Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

BMJ Open

Claim standard for passing and mastery – Appendices

Appendix 1   Instructions for assessments of difficulty of the questions for determining cut-offs for passing and mastery

For each question:

1. First eliminate response options that an individual on the border between passing and failing, such as Samuel, would be able to eliminate. The chances of getting each question correct is then equal to one divided by the number of remaining response options; e.g if there are two remaining response options (one of which is the correct option), the chances of a borderline individual answering the question correct is ½ or 50%.
2. Then increase or decrease the assigned probability based on an overall assessment, such as uncertainty about the number of response options a borderline individual would eliminate, the difficulty of the stem (scenario) for the question, the difficulty of the concept, and anything else that might make a question more or less difficult.
   Please note your reasons for increasing or decreasing the probability of a correct answer.
3. Repeat the first two steps for an individual on the border between having mastered and not having mastered the concepts, such as Élise.

Background information:

We have identified 49 key concepts that people need to understand when assessing claims about treatment effects (described here in an article: [IHC Key Concepts Framework](#)).

The attached claim questionnaire covers only nine of those concepts, which will be covered in 10 forty-minute lessons for lower secondary school students in East Africa (Kenya, Rwanda, and Uganda) age 14 years.
The table below (Table 1) shows the concepts that are covered by the resources and the attached Claim test:

Informed Health Choices: Cut-off score study; Appendix 1

Table 1. Key Concepts included as learning goals in the IHC lower secondary school learning resources.

Higher level concepts	Included Key Concepts
Claims	
Claims about effects that are not supported by evidence from fair comparisons are not necessarily wrong, but there is an insufficient basis for believing them.	
Assumptions that treatments are safe or effective can be misleading.	1. Do not assume that treatments are safe.
	2. Do not assume that treatments have large, dramatic effects.
	3. Do not assume that comparisons are not needed.
Trust based on the source of a claim alone can be misleading.	4. Do not assume that personal experiences alone are sufficient.
Seemingly logical assumptions about treatments can be misleading.	5. Do not assume that a treatment is better based on how new or technologically impressive it is.
	6. Do not assume that a treatment is helpful or safe based on how widely used it is or has been.
Comparisons	
To identify treatment effects, studies should make fair comparisons, designed to minimize the risk of systematic errors (biases) and random errors (the play of chance).	
Comparisons of treatments should be fair.	7. Consider whether the people being compared were similar.
Descriptions of effects should reflect the risk of being misled by the play of chance.	8. Be cautious of small studies.
Choices	
What to do depends on judgements about a problem, the relevance of the available evidence, and the balance of expected benefits, harms, and costs.	
Expected advantages should outweigh expected disadvantages.	9. Weigh the benefits and savings against the harms and costs of acting or not.

Informed Health Choices: Cut-off score study; Appendix 1

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

BMJ Open

Read the passage on every question then answer the question below the passage using one of the provided answers (***We will only focus on questions about claims under part 3***). There are three response options for each question, marked A, B, and C. Read through all the answers, choose what you think is the best answer for the question, and write the letter for that answer in the box provided.

Example:

A teacher says that the children in his school run faster than the children going to school in another village.

Question: **How can the teacher be sure about this?**

Options:

    A) He should ask a teacher at the other school
    B) He should arrange for a running contest between the two schools
    C) He should ask the children in his school what they think

Answer: | B |

Difficulty for a test taker on the border between passing and failing

1. Which response options would a borderline individual (such as Samuel) be able to eliminate? Answer: <u>None</u>
2. What are the chances of him getting this question correct (one divided by the number of the remaining options)? Answer: <u>33%</u>

Informed Health Choices: Cut-off score study; Appendix 1

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

BMJ Open

3. What are the chances of Samuel getting this question correct after increasing or decreasing that probability based on an overall assessment, including uncertainty about the number of response options a borderline individual would eliminate, the difficulty of the stem (scenario) for the question, the difficulty of the concept, and anything else that might make the question more or less difficult? Answer: <u>40%</u>

Notes: Samuel may be able to eliminate option C, but there might be reading errors.

Difficulty for a test taker on the border between having mastered the concepts and not having mastered the concepts

1. Which response options would a borderline individual (such as Élise) be able to eliminate? Answer: <u>A and C</u>
2. What are the chances of Élise getting this question correct (one divided by the number of the remaining response options)? Answer: <u>100%</u>
3. What are the chances of Élise getting this question correct after increasing or decreasing that probability based on an overall assessment, including uncertainty about the number of response options an individual who has mastered the concepts would eliminate, the difficulty of the stem (scenario) for the question, the difficulty of the concept, and anything else that might make the question more or less difficult? Answer: <u>80%</u>

Notes: Élise may answer incorrectly because of reading problems

Informed Health Choices: Cut-off score study; Appendix 1