

**Teaching Evidence-Based Medicine: Filling the Tool Bag**  
**Strategies for making it fun and effective**

<b>Teaching Objectives</b>	<b>Setting</b>	<b>Strategy</b>
Overall Objectives	For all teaching interactions	<ul style="list-style-type: none"> <li>❖ Always define your goals in advance and discuss them at the beginning of the session.</li> <li>❖ Limit yourself to three major goals per session (more will be lost, and you may risk losing all of them).</li> </ul>
Clinical Relevance		<ul style="list-style-type: none"> <li>❖ Begin and end with a patient case / clinical question.</li> </ul>
	Keep the learners involved.	<ul style="list-style-type: none"> <li>❖ Ask open-ended questions.</li> <li>❖ When someone asks a question, turn it back to the group, i.e., “what does the group think?” or “can anyone help out here?” (This also buys the tutor some time, in case the answer isn’t immediately apparent to the tutor!)</li> </ul>
Incorporation of Values into Decision-Making		<ul style="list-style-type: none"> <li>❖ Openly discuss the portion of decision-making that remains intuitive, emotional, sensitive to the needs of the patient and the community in which they live.</li> </ul>
Physical Needs	Recognize the limits of your learners’ tolerance.	<ul style="list-style-type: none"> <li>❖ Take time for a stretch.</li> <li>❖ Attend to food needs at all times.</li> <li>❖ Cookies are therapeutic.</li> </ul>
Emotional Needs	Effective learning requires an <b>emotionally-safe environment</b> .	<ul style="list-style-type: none"> <li>❖ Make sure everyone knows it is okay not to know!</li> <li>❖ Make sure everyone knows it is okay to disagree (agreeably)!</li> <li>❖ Be open about your own limitations!</li> <li>❖ Look for opportunities to compliment and praise.</li> <li>❖ Call “time-outs” when the group dynamic becomes tense. Ask the group what is happening with the process, and then try to return the focus to the problem/case.</li> </ul>
	Capitalize on disagreement.	<ul style="list-style-type: none"> <li>❖ Try to incorporate the rest of the group into the discussion.</li> <li>❖ Seize the right opportunity for wrap-up or closure.</li> </ul>
Using Examples / Case Scenarios	Pre-test probability	<ul style="list-style-type: none"> <li>❖ Use cases in order to capture very low risk patient, very high risk patient and very ‘toss of a coin’ risk patient.</li> </ul>
	Diagnostic Tests	<ul style="list-style-type: none"> <li>❖ Use extreme examples of cases to make people commit to a pre-test probability.</li> <li>❖ Use the examples to define cases that are extremely low pre-test probability, extremely high pre-test probability, and the middle cases.</li> </ul>

## Teaching Tips and Materials: Tool Bag

Language Pitfalls		<ul style="list-style-type: none"> <li>❖ Don't use jargon / use simple plain language.</li> <li>❖ Ask those learners who use jargon to explain the term(s) to the rest of the group.</li> </ul>
	General Strategies	<ul style="list-style-type: none"> <li>❖ Vary the pace of your session by taking time out to give specific tasks or skills-practice to the group members.</li> <li>❖ Break your group into smaller working groups of 2-5 people.</li> <li>❖ Be very clear about what you want them to do (e.g., "assess the therapy validity criteria for this paper" or "take 5 minutes to review the methods and describe the patient population").</li> </ul>
User-Friendly Statistics		<ul style="list-style-type: none"> <li>❖ Emphasize the difference between "statistical significance" and "clinical importance."</li> </ul>
User-Friendly Statistics	Calculations: NNT, LR	<ul style="list-style-type: none"> <li>❖ Set the exercise up properly:               <ol style="list-style-type: none"> <li>1. Set up the importance in the big picture.</li> <li>2. Model the calculation (show them one).</li> <li>3. Ask them to do another permutation.</li> <li>4. Return to the original importance of the calculation.</li> </ol> </li> <li>❖ Give defined small tasks and break into groups of 2 or 3 to do specific calculations.</li> </ul>
Teaching Definitions	Confidence intervals, likelihood ratios, sensitivity, specificity etc.	<ul style="list-style-type: none"> <li>❖ Try several different ways of defining the same thing - coming from different view points</li> <li>❖ Relate it to a scenario or example so we can put the definition into a framework.</li> </ul>
User-Friendly Statistics	Learning to Love a Likelihood Ratio	<ul style="list-style-type: none"> <li>❖ Take home points:               <ol style="list-style-type: none"> <li>1. You can utilize likelihood ratios for a range of values for a given diagnostic test – i.e. it is not a (+ or -) dichotomous measure.</li> <li>2. Sensitivity / Specificity are properties of the test, Positive and Negative Predictive value are properties of a test in a population, LR allows you to apply the test directly to an individual patient.</li> <li>3. The likelihood moves you from a pre-test to a post-test probability. You must estimate pre-test probabilities first and acknowledge the uncertainty that goes along with that.</li> </ol> <p>You don't have to draw the 2x2 table if you don't want to do calculations and just want to talk about LR. If you want to calculate, it is hard to do without the 2x2.</p> </li> </ul>

