

Clinical skills textbooks fail evidence-based examination

BACKGROUND

Despite advances in “technological” medicine, the history and physical examination still provide the correct final diagnosis in the majority of cases^{1 2} and remain the cornerstone of clinical medicine.³ Medical students spend a great deal of time learning these techniques. Students continue to be taught the long case “complete history and physical,” despite its inefficiency and errors. Bordage⁴ claims “you see what you are looking for,” and gathering further data fails to increase diagnostic accuracy. Educational research suggests diagnostic accuracy depends on both mastery of knowledge and sound problem solving strategies.⁵ Students can learn to problem solve more expertly by using schemes that assist storage and retrieval of clinical knowledge, rather than rote memorisation of lists and “dispersed” knowledge.^{3 6}

Diagnosis involves gathering clinical information and then refining the probability of a particular diagnosis after acquiring each piece of evidence. The elements of history and examination can be considered as individual “diagnostic” tests; thus Bayes’ theorem informs this decision making approach to diagnosis.^{3 7}

Even in familiar settings, clinicians, and students to a greater extent, make erroneous estimates of disease probability given the clinical features of the presentation.^{8 9} Clinical textbooks seldom provide the frequency of clinical manifestations of particular diseases, even where good evidence exists.^{9 10} Such evidence can help medical teaching focus on diagnostic manoeuvres with proven utility, discarding time honoured but diagnostically unhelpful manoeuvres.¹¹

While teaching clinical students we noted their difficulty in learning clinical methods and felt that many texts of clinical skills used by students do not assist them, and indeed often add to their confusion. We attempted to determine whether this impression was correct by examining basic clinical skills textbooks.

To do this, we obtained recent editions of clinical skills textbooks recommended by official booklists to students at Australian and Hong Kong medical schools. Pairs of reviewers—2 academic staff, and 2 students in the first clinical year of the Queensland course—independently examined each textbook to determine the amount and quality of

- discussion about the diagnostic process and clinical decision making;
- general interpretation of the accuracy and reliability of symptoms and signs discussed in a section or chapter of its own;
- provision of accuracy and reliability of specific history and examination findings;
- information on disease frequency, or relative frequency of a sign in a particular disease.

We found no suitable rating scales so assigned a score of 0–3 to each question. The reviewers met in pairs to discuss their

interpretations and develop consensus ratings. Other comments noted by each reviewer were analysed qualitatively for recurring themes.

We obtained 10 textbooks on “physical diagnosis.” 6 originated from the UK,^{12–17} 1 from the US,¹⁸ and 3 from Australia.^{19–21} The most common text was Talley and O’Connor (10 of the 12 medical schools).

The reviewers’ assessments are shown in the table. Talley and O’Connor²¹ would have received a higher score for coverage of reliability of specific symptoms and signs had they discussed evidence in the body of the text, rather than embedding annotations within the reference lists.

Many texts describe only the traditional approach in which the student is expected to take a complete history in an unspecified time frame, then wait for inspiration—for example, “when the facts are complete, attempt to find a diagnosis.”¹² The word “should” was noted to occur frequently—for example, “a rectal examination should be performed on every patient.”

While some books listed questions or examinations as a basic set for each system, none gave the reasons for selecting these particular items (either individually, or as a group). The authors thus provided no guide for students to distinguish clinical features with high likelihood ratios.

Most books described or illustrated the severe and classic cases, while omitting conditions commonly seen in primary care—for example, cystitis was often omitted from urology chapters. Content of texts was weighted towards clinical conditions rather than clinical presentations—that is, they discussed the manifestations of disease x, rather than how a symptom complex can be analysed to make the diagnosis. Several texts included sections on radiology and pathology, but we felt they only partially covered these topics, straying beyond the clinical skills focus, yet without properly integrating the results of tests into the process of diagnosis.

Learning clinical skills is central to the medical course, but we found the textbooks recommended for students poorly organised for learning. They failed to integrate lessons from medical education research and available evidence about the effectiveness of aspects of the physical examination. From the texts reviewed, only 3 would earn a bare pass on the rating criteria assessed.^{18 20 21}

Initial rating scores varied little among reviewers, although the students were less critical of identified deficiencies. The summary scores do not communicate the details of whether or not specific issues were covered. However, our results are consistent with other studies, which find that textbooks consistently fail to report the precision and accuracy of clinical signs.^{9 22} Some evidence-based physical diagnosis texts are currently available—McGee is an example,¹ although its limited scope of medical conditions covered and instructions on physical examination make it unsuitable as a stand-alone introductory text for students.²³

Students need assistance to progress from the initial all inclusive approach to the abbreviated approach used by experienced clinicians. Time efficient, selective clinical examination, without cutting corners that sacrifice

diagnostic accuracy, is a complex skill that could be taught more directly using the principles of clinical reasoning and problem solving. Texts on clinical reasoning are available, with Barrows and Pickell²⁴ and Glass²⁵ being examples that would suit medical student needs.

It may be unrealistic to expect a single book to fulfil all of these expectations, but they could provide an approach and guide students toward further learning resources. Such discussions need not be lengthy, as shown by Fraser.²⁶

Introductory texts that teach the mechanics of history taking and physical examination currently fail to include adequate guidance on the process of clinical decision making under uncertainty, using the best available evidence.

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Rating of clinical skills texts for evidence-based approach

Textbook	Discussion about diagnostic process	General discussion of accuracy and reliability	Accuracy of specific signs or symptoms provided	References provided	Relative frequency of disease or clinical finding	Comments
Bates	2	1	0	1	0	Discusses evidence-based medicine and the diagnostic process
Davies	0*	0	0	0	0	A brief primer rather than a textbook
Ogilvie & Evans	0*	0	0	0	0/1	Good diagrams, tables and photographs
Larkins & Smallwood	2	0	0	1	0/1	Only 1 reference cited in entire book
Talley & O’Connor	1	0	1	2	2	Section correlating symptoms and signs with particular diseases
Munro & Campbell	1	0	0	1	2	Useful chapter conclusions on common pitfalls (v brief)
Lumley	0*	0	0	0	1	Mention of prevalence of conditions and survival rates
Gray & Toghill	1	1	0	0	2	Tables on common and less common causes for some presentations
Swash & Hutchinson	1	1	1	0	0	
Browse	0	0	0	0	0/1	Traditional surgical text disease-based approach

*Cells in which students’ rating prior to consensus differed from academics. Their initial rating for each of these 3 texts was “1”.

Rating Scale

0—no mention of concept

1—concept explained briefly, no examples given

2—concept explained and some examples given

3—concept consistently explained and applied throughout book.