**Healthcare Information & Decision Equation: Information🡺Decision 🡺Action🡺Outcome**

**Is it true🡺Is it useful 🡺Is it usable?**

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| **Evaluating the Medical Literature: 5 Essential Questions**  **1. Are the results likely to be true?** Internal Validity  Key Questions: Can anything other than truth explain the results? Flip Side: What conditions would need to be met for the results not to be true?  We “rule out” bias and chance to be able to conclude likely to be due to cause and effect.  **2. If yes, are they likely to be useful?** Internal & External Validity  Size of the outcomes + outcomes that matter to patients (the “clinical outcomes”)  Morbidity + Mortality + Symptom relief + Function (emotional, mental, physical) + Quality of Life  **3. If yes, to whom?** External Validity: Population similarities + circumstances for care  **4. If yes, at what "price?“**  **5. Are they "usable"—has to do with ability to understand, access, apply and act upon, etc.** |
| **Ways to Describe Studies: Essential Contextual Elements**  **PICPOTS** =  Patient/population (condition) + Intervention + Comparators + "Performance Outcomes\*" + Outcomes + Timing + Setting \*Performance outcomes examples include study success and failure issues—  Likely success of blinding, adherence, protocol deviations, missing information, etc. |
| **Steps in Critical Appraisal for "Are the Results Likely to be True?"**  Step 1. Match Your Research Question to Study Design: Observations vs Experiments  Step 2. Identify Biases + Chance Effects  Step 3. Grade It |
| **7 Big Routes to Bias**   1. Unequal groups in any way but 1 way (although in “missingness” may be informative) 2. Unhappy comparison 3. Didn’t hide things 4. Lack of or uncertainty of exposure 5. Faulty measurement 6. Missing things (with caveats) 7. Faulty analysis   Or uncertainty about bias due to lack of transparency in reporting |

