

# **What has evidence based medicine (EBM) done for our patients? We do not know. We must abandon it**

Juan Gérvas, retired rural general practitioner, CESCA Team, Madrid, Spain  
[jjgervas@gmail.com](mailto:jjgervas@gmail.com) [www.equipoCESCA.org](http://www.equipoCESCA.org) @JuanGérvas

## **1 What is Evidence-Based Medicine (#EBM)?**

Evidence-Based Medicine (EBM) is a method that aims to incorporate the best scientific results into decision making during clinical work. Therefore, it seeks to transform Medicine Based on Eminence (in the opinion of the experts or in the own opinion) into Medicine Based on Science (in facts, evidence, proven by studies with a scientific basis).

Over the years it has received different names and acronyms, but I will use the most classic EBM.

Generally, the EBM methodology reaches clinical professionals in the form of clinical guides, algorithms and protocols that help them make decisions.

## **2 What is the foundation of the EBM?**

Although all medicine has some degree of empirical support, EBM goes further, classifying evidence by its epistemologic strength and requiring that only the strongest types (coming from meta-analyses, systematic reviews, and randomized controlled trials) can yield strong recommendations; weaker types (such as from case-control studies) can yield only weak recommendations.

The EBM is a method that makes available to the professional the best of the studies and experiments so the professional, with his clinical experience, can use it according to the conditions and circumstances of the patient, taking into account his beliefs and preferences.

The EBM relies especially on the experimental method, in the conduct of clinical trials and in the analysis of their results through the sum of their results, what we call systematic reviews and meta-analysis.

## **3 What is the final goal of the EBM?**

The final goal of the EBM is to improve the health of patients through better scientific decision making.

For example, the 1948 clinical trial that demonstrated the impact of streptomycin on tuberculosis served to add an effective antibiotic for the first time in the treatment of such infection, which helped cure patients. The MBE gives us elements of the "map" of scientific knowledge, to facilitate the work in the "territory" of personal suffering. Given this potential for improvement, since its formulation as such a structured method, in 1982, it has spread throughout the world, with publications, conferences, congresses, courses and activities for thousands. Anyone interested can search the Internet with "Evidence Based Medicine" (#EBM).

In fact, the popularity is such that there is currently a saturation of meta-analysis and clinical practice guides, algorithms and protocols. Often these tools reach different conclusions using the same original material because continuous bias. The final assessment of bias could be done only with individual patient data (clinical study reports). See the example of the lack of benefits of neuraminidase inhibitors (oseltamivir and zanamivir) for influenza, the Tamiflu history

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4904189/>

<https://www.cebm.net/2016/06/timeline-events-since-publication-cochrane-review-neuraminidase-inhibitors/>

#### **4 Has the EBM achieved the final goal of improving patient health?**

**We do not know.**

It's amazing, but we don't know it. There are no studies to answer this question, basic and fundamental. After more than half a century of development and more than a quarter of a century of its formulation, we do not know if the EBM improve the health of the patients and therefore there is no way of knowing if the immense resources invested in the EBM have made the effort worth it. The EBM, which aims to bring the best of science to the consultation, based on clinical trials, has not promoted clinical trials that demonstrate whether the EBM itself has a positive or negative impact on the health of patients. It is very ironic and expresses an ideology of superiority, that a method that

constantly proposes to ask "What is the foundation of ...? What evidence support...? Is there any clinical trial...?", do not ask for itself the same questions.

We have the duty to use the EBM to measure the impact of EBM on patients' health. This is an exercise of meta-science. Meta-science is the use of scientific methodology to study science itself. Meta-science seeks to increase the quality of scientific research while reducing waste. It is also known as "research on research" and "the science of science", as it uses research methods to study how research is done and where improvements can be made. Metascience concerns itself with all fields of research and has been described as "a bird's eye view of science"

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4592065/>

Of course, if EBM is not science we cannot use EBM method to measure EBM outcome.

## **5 How do you know that EBM has no impact on the health of patients?**

Several systematic reviews have been made on the impact of EBM on clinical care. They have demonstrated a certain impact, very little, in the process of care (in how things are done) but they have repeatedly shown that there are no studies that assess the impact of EBM on the health of patients. Therefore, we do not know if EBM has an impact on patients' health, or if this impact is positive (better health), negative (worse health), or neutral (equal health).

It is incredible but true, we do not know the impact of MBE on the health of patients. Go to the bibliography and form your own idea.

"None of the studies evaluated health outcomes".

What is the evidence that postgraduate teaching in evidence based medicine changes anything? A systematic review.

<https://www.bmj.com/content/329/7473/1017.short>

"Few articles address the impact of teaching EBM on clinical outcomes, and in particular those that matter to patients as well as clinicians. Coomarasamy and Khan did not identify any studies"

What has evidence based medicine done for us?

<https://www.bmj.com/content/329/7473/987.short>

"None of the trials assessed patient-relevant outcomes".

