Introduction

The literature does not provide a clear definition of Evidence based Healthcare (EBHC) and there is some uncertainty between authors as to whether the concepts of EBHC and Evidence-based medicine (EBM) and Evidence-based dentistry (EBD) are comparable and the terminology is interchangeable. However the most frequently used definition of EBHC is: Evidence-based medicine (EBM)

“the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients”.

The inadequacy of this definition, by apparently excluding the patient from the decision process, motivated its revision by Sackett, and its ‘new improved’ version highlights the contemporary view of the patient as a partner in the concept.

“the integration of best research evidence with clinical expertise and patients values”.

Co-incidentally he ‘strengthened’ the contribution of individual clinical skills, possibly to allay any clinician perceived apprehensions of a ‘prescriptive’ slant to the concept.

Other authors, Jadad, have continued to use the 1996 EBM terminology in defining EBHC. Muir Gray attempted to differentiate EBM from EBHC, “EBM is the provision of appropriate healthcare for individual patients. Whereas in the UK the responsibility for the health of populations is clearly allocated to health authorities and to management, where the concept of evidence-based healthcare was invented”, and “the development of EBHC was stimulated and facilitated by the NHS R&D programme”.

Nevertheless EBHC covers a wider perspective than the term EBM seems to allow. Health care after all is not only ‘medicine’ and the evidence-based concept has interest groups in other disciplines not least of all Dentistry. It would appear that tradition has prevailed and thus the term EBM, and its definition, is more widely used and is often employed where EBHC would seem to be more appropriate.

EBHC is generally understood to be a reflective approach in the provision of health care, and combines current best research based evidence with individual clinical expertise and patients values and choice. It does not specifically require the synthesizing of evidence as this may be ‘ready made’ eg: clinical guidelines, guidance and clinical decision aids. However, if the evidence sought after is not available ‘predigested’, the process will entail the searching for, reviewing, and critical appraisal of that evidence. EBHC
The evolution of EBHC

Sackett\(^2\), one of the founders of EBM, had recognized the limitations of ‘currency’ in clinical knowledge and confirmed that many review articles and editorials in the journals had no empirical basis, were biased and fallacious. His term, ‘critical-appraisal’ described the application of rules to be used in the evaluation of clinical journals, and was eventually replaced in 1990 when Guyatt ‘coined’ the phrase Evidence-based Medicine.

Initially, the catalyst appeared to be the necessity of keeping ‘up to date’ but latterly with the increased focus on clinical audit, peer review and a recognition of the existence of wide variations in quality of care, the emphasis has swung towards clinical and cost effectiveness. Additional impetus appeared to arise from increased ‘customer’ awareness, paradigm shifts in healthcare, new technology and escalating healthcare costs, which added healthcare planners and administrators into the ‘mix’.

How may it be applied to the dental sector?

The application of EBHC to the dental sector entails the utilization of research based evidence and amalgamating it with the dental surgeon’s clinical skills whilst taking into consideration the patients views of any proposed dental care.

Turning the research into practice

The 5 stages of the process are; the formulating of a clear clinical question, tracking down of the best evidence, critically appraising the evidence, integrating the evidence with individual clinical experience and patients values and reviewing the results.

The Cochrane Collaboration\(^9\) is regarded as one of the major sources of best evidence, in Healthcare which has as its main task the process of searching for, collating, assessing, synthesizing, and distribution of ‘evidence’. The Collaboration’s Oral Health Group\(^10\) has published 14 systematic reviews, 33 protocols and is expanding its efforts by subdividing its Specialised Trials Register into sub specialities. Good sources of evidence based dentistry include the Centre for Evidence Based Dentistry\(^11\) and EviDents at the Forsyth Institute\(^12\).

The implementation of evidence-based clinical guidelines, guidance and decision support systems is an important way of facilitating the integration of EBHC into dental practice. Guideline developers rely on organizations such as the Cochrane Collaboration to provide them with premium quality reviews that can be converted into these ‘readymade-evidence’ alternatives that are generally well received by the busy dental practitioner. This type of ‘predigested’ evidence provides convenience and simplicity to the dental professional but there are limitations and some concerns associated with its use.

Individual clinical expertise is an essential component of EBHC in dentistry but its clinician perceived importance should not be allowed to overshadow the other components of the triad.

