are currently working (optional):

Country (optional):

Specialty area:

Sex: **Male** **Female**

Age (years):

Year of specialisation: 1st 2nd 3rd 4th 5th 6th or more

Instructions

Electronic version: For each of the items, click on the block that reflects your view best

Paper version: Make a cross in the block that reflects you view best

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Feedback from review of practice or from morbidity and mortality conferences is used to change practice in my department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Faculty / Consultants are easily available for assistance in any of the steps required for critical appraisal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	My workload does not allow me sufficient time to review evidence for my case presentations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	For the patients that I am taking care of, I am able to assess the validity of the evidence that I have found.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	There is systematic, structured training in EBM at my institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	It does not really help to review evidence when taking care of a patient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	I receive regular feedback from faculty / seniors on my application of EBM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Faculty / Consultants do not promote EBM among residents / registrars.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
9	Faculty / The consultants are approachable and friendly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Faculty / The consultants set clear expectations about how my review of evidence should support my clinical decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	I have the opportunity to identify my knowledge gaps in EBM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	The environment in which I work discourages initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	For the patients that I am taking care of, I am able to figure out what I need to know.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	I know how to calculate Number Needed to Treat when reviewing an article.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	I am given time to participate in educational activities related to EBM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	Residents / Registrars address clinical questions through a formal review of the evidence.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	There are good channels of communication in my department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	Evidence-based medicine gets sufficient attention in my department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	For the patients that I am taking care of, I am able to apply the valid evidence that I have found to the patient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	Faculty / The head of department / head of the firm conducts "evidence-based" ward rounds with residents / registrars.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	I am able to ask "why?" with regard to clinical practice issues to faculty / consultants.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	EBM in clinical practice is not valued in my department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Sufficient learning material is available on how to review the literature.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	Faculty / The consultants are willing to challenge, question, and explore.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	I am allocated sufficient time for applying EBM principles in my clinical cases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	I know how to calculate Relative Risk Reduction when reviewing an article.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	Faculty / The consultants address clinical questions through a formal review of the evidence.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	Residents / Registrars are adequately supervised for their application of EBM in their clinical care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
29	Case discussions in my hospital / unit / department emphasize critical appraisal of articles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	I have the opportunity to apply evidence-based principles in my clinical care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	Sufficient learning material is available on how to critique articles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	I was taught how to interpret a meta-analysis of studies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	Faculty / The consultants are enthusiastic about teaching me EBM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	Using EBM is a routine practice in my institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	Faculty / The consultants taught me how to read and critique the scientific literature.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36	I have access to evidence-based clinical advice from faculty / the consultants.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	When I take care of patients, I have the opportunity to review relevant literature.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	I know how to calculate Absolute Risk Reduction when reviewing an article.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	The EBM materials on the computer at work are up-to-date.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	Sufficient learning material is available on how to ask a clinical question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41	Best practices that are communicated in my institution are normally implemented.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	Faculty / My mentor(s) provided me with internet EBM resources.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	I have good rapport with faculty / the consultants.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44	I feel comfortable in generating clinical questions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45	I feel comfortable in my program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46	There are ample opportunities for me to apply my knowledge of EBM in patient care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47	Faculty / The consultants routinely review evidence in morbidity and mortality conferences and in case discussions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48	Faculty / The consultants serve as role models for using EBM in clinical practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49	Senior faculty / Consultants in my department listen when someone brings evidence that should lead to change of practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
50	There are good channels of communication in the hospital(s) and clinic(s) in which I work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51	Reviews of practice are done routinely in my department to improve the quality of care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52	I seldom have the opportunity to use EBM when I am presenting cases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53	I know how to calculate Relative Risk when reviewing an article.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54	Working here, I feel part of a team.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55	I have on-line access to the most important EBM sources.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56	For the patients that I am taking care of, I am able to find the evidence needed to apply to the patient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57	My fellow residents / registrars are not keen on using EBM principles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58	Faculty / The consultants help me to increase my competence in EBM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59	When I take care of patients, I have the opportunity to ask a focused clinical question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60	My views are respected by faculty / consultants.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61	My seniors expect me to review the evidence when taking care of a patient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62	Residents / Registrars get a good foundation in EBM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
63	The evidence from Cochrane Systematic Reviews is used in my department to develop new clinical practice guidelines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
64	I have attended seminars or discussions on searching the literature and the critical appraisal of articles during my residency / since starting to work as a resident / registrar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
65	I know how to calculate Odds Ratio when reviewing an article.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
66	Faculty / Consultants give me regular feedback on my EBM knowledge and skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
67	Faculty / The consultants usually use EBM principles when considering treatment for patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>