

Evidence based: to be or not to be?

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Evidence-based medicine (EBM) is advocated as the reference standard not only for practising physicians, but also for healthcare managers, politicians and insurance companies. Perhaps this is all very well, but if we put EBM in the heart of medicine, wouldn't it be convenient if we were to have perfect agreement on its definition? Unfortunately, this is not the case.

Boldly spoken, there are two, quite different conceptions of what EBM really stands for. One is that it represents a way of practising medicine in which clinical decisions are based on epidemiological evidence as exclusively as possible. Any medical intervention, either diagnostic or therapeutic, that is not supported by epidemiological evidence should ideally be avoided, and not be reimbursed. If evidence for a particular disease is scarce, extrapolation of epidemiological evidence from neighbouring domains is, if anything, preferable to not considering epidemiological findings at all. Only if evidence is completely lacking, and life is clearly at risk, are 'non-evidence-based' decisions occasionally acceptable.

The alternative approach to EBM is that findings from epidemiological studies are never (!) directly translated to individual patient care without explicitly taking into consideration 1) knowledge from other domains (such as basic sciences and pathobiology), 2) clinical experience and 3) the patient's individual context. From this perspective on EBM, consideration of epidemiological evidence is just one of several elements of clinical decision making, and no hierarchy between these elements is defined a priori. To practice this type of EBM, one needs a comprehensive set of skills on top of thorough knowledge of epidemiological evidence: understanding basic sciences and pathobiological principles, allowing previous clinical experience to compete with 'hard facts', and having an open attitude for individual patient context.

Considering these various ways of looking at EBM, what is the 'official definition'? One of the founding fathers of EBM, David Sackett, has been very clear about this. He stated that EBM '*integrates the best external evidence*

with individual clinical expertise and patients' choice'. With respect to the sources of the external evidence that is referred to, Sackett emphasises that it encompasses '*clinically relevant research, often from the basic sciences of medicine...*'.¹ Sackett indeed expressed grave concerns that EBM was misinterpreted by physicians and even abused by policy makers, by interpreting it in the restricted fashion, i.e. epidemiology as the only, if not certainly superior, justification for medical decision making. Other proponents of true EBM, such as Vandenbroucke, have been very supportive in conveying ideas on the appropriate use and implementation of EBM.²

Why is it important to understand EBM in its correct, broad context, and not accept the more restricted definition of 'clinical decision making predominantly based on epidemiological evidence'? The answer to this question is multifactorial.³ Briefly, a few points should be made. The first is that epidemiological evidence is available for only a small fraction of our daily work. One study estimated that of the commonly applied therapeutic interventions, less than 15% are supported by solid epidemiological evidence (<http://clinicalevidence.com>). In accordance, the majority of guideline recommendations are not based on solid epidemiological evidence either,⁴ though many believe this to be so. The second point to be made is that, even if epidemiological studies are available, they commonly do not include the type of patients we see in daily practice. The proportion of patients with a particular disease who meet inclusion criteria is usually far less than 50%,⁵ and the reasons for exclusion are often clinically relevant.⁶ Failing to acknowledge the importance of differences in patient profiles, or failing to identify relevant individual context, causes substantial harm.⁷ The final reason not to rely too much on epidemiological evidence is that conclusions from epidemiological studies simply do not always reflect 'the truth'. Although data can themselves never lie, various sources of bias that precede data analysis compromise the reproducibility of epidemiological studies. Some even propose that 'the majority of epidemiological literature is false'.⁸

It is for such reasons that Sackett insisted that *'External clinical evidence can inform, but can never replace, individual clinical expertise, and it is this expertise that decides whether the external evidence applies to the individual patient at all and, if so, how it should be integrated into a clinical decision ... Good doctors use both individual clinical expertise and the best available external evidence, and neither alone is enough. Without clinical expertise, practice becomes tyrannised by epidemiological evidence, for even excellent external evidence may be inapplicable to or inappropriate for an individual patient.'* We should be supporting this paradigm. The resolute and restrictive 1:1 translation of epidemiological findings to individual patients is a crime towards our patients and ourselves. If you practise EBM in the narrow context, you will find that the evidence razor is as useful as a barber's shop on the steps of the guillotine.

Intuitively, proper use of the EBM definition may make sense, but everywhere around us, the danger of more restrictive definitions taking over is evident. This happens in care institutions, such as hospitals, as well as in political and financial institutions, where the narrow definition of EBM is abused to regulate care and its associated costs.

In this month's issue of the Netherlands Journal of Medicine, Ubbink and colleagues address knowledge of, implementation, and attitudes towards evidence-based practice (EBP).⁹ They conclude that, overall, doctors and nurses embrace the EBP paradigm, but find it difficult to implement EBP for many reasons. Some of these reasons were practical (e.g. time constraints), others were more intellectual (doubt regarding methodology, etc). Their data are informative. The differences between doctors' and nurses' attitudes are particularly interesting, and the study identifies potential ways of improving epidemiological knowledge. The authors should be commended for their work.

The question does, however, arise as to what exactly the respondents were asked to reflect upon. In other words, was EBP clearly defined *before* doctors and nurses were requested to fill in their survey? In the original application of the McColl questionnaire they used, the questionnaire itself was accompanied by a separate letter containing a clear definition of EBM: *'conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. Its practice means integrating individual clinical expertise with the best available external clinical evidence from systematic research'*.¹⁰ It is hard, if not impossible, to disagree with this approach to medicine. Its implementation refers to a 'mindset' rather than a

'nominal style of practice', and requires balanced skills, including knowledge of basic sciences, epidemiological evidence, a good memory for storing clinical experience in and, perhaps above all, ability to listen to patients and recognise relevant individual context. From the answers to the questions in Ubbink's paper, it seems that many respondents may have interpreted EBP in the more restrictive context. Thus, answers and differences between them may have been related to different interpretations of the exact definition of EBP. The impression that EBP was interpreted in its restrictive definition is further strengthened by how questions were literally phrased and how answers were interpreted. For example, asking *'which competences are considered essential to change from experience-based to evidence-based practice'* might suggest that the two should be regarded as mutually exclusive, whereas they in fact are not. Also, the 'barriers to apply EBP' reported in table 4 are noteworthy. Yes, the literature indeed reports conflicting results, has methodological shortcomings, and often does not apply to the physician's situation. To me, these is not 'barriers to applying EBP', they are integral parts of evidence-based medicine, as they should be.

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