Resource review

Meyer D. *Essential evidence-based medicine*. Cambridge: Cambridge University Press, 2004.

Essential evidence-based medicine can be purchased online at uk.cambridge.org for £24.99 (softcover) and £55 (hardcover).

Essential evidence-based medicine is of interest to both basic and advanced students of evidence-based medicine (EBM).

The book has 31 chapters and 6 appendices and comes with a CD-ROM. Each chapter starts with several learning objectives and a brief paragraph summarising the content of the chapter. The first 10 chapters deal with basic epidemiology. These include searching the medical literature, different types of medical literature, study design, strength of evidence, precision and validity of instruments, types of bias, basic statistics, and principles of hypothesis testing. Chapters 11–17 deal with the critical appraisal and use of articles on therapy. Chapters 18–26 deal with evidence-based diagnosis, including usefulness of diagnostic tests, screening tests, likelihood ratios, receiver operating characteristic curves, Bayes' theorem, and the critical appraisal of diagnostic articles. Chapters 27–31 deal with prediction rules, decision analysis, outcome analyses, cost effectiveness analysis, and meta-analysis. The book contains 39 tables and 118 figures that highlight key points in the chapters.

The accompanying CD-ROM contains multiple-choice questions, short essay questions, and questions requiring calculations and filling out a worksheet. The exercise is interactive and prompts the reader to check the correct answer.

Essential evidence-based medicine has an extensive bibliography of relevant references including other EBM textbooks, and lists important free websites related to EBM. The appendices provide additional information, especially grades of evidence, formulas, and critical appraisal questionnaires.

The author is an EBM expert who provides an excellent overview and practical approach to the topic. The book includes a history of medicine and statistics and a thought provoking essay on what constitutes EBM. Several chapters are dedicated to topics that would normally require reading in additional textbooks, thereby making this an all-in-one resource.

The narrative text of chapters, clinical relevance of the topics, and the user friendly layout make reading this book a pleasure. The chapter on literature searching provides a useful description of Medline and PubMed. The author has taken elaborate care in dedicating separate chapters to number needed to treat, risk assessment, screening tests, and uses of diagnostic tests, which makes reading easy and explains the concept of using EBM in clinical practice. Separate chapters also address evaluation of negative studies and sources of errors in clinical encounters. The chapters on decision making and Bayes' theorem provide a detailed review of the tenets of clinical decision making with its uncertainties and details of probabilistic reasoning.

When we used the SQ3R study method (Survey, Question, Read, Recite, Review) to peruse the contents of each chapter, we found that by converting the headings into questions, we could read each of the paragraphs to answer the question. Students could recite the answers, write key points, and review their notes to revise major points quite easily from the information presentation in this book.

Several chapters on instruments and measurements, incremental gain and the threshold approach to diagnostic testing, multivariate analysis, type II errors, cost effectiveness analysis, and outcome analyses may be reserved for the advanced learners.

A few limitations are worth noting. In an attempt to combine such a vast amount of information into one book, a few chapters tend to be lengthy. Chapters on the uses of diagnostic tests and sources of bias could be improved by the addition of tables. Finally, despite the book's 2004 publication date, there are few general references more recent than 2002 in any chapter.

In summary, the text is well organised and offers comprehensive information on EBM that would serve both basic and advanced students.

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RATINGS:
Methods: ★★★☆☆
Clinical usefulness: ★★★★☆

Resource review

Gladwell M. *Blink: the power of thinking without thinking*. Boston: Little, Brown, 2005.

When a book reaches the bestseller list, it is often just as interesting to speculate on the reasons for its popularity as it is to read the book itself. In the case of the latest blockbuster by Michael Crichton or John Grisham, the author's ''brand name'' doubtless contributes to its success at the cash register. However, when the author is Malcolm Gladwell (hardly a household name), the reasons for the book's popularity are less straightforward. I suspect the main reason for the success of *Blink: the power of thinking without thinking* is that it offers exhausted professionals faced with executive responsibilities a version of epistemology that not only excuses, but glorifies, the snap decision.

According to Gladwell, ''decisions made very quickly can be every bit as good as decisions made cautiously and deliberately'' (p 14); ''there can be as much value in the blink of an eye as in months of rational analysis'' (p 17). Gladwell supports his thesis by telling stories—often charming, always compelling, and filled with realistic details—of people whose ''blink'' decisions end up being better than the ''scientific'' or ''rational'' decisions made after gathering and considering large amounts of data. He begins *Blink* by recounting the story of a forged statue, a kouros, which was purchased by the Getty Museum only after extensive scientific analysis showed its authenticity. A number of art experts, he tells us, were immediately able, merely by looking at the statue, to determine it was a fake: ''When Federico Zeri and Evelyn Harrison and Thomas Hoving and Georgios Dontas—and all the others—looked at the kouros and felt an 'intuitive repulsion,' they were absolutely right. In the first two seconds of looking—in a single glance—they were able to understand more about the essence of the statue than the team at the Getty was able to understand after fourteen months'' (p 8).

Every day, medical practitioners must make such high stakes decisions rapidly and often under conditions of stress. Medical practitioners are also under increasing pressure to integrate evidence from scientific studies into their decision making procedures. Gladwell's advice seems to turn the wisdom of evidence-based practice on its head: ''blink'' thinking is the very antithesis of the labour intensive effort involved in the thorough literature search, the critical assessment of the quality of the evidence, the painstaking meta-analysis, and the principled consideration of the applicability of the evidence. Indeed, Gladwell claims that often people make bad decisions because they have *too much* information, because they are unable to determine which aspects of that information are irrelevant, and because they squelch their sound instincts, which are screaming out the correct answer, if only they would listen. Little wonder that harassed professionals drowning in data would be attracted to a book that admonishes them to skip the laborious grind through the evidence and instead ''take their instincts seriously'' when making decisions.