Effectiveness of training in evidence-based medicine skills for healthcare professionals: a systematic review.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4820973/>

Considering the multitude of factors impacting on practice outcomes, teaching Evidence-Based Health Care (EBHC) could conceivably impact on practitioners' EBHC knowledge, skills, attitudes and behaviour, without necessarily influencing practice. This makes it difficult to design robust studies of appropriate sample size and difficult to assess and attribute improved health outcomes to any single factor.

What Are the Effects of Teaching Evidence-Based Health Care (EBHC)?  
Overview of Systematic Reviews.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0086706>

We must admit that:

a / "if the final objective of EBM is to improve patients-populations' health, do we have evidence of succeed in this objective?" No  
b / is EBM harming patients-populations' health? We do not know.

## **6 But is it important to be able to assess the health impact of EBM?**

All medical activity generates benefits and harms at the same time. Only those that generate much more benefits than harms are recommended. This balance is more important the more aggressive and/or frequent medical activities. As the EBM has theoretically become the basis of medicine, it influences the billions of clinical decisions that are made daily in the world and therefore it is key to be sure that its application entails more benefits than harms. In addition, it is estimated that 85% of all biomedical research in the world is wasted and a large part of the waste goes to the MBE. Therefore, it is estimated that most of the published studies are erroneous.

## **7 Why EBM might produce more harm than benefits?**

EBM is oriented to the diagnosis in the simple model of the disease caused by a single cause. This model is from the 19th century, of some infectious diseases, but it is a false model in general.

The EBM meets the aspirations of medical specialties, which fragment patients according to their diagnoses and "risk factors", and this

fragmentation causes harms, including increased mortality, while increasing spending.

The EBM ignores everything about the complexity of getting sick, including the greater fragility of patients with various diseases and those who need more attention, those of the lower class, the poor and the marginalized.

For example, randomized clinical trials assess average efficacy but do not take into account the severity of the disease (and its dynamic variations) experienced by the individual patient so essential for shared clinical decisions.

"Only a person-focused (rather than a disease-focused) view of morbidity, in which multiple illnesses interact in myriad ways, can accurately depict the much greater impact of illness among socially disadvantaged people and the nature of the interventions that are required to adequately manage the increased vulnerability to and interactions among diseases".

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3094214/>

Most diseases have a complex causal and constitutive basis. Partly because of this reason, the way in which diseases have been characterized has changed from a monocausal perspective to a multifactorial perspective. It has no sense to look for magic bullets with the clinical trials.

"Magic bullets are great, if we can find them. The problem is that most medical interventions are not magic bullets. There are three reasons for this. First, magic bullets are the "low-hanging fruit" of medical science: we have probably discovered most of them by now and so we are unlikely to find new ones. Second, many of the illnesses that we want to treat have complex, and poorly understood, underlying causal mechanisms. Third, even if the disease were relatively simple in nature, human physiology is not, and the tools that we have at our disposal for intervening into human physiology are often crude and non-specific. As a result, any putative intervention might mess up the delicate chemical balancing act inside the body, with deleterious side effects".

<https://philosophicaldisquisitions.blogspot.com/2019/04/the-argument-for-medical-nihilism.html>

## **8 Are patients too complex, or is EBM too simple?**

The EBM supports and gives arguments to the disease-oriented guidelines, algorithms and protocols that make medicine "too simple" in the face of

increasingly complex suffering. In fact, it is not that patients are complex but that medicine, and especially EBM, is too simple. The methodological rigor of the EBM, mixed with medical arrogance, is probably a key factor that increases the increasing damage caused by medicine (iatrogenesis) by simplifying responses to suffering, increasingly multifactorial. Hence, there is a limit (already reached in several countries) in which greater investment in the health sector is associated with a decrease in health.

In addition, the EBM has been transformed into an Eminence-Based Medicine of the "eminent experts of the EBM", which from their ivory towers abominate the complexity they do not know and produce "blessed" clinical guides, protocols and algorithms in false with the saint and sign of "founded in the EBM".

Finally, EBM ignores everything about inequality and its knowledge is based on a neoliberal ideology that does not take into account issues of lack of equity in the distribution of resources that generate health, such as formal education, fair wages, developed democracy, etc.

## **9 What to do?**

It is urgent to abandon the EBM, which has become a demanding and harmful god, with a religion whose priests live very well with the business of their "sale", such as the Cochrane Collaboration, GRADE courses and thousands of income-generating activities and way of life to a legion of "experts" who have kidnapped the EBM, from Oxford (United Kingdom) to McMaster (Canada) through a thousand universities, teaching and research centers throughout the world.

The EBM has also been kidnapped by the industries, which have perfectly learned their methods to respond with internal elegance to irrelevant questions that justify the introduction of their products. Its works, published in the best journals of the world, are of "internal elegance but external irrelevance."

## **10 Is abandoning EBM back to the past?**

No. It is going towards a future in which health will be considered as the result of the complex interaction of the biological, psychic and social.

The EBM at most only increases the scientific knowledge, the accuracy of the "map", what "could work", but says little about "what works" in each case and situation, the "territory" of the patient's suffering, and less says about the "know how." The EBM says nothing about the "landscapes", those mental images that are made by the clinical doctor and the patient, and their families, about the health intervention and its possible consequences. The key is to develop a medicine that is taught and practiced according to people and circumstances. In