

Evidence-based decision making—The 6-step approach

The basic concept of evidence-based medicine proposes to make health-related decisions based on a *synthesis* of internal and external evidence. Internal evidence is composed of knowledge acquired through formal education and training, general experience accumulated from daily practice, and specific experience gained from an individual clinician–patient relationship. External evidence is accessible information from research. It is the explicit use of *valid* external evidence (e.g., randomized controlled trials) combined with the prevailing internal evidence that defines a clinical decision as “evidence-based.” To realize this concept in day-to-day clinical practice, the Evidence-Based Medicine Working Group proposed a 5-step strategy (1), corresponding to step 1 and steps 3 to 6 shown in the left-hand column of the Table.

In teaching this 5-step approach, we encountered several difficulties. We noticed a growing reluctance to accept this strategy as students advanced in their medical training. In the presence of well-established methods of treatment or diagnosis, resistance rises even more, regardless of the level of training. We assume that this barrier is associated with the process of socialization into the health professions. Throughout their medical education, students are virtually “trained” to make decisions under the condition of uncertainty. Advanced students and to a greater extent clinicians lose some of their ability to differentiate between scientific evidence and what seems to be obvious. If we intend to implement evidence-based medicine more efficiently, we need to modify the way students and clinicians learn to make decisions.

Therefore, an additional step was introduced in our evidence-based medicine teaching program (step 2 in the Table). Students were to provide answers to their clinical questions based on their current knowledge (internal evidence) before continuing with the remaining steps of the evidence-based process (2). Our collective experience concerning this additional step was extremely positive. The students using this new step were satisfied that their preexisting knowledge had been integrated into the evidence-based approach. By explicitly documenting their internal evidence, students used the remaining steps of the process to evaluate not only the best evidence in making a clinical decision but also to assess the accuracy of their internal evidence, the grounds upon which their preconceptions were based, and the usefulness of the available literature in supporting a decision for their patient.

The health authority of Alto Adige in northern Italy initiated and supported a project, the “Bressanone Model,” in which the effects of implementing evidence-based medicine on the quality of health care were to be shown. In this model, we used the 6-step approach—which proved to be successful in the student project—to teach experienced clinicians (3). The participants were asked to name the problems of their day-to-day practice that lacked either an effective or an efficient solution. The evidence-based medicine support group helped participants to phrase the 3- or 4-part questions (step 1). The physicians were then asked to submit their individual answers to the questions before continuing with steps 3 to 6.

Agreement between internal and external evidence varies. Completing the full process could result in finding evidence that *confirms* the internal evidence, validating and strengthening the clinician’s or student’s confidence in the decision. The process could also reveal that little evidence exists to support the decision or that the available evidence is equivocal. In such cases other factors such as cost or inconvenience to the patient may need to be given greater consideration. Possibly, the best external evidence found does not agree with the internal evidence. This represents a particularly valuable experience for the clinician or student because it may avoid an ill-advised decision. It also shows the fallibility of making decisions on uncertain ground based on internal evidence alone. We hope that this in turn will promote routine assimilation of external evidence in clinical decision-making. The documentation and comparison of steps 2 and 5, used as a research tool or quality assurance outcome measure, could provide valid information on the effects of evidence-based medicine on clinical decision-making.

In cases of conflicting internal and external evidence, clinicians have several options. They may change their mind and align it with the external evidence. They may determine that the external evidence is not sufficiently convincing and remain with the original decision. Or, they may choose to discuss the conflict between the internal and external evidence with the patient in a manner that enables the patient to take part in the decision-making process. The last approach is recommended because patient preference is considered an essential part of the evidence-based decision-making process (1) and decisions often need to be made in the absence of clear research findings.

The 6 steps of evidence-based decision-making

Step	Action	Explanation
1	Transforming the clinical problem into 3- or 4-part question	a) Relevant patient characteristics and problem(s), b) leading intervention, c) alternative intervention, d) clinical outcomes or goals.
2	Additional step: answering the question based on “internal evidence” only	Internal evidence: acquired knowledge through professional training and experience (in general and applied to the patient). Should be documented before proceeding to step 3.
3	Finding “external evidence” to answer the question	External evidence: obtained from sources such as textbooks, journals, databases, experts. The value of the external evidence will vary greatly, see step 4.
4	Critically appraising the external evidence	Should answer 3 questions: 1) Are the results valid? 2) Are the results clinically important? 3) Do the results apply to my patient? (or, Is my patient so different from those in the study that the results do not apply?)
5	Integrating external and internal evidence	The 2 sources of information (external and internal) may be supportive, nonsupportive, or conflicting. How the decision is made when nonsupportive or conflicting will depend on multiple factors.
6	Evaluating decision-making process	Once the decision has been made, the process and the outcome are considered and opportunities for improvement are identified.

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