The main problem with Gladwell's book is that none of the illustrative anecdotes he uses to support his thesis actually point to the conclusion that ''blink'' thinking is better than deliberative thinking. Take, for example, the tale he relates of Dr. Brendan Reilly, the chairman of the Department of Medicine at Cook County Hospital in Chicago. Faced with the inevitable resource shortfalls of a public hospital with a high percentage of indigent patients, Reilly desperately needed criteria for diagnosing heart attacks in patients complaining of chest pains that could be both quickly applied and accurate. At Reilly's instigation, Cook County Hospital eventually adopted guidelines that narrowed the criteria that emergency physicians used to decide which patients to admit down to 4 simple risk factors (electrocardiographic evidence, presence of unstable angina, fluid in the lungs, and a systolic blood pressure $<$100 mm Hg). This simplified decision tree improved their ability to identify true heart attack patients by 70%. Gladwell cites this as an example of the power of what he calls ''thin slicing''—the ability of our ''internal computer'' to make good decisions on the basis of only ''thin slices'' of the enormous mass of information available in a given situation, to ''find patterns in situations and behavior based on very narrow slices of experience'' (p 23). In Reilly's case, however, and in the case of virtually all of the other ''blink'' thinkers he mentions in the book, the ability to make these rapid, thin sliced, blink decisions comes only after years of training, experience, and painstaking statistical sifting and computer analysis of reams of evidence…enough to permit the deliberate construction of a sophisticated model of the phenomenon about which decisions must be made. Reilly, for instance, was able to offer the Cook County emergency department a thin slice decision tree because he made use of a model of heart attack produced by Lee Goldman, a clinical

epidemiologist and cardiologist, who spent many years collecting, evaluating, and analysing the evidence from hundreds of cases of heart attacks to develop the simple 4–step algorithm. It's hard to see how Reilly's story, or any of the other illustrative anecdotes Gladwell relates, boils down to a universal human ability to identify, process, and decide, in a matter of seconds, about complex phenomena when we have to make valid decisions. Gladwell fails to distinguish between human instincts and the trained judgment of the experienced professional supplemented with vast amounts of carefully collected and painstakingly analysed data, and thereby offers the false hope that we can ''go with our gut'' and still usually expect to make successful decisions.

Blink, it turns out, is an epistemological treatise, with the fatal flaw that it fails to grapple forthrightly with one of the central questions epistemologists have been asking for thousands of years: *how* can *we reliably know what is correct,* particularly in situations involving complex phenomena with many unknown variables? In his kouros story, we discover that the legal documents used to ''verify'' the provenance of the Getty's statue turned out to be fakes. Until that was revealed, it was the word of the scientists against the word of the blink thinking aesthete art critics, with no clear criterion for choosing between them. The blink thinkers (who also happened to be highly trained and experienced experts) turned out to be right, but we only *know* that because compelling proof of fakery turned up. The kouros story hardly parallels the type of decisions confronting medical practitioners every day. Doctors must decide what is ailing a patient and take therapeutic action without waiting around for legal documents that will tell them what is really going on. Indeed, in many cases, clinicians are never privy to the ''truth'' about a particular patient's condition and never have definitive ''proof'' that what they did was the cause of the patient's recovery or demise. Most of the decisions clinicians make are made under conditions of intrinsic, relentless, and ultimately irrevocable uncertainty.

This criticism of *Blink* is not mere nitpickery. What professionals need more than facile encouragement to make thin–sliced snap decisions is a sober, clear eyed disquisition on that all important ''how can we know what is correct'' question. Clinicians need to explicitly and deliberately consider the various sources of information they have about a patient's condition and weigh the relative reliability of each of these sources. What can the patient's narrative tell them? What can their own clinical experience with similar patients with similar signs add? How should the opinion of experts, with their additional training and experience, be integrated into the mix? How can scientific data, collected under conditions that control for confounding and bias, augment these other forms of information? Clinicians need to consider the relative force of these various sources of authority in light of the strengths and weaknesses intrinsic to each. They need to understand precisely what each type of information can (and can't) tell them, and why. Only then, by understanding the potential and limitations of each type of authority, can practitioners give each of them their appropriate role in clinical decision making.

Yet, *Blink* is worthwhile for the very reason that it raises these questions. The book's subject matter should prompt far reaching discussions of what we know (and don't know), how we know it, and *how we can know we know*. It can spark long overdue conversations about what sorts of procedures (both cognitive and instrumental) we should endow with the authority to settle such questions. What should we measure? How should we measure it? How should we analyse, and then apply, the data that results from such measurement? What should we do about important variables we can't measure? What should we do when we don't have time to measure? *Blink* suggests that under the right conditions, intuitive reasoning has some intrinsic value, and expert judgment can be both rapid and successful, and that's a helpful insight. It also, seemingly unintentionally, makes a compelling case for a vital role in good decision making for labour- and time-intensive consideration of carefully collected and analysed data. Ultimately, the commercial success of *Blink* is an encouraging sign: it suggests that people are hungry to know how to make sense of their world and how to reason effectively about it. And no John Grisham novel has ever tried to take on those questions.

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Correction

In the resource review of *Essential evidence-based medicine,*[1] the author of the book was incorrectly spelled. The citation should be as follows:

Mayer D. *Essential evidence-based medicine*. Cambridge: Cambridge University Press, 2004.

We apologize to Dr. Dan Mayer for this error.

1 **Amit K Ghosh and Narayana S Murali**. *Evidence-Based Medicine* 2005;**10**:60.