

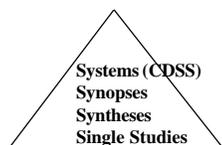


Evidence Based Health Care

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EBHC has the potential to transform health care. It can reduce medical errors, improve patient outcomes, and control health care costs. Evidence - based medicine (EBM) has been described as "the conscientious, explicit, and judicious use of current best evidence in making decision about the care of individual patients" (1). One of the defining characteristics of EBM is that formal processes are used for assessing the reliability of the clinical evidence used to inform clinical decisions (2). The drivers of the EBM movement have been the need for reliable information by busy clinicians, the shortcomings of traditional sources of information (e.g. textbooks), the availability of online database that serve as repositories of this information, the limited time available to physicians to access information, and the electronic technology that has made searching the databases a simple matter. Another enabling factor is the maturation of clinical epidemiology as a discipline and its application to decision-making in health care (3). Currently pressure has increased to improve patient outcomes, reduce medical errors, make health care more accessible, and reduce medical expenses. Ample evidence shows that medical decision-making is often inconsistent and not based on best evidence or practices (4,5). EBM may help alleviate these problems and contribute to improving the quality and consistency of health care. EBM is beginning to exert a profound effect on health care. Dentistry has been slower than medicine to adopt evidence-based strategies, but this is changing. Recently, the American Dental Association (ADA) held two evidence-based dentistry (EBD) conferences to promote this concept (6-9). The ADA hopes to create a cadre of "EBD Champions" who will, it is hoped, return to their communicates or institutions and promote EBD and its many benefits. Because the conceptual foundation and tools of EBM and EBD are the same, this article uses the more inclusive terms evidence-based health care (EBHC) to refer to these concepts.

Fig.1 Hierarchy of Evidence



EBHC consists of Five Steps (10)

1. Convert the need for clinical information into an answerable question
2. Find and rank the best evidence with which to answer the question
3. Critically appraise the evidence for validity, impact & applicability
4. Integrate this evidence with clinical expertise and the patient's unique circumstances and preferences
5. Evaluate effectiveness and efficiency in executing

The first step is to convert the clinician's need for information into an answerable question. This question may be more "Background," which is concerned with a gap in general knowledge about a condition, diagnostic test, or intervention.

The second step is finding the best evidence with which to answer this question and then ranking it according to the hierarchy of evidence shown in Fig.1 individual studies are at the bottom of this pyramid, whereas databases or repositories in which syntheses of evidence may be located (e.g. the Cochrane Library) are somewhat higher. Synoptic journals are next, followed by computerized clinical decision support systems, which are capable of assimilating the data for a given patient and suggesting intervention (or further diagnostic tests) based on best evidence.

Ideally, there would be a seamless link between the clinical decision support system and the patients electronic health record, so that suggestions regarding the patients diagnosis and treatment would be made in real time as data is entered into the chart. This system would be automatically updated with the latest best evidence as it became available.

The third step of the classical EBHC process is critical appraisal of the evidence. Evidence must be screened for validity, impact, and clinical applicability. Of particular interest is the concept of external validity. A study is said to possess external validity when it can provide "unbiased inferences regarding a target population (11). Populations differ and these differences may have an important effect on study outcomes. The impact of the evidence can be measured by the size of the treatment effect for therapeutic interventions. This effect can be reported in a number of ways, depending on the intervention. The impact of the diagnostic test can be assessed through

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examining the sensitivity, specificity, positive predictive value, and negative predictive value. Finally, the intervention must be clinically applicable to each unique patient. This critical appraisal is at the heart of the EBHC concept. The basic process is often referred to as "critical thinking" in academic health care and it is critical competency for clinicians, regardless of discipline.

EBHC has begun to appear in the dental curriculum (12-14). These EBHC experiences often consist of sending students to the library, where they conduct searches of the primary literature on some assigned topic and then critique the papers found. These worthwhile exercises are performed with the laudable goal of fostering "critical thinking". Students are assumed to carry these skills into practice and used to improve patient outcomes.

Teaching Evidence Based Health Care

One challenge confronting clinical teachers is how best to incorporate EBHC into the curriculum. Three primary modes of teaching EBHC exist (10).

1. Role-modeling evidence-based practice
2. Using (and making explicit) the use of evidence in clinical teaching
3. Teaching the skills of EBHC ("doing" EBHC)

Efforts have been strongly influenced by those of Sackett, Straus, and their colleagues (5, 10, 15). Their experience in implementing EBHC into their clinic is extensive and their insights into what makes for effective (and ineffective) EBHC teaching are invaluable. They have identified several factors associated with success when teaching EBHC (10).

1. Process is based on clinical decisions
2. Focus is on learners' actual learning needs
3. Passive and active learning are both used in a balanced manner
4. What is already known is connected with "new" knowledge
5. Teacher is explicit about appraisal of evidence
6. EBHC is seamlessly integrated into patient care decision
7. Provides a foundation and tools for lifelong learning

They suggest that EBHC teaching success occurs when the EBHC process is based on real clinical decisions, focuses on learners' actual learning needs, and connects what is already known by the student with the new knowledge, it is also important that the teacher makes explicit how to appraise the evidence and apply it to a patient's care in an integrated manner, thus seamlessly incorporating EBHC into the clinical experience. This later concept has been the guiding principle in attempts to restructure the clinical curriculum. Mistakes to avoid in teaching evidence-based health care.

- 1). Emphasize how to do research rather than how to use research findings to inform clinical practice.
- 2). Emphasize how to perform statistical analyses rather than how to interpret the results of such analyses.

- 3). Find only flaws in the published literature, rather than finding information that offers clinical guidance.
- 4). Cast EBHC as a substitute for the clinician's judgment and skills rather than as a complement to them.
- 5). Disconnect the EBHC process from the clinical process & the team's need for clinical information.

Conclusion

Finally evidence based medicine can be understood as a movement which popularize the method to clarify those parts of the practise that are useful for the public, patient, communities institutions and continuing education of practicing professionals.

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