

### Using this Tool to Evaluate Medical “Experts”

This tool is not designed to evaluate expertise in evidence-based medicine, but rather is designed to attempt to identify “experts” that may lack basic evidence-based medicine (EBM) skills.

The questions selected do not represent the full spectrum of needed evidence-based medicine knowledge, but are chosen because answers should be reasonably easy to evaluate and the questions represent some basic issues.

We cannot guarantee that you will be able to use this tool to detect good and poor experts, but it may give you some clues.

### Quick application tips:

- Because of time constraints you may wish to ask only a few questions. We have **★starred★** the questions that we believe will make this process most efficient and yield the most complete “snapshot” of the expert’s knowledge of evidence-based medicine. We highly recommend going in the order listed here since some of the prior questions may help prompt some answers if taken out of sequence.
- These questions are useful for cross-examination as well as evaluating experts.
- Several questions may be useful to judges in pre-trial hearings and are so noted.

### Disclaimer

**This tool cannot and is not meant to provide all the information you need to identify experts in clinical practice or medical information; however, it can help guide you. Ultimately, you will need to apply your own judgment.**

Question and Response Tips	Notes
<p><b>1. What training has the expert had in critical appraisal of the medical literature?</b></p> <ul style="list-style-type: none"> <li>▪ Many doctors have had a course in medical school in biostatistics or epidemiology. Generally this is not adequate for understanding and recalling useful evidence-based medicine information and generally does not include applying this information in practice.</li> <li>▪ A good answer may include informal or self-training – but is likely to emphasize a lot of evidence-based medicine training in school or training after graduation whether formal or not.</li> <li>▪ It is potentially easy for respondents to “game” this question.</li> </ul>	<p><b>Tip:</b> This may be a useful question for judges to pose in pre-trial discussions establishing an expectation that both sides address this issue.</p>
<p><b>2. ★ What is the expert’s opinion on “community standards?”</b></p> <ul style="list-style-type: none"> <li>▪ A good answer will acknowledge that these standards may be misleading and harm patients.</li> </ul>	
<p><b>3. Does the expert rely on secondary sources from the NIH or national academies?</b></p> <ul style="list-style-type: none"> <li>▪ A good answer will be likely to recognize that these can be</li> </ul>	

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<p>misleading.</p>	
<p><b>4. ★ What process does the expert use to acquire clinical information?</b></p> <ul style="list-style-type: none"> <li>▪ A good answer will indicate that methods for acquisition should include a systematic search and not reliance on the most recent – or arbitrarily -- selected articles.</li> <li>▪ Their described process should recognize that certain study methods should <b>not</b> be used for certain medical questions               <ul style="list-style-type: none"> <li>a. Only randomized controlled trials should be used for therapy, prevention and screening</li> <li>b. Randomized controlled trials are preferable for diagnostic testing studies, but cross-sectional studies may be okay for diagnostic studies too</li> </ul> </li> </ul>	<p><b>Tip:</b> This may be a useful question for judges to pose in pre-trial discussions establishing an expectation that both sides address this issue.</p>
<p><b>5. ★ Can the expert explain “issues” with the following statement: “A study comparing women who chose to take antioxidants daily, with those who did not, has demonstrated that antioxidants protect against heart disease.”</b></p> <ul style="list-style-type: none"> <li>▪ The above example is from an “observational study.” A good answer will explain that cause and effect cannot be concluded from observational studies – the statement above should only claim that there is an association. (Not all associations are cause and effect.)</li> </ul>	
<p><b>6. What is the expert’s process for reading an article?</b></p> <ul style="list-style-type: none"> <li>▪ A good answer will indicate that the expert –           <ul style="list-style-type: none"> <li>a. Relies on “trusted” sources like Cochrane, Clinical Evidence and DARE, and/or</li> <li>b. Evaluates validity and usability of other articles by a critical reading of the body and results section (not through a reliance on abstracts and “conclusions.”)</li> <li>c. The expert should indicate that he or she is searching for flaws in the study, such as bias, confounding and chance, and for meaningful results such as those which are directly beneficial to patients (clinical significance which means direct benefits to patients in areas of morbidity, mortality, symptom relief, health-related quality of life and functioning).</li> </ul> </li> </ul>	<p><b>Tip:</b> This may be a useful question for judges to pose in pre-trial discussions establishing an expectation that both sides address this issue.</p>

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<p><b>7. ★ Does the expert understand problems with Relative Risk Reduction? How does he or she respond to the following question: “A well done study reports a statistically significant Relative-Risk-Reduction of 60% for patients in the intervention group. Is this a result that may persuade you to use this intervention with your patients?”</b></p> <ul style="list-style-type: none"> <li>▪ A good answer will point out that Relative Risk Reduction is not enough information on which to base a decision.</li> </ul>	
<p><b>8. ★ Can the expert explain why case series can be harmful to apply to practice?</b></p> <ul style="list-style-type: none"> <li>▪ Good answers may recognize that case series can often be misleading, that there are other explanations for why patients may improve such as placebo effect, natural history of a disease and coincidence, and/or that a control (or comparison) group is important except in rare instances of all-or-none results.</li> </ul>	
<p><b>9. ★ Does the expert consider historical controls or natural statistics on a disease to be an appropriate comparison?</b></p> <ul style="list-style-type: none"> <li>▪ A “yes” answer means that this “expert” may be relying on highly misleading medical science.</li> </ul>	
<p><b>10. ★ Does the expert think that well done database research and post-hoc analyses of study data can provide us with useful evidence?</b></p> <ul style="list-style-type: none"> <li>▪ This is a trap question. A “yes” answer means that this “expert” may be relying on highly misleading medical science.</li> </ul>	
<p><b>11. Can the expert discuss the difference – and relevance – of outcomes of clinical significance versus outcomes for intermediate markers?</b></p> <ul style="list-style-type: none"> <li>▪ Look for an understanding that the expert is interested in outcomes that will truly help patients (i.e., morbidity, mortality, symptom relief, health-related quality of life or functioning). Intermediate markers (e.g., changes in lab tests) require a causal chain of evidence to show benefit in these areas.</li> </ul>	

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<p><b>12. ★ Does the expert use both narrative reviews and systematic reviews? Can the expert give a brief distinction between the two?</b></p> <ul style="list-style-type: none"> <li>▪ Both are papers in the medical literature that analyze multiple studies collectively on a given subject. Narrative reviews are potentially highly biased and can be misleading. Systematic reviews are distinguished from narrative reviews in that they apply scientific criteria. For example, they use explicit quality criteria for including studies in the review. (Systematic reviews still need to be critically appraised to ensure they are done right – unless they come from a trusted source such as Cochrane, Clinical Evidence or DARE. You might consider asking a supplementary question to ensure they understand this. Suggestion: What are your process steps when you acquire a systematic review from PubMed? A good answer will address evaluating the quality of the systematic review and assessing the results to ensure they are useful. An ideal answer will also include that they update the review.)</li> </ul>	<p><b>Tip:</b> This may be a useful question for judges to pose in pre-trial discussions establishing an expectation that both sides address this issue.</p>
<p><b>13. ★ Can the expert discuss pitfalls of screening?</b></p> <ul style="list-style-type: none"> <li>▪ A good answer may include the following – <ul style="list-style-type: none"> <li>a. Screening is not always good.</li> <li>b. We need valid evidence that we have a treatment that can be helpful.</li> <li>c. We need valid evidence that finding a problem early is more beneficial than finding it after symptoms develop.</li> <li>d. We need valid evidence of benefits and harms of screening to see the net effect.</li> </ul> </li> <li>▪ An ideal answer will indicate that there are some special biases associated with screening that can be misleading such as lead time and length bias.</li> </ul>	
<p><b>14. ★ Can the expert define sensitivity and specificity?</b></p> <ul style="list-style-type: none"> <li>▪ Sensitivity means “true positives” – ideally, they will state this is the rate of true positives found “in persons who are known to have a disease.”</li> <li>▪ Specificity means “true negatives” – ideally, they will state this is the rate of true negatives found “in persons who are known to be free of a disease.”</li> </ul>	

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<p><b>15. What does the expert think about the following scenario? “A physician is caring for an elderly patient, over 70 years old, in a long-term care center, who has a 50% 5 year risk of a cardiovascular event. The physician is reluctant to give her a statin because the best available research is based on a five year study, and he believes she is too old to wait for 5 years.”</b></p> <ul style="list-style-type: none"><li>▪ A good answer will recognize that science tells us that she may benefit within 5 years (not after five years) and that treatment should be considered.</li></ul>	
<p><b>16. When using mortality rates to compare physicians’ quality outcomes, does the expert prefer to see actual rates or adjusted rates?</b></p> <ul style="list-style-type: none"><li>▪ This is a trap question. The expert should know that you cannot reliably or fairly compare these rates for individual clinicians. The conclusions are extremely likely to be misleading.</li></ul>	