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Directed Engagement of Learners		<ul style="list-style-type: none"> <li>❖ Assign your learners to a point of view, a role or a specific task.</li> <li>❖ Clinical Practice Guideline - Randomize one half of the room to 'love them' and one half of the room to 'hate them.'</li> </ul>
Silence	Groups or individuals who will not participate	<ul style="list-style-type: none"> <li>❖ 16-second rule: Refrain from jumping in to fill the silence yourself! (May require longer for cultures in which participation is less accepted; may require shorter for people from New York!)</li> </ul>
Discussion dominators		<ul style="list-style-type: none"> <li>❖ Use "time-outs" when someone is dominating the discussion or 'knows it all.' Ask the group members to talk about individual responsibilities (for loud ones to lighten up and quiet ones to contribute more).</li> </ul>
Using the Blackboard		<ul style="list-style-type: none"> <li>❖ Plan in advance what you will do.</li> <li>❖ Put up one thing at a time and orient the group to what you are writing up there.</li> <li>❖ Have someone else write on the board so that you can focus on teaching and to optimize engagement.</li> <li>❖ Have the other learners direct their peer at the board in what to do.</li> </ul>
Using Handouts	Using Tables and Figures	<ul style="list-style-type: none"> <li>❖ Hand out only what you need.</li> <li>❖ Give brief orientation to the table.</li> <li>❖ Be specific in your direction of what you want people to see from the table.</li> </ul>
	Reinforcing and providing resources for home	<ul style="list-style-type: none"> <li>❖ If you hand something out, people will read it instead of listening to you; hand out take home papers at the end.</li> <li>❖ Do write down formulas and calculations if you believe in their importance.</li> <li>❖ Tell learners at the beginning that you will provide a handout so that they can focus on participating rather than taking notes.</li> </ul>
Issues of Time Management	How to deal with questions that come up that you don't have time to answer?	<ul style="list-style-type: none"> <li>❖ Answer quickly.</li> <li>❖ Canvas the Group, diagnose your learners.</li> <li>❖ Return to the "Parking Lot."</li> </ul>
	Be Realistic	<ul style="list-style-type: none"> <li>❖ You always have less time than you think you do.</li> <li>❖ Juicy issues are fun, but also juicy—they take time! Budget for it.</li> <li>❖ Stop from time to time to synthesize/summarize – for emphasis and to check in with learners.</li> </ul>
	Trim the Fat	<ul style="list-style-type: none"> <li>❖ Clearly define your teaching goals so that you can differentiate what you must have from what you may have from what should be cut.</li> </ul>

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	Save time for closure.	<ul style="list-style-type: none"><li>❖ Come to closure about the article and the clinical scenario.</li><li>❖ Closure does not mean “unanimous agreement.”</li></ul>
Talking about perspective	Clinical Practice Guidelines, Decision and Economic Analysis	<ul style="list-style-type: none"><li>❖ Perspective is a key teaching point for each of these methodologies.</li><li>❖ Divide into groups and assign perspectives (the managed care plan, the patient/family, the doctor’s office, the hospital, society).</li></ul>
<b>Most important tip</b>		<ul style="list-style-type: none"><li>❖ <b>HAVE FUN! If you enjoy what you do, your learners will too.</b></li></ul>