The application of EBHC to the dental sector poses a number of challenges, the most testing of which may be the ‘re-engineering’ of the profession’s attitudes towards the involvement of patients in decision making.

The limitations and problems of implementation of findings in EBHC to dentistry

1) The clinician-dentist

The most significant hurdles in implementation of findings in EBHC are clinician related, with the most frequently quoted complaint of, ‘insufficient time’ and ‘no access to EBD resources’. Additional concerns expressed by clinicians are, their perceptions of EBD as, ‘cookbook’ dentistry, an encroachment on their clinical freedom and unease with the relevance, appropriateness, independence and currency of the evidence or guidelines.

2) Evidence

There are also legitimate and grave concerns with research methodology, and specifically the subverting of randomisation in trials. The randomized controlled trial (RCT) is the ‘gold standard’ in the hierarchy of evidence, yet less than10% of trials report allocation concealment. There is empirical evidence (Clarke\(^13\) 2003) suggesting that inadequate concealment of allocation can result in over-estimates of the effects of treatment of up to 40%. Significantly there has not yet been a randomized controlled trial conducted to confirm the effectiveness of EBHC as a concept, thus there appears to be limited ‘evidence about the evidence-base’ of EBD. Bias also raises serious ethical concerns. Systematic reviewing is still at best considered a ‘crude art’ and with the ready availability of detailed information about individual
Guidelines also have their limitations. If the clinician is looking for the last word he maybe frustrated as guidelines tend to perpetuate “the widespread illusion of the single answer”\textsuperscript{14}. Guidelines are necessity driven not evidence driven and consequently less than 50\% are supported by randomized controlled trials and less than10\% by a systematic review (Bandolier)\textsuperscript{15}. There is unease with their apparent universal applicability and specifically when one considers the possible range of regional and cultural diversity.

Some clinicians are distrustful of them, suspecting that they may be used in audit, performance evaluation and as a method of clinical and financial control. Their development process is a lengthy 2 years and their planned review may be less frequent than the EBHC concept ‘allows’. ‘Strength’, in a substantial majority of them, is expressed by consensus views of ‘expert panels’ and the inclusion of a disclaimer in most guidelines may also reduce their utility when seen from the clinician’s viewpoint.

Finally, there are concerns regarding causation and causal relationship in the ‘application’ of evidence to individuals when it has been synthesised using population based data.

3) Patients

Patients who are better informed have better outcomes, so the practice of EBHC must include patients in the decision process. However not all patients wish to be involved in, or are even capable of involvement in decision making. Some patients experience anxiety and feel abandoned when clinicians withdraw from providing guidance about decision making. Other patients who are disadvantaged or disabled may be unable to accept a role in decision making.

Moreover, some patient’s decisions may be based on subtle differences in personal values and utility that may affect how much of a trade off in ‘side effects’ they are prepared to make, against clinician ‘defined’ advantages of certain treatments. Some of these considerations may include, cost, pain, fear of injections, duration of treatment, residual disability and convenience. Acquisition of the necessary skills by the clinician to enable him to adapt to a patient preferred level of involvement in decision making is vital for the effective practice of EBHC in dentistry.

Autonomy in patient’s choice presents other problems in implementation of EBHC, it may foster conflict and inequity particularly if patients demand individual rights to self determined choices without regard to financial constraints.

We can conclude that EBHC is a healthcare quality improvement concept which has a significant impact on the role of evidence based dentistry within clinical practice but is prescriptive about reducing variation yet is conversely permissive about choice. It has taken us from ‘Doctor is always right’ through ‘the customer is always right’ era to ‘evidence is King”, out of which has evolved a concept which seeks to satisfy all stakeholders. However, Goodman sounds a final warning note, “At its core, evidence based practice rests on a supposition which, while probably true, itself has unclear evidentiary support”\textsuperscript{16}.

References

7. NICE. Available from: URL: http://www.nice.org.uk
8. SIGN. Available from: URL: http://www.sign.ac.uk
10. PRODIGY. Available from: URL: http://www.prodigy.nhs.uk/guidance
12. Centre for Evidence Based Dentistry. Available from: URL: http://www.ihs.ox.ac.uk/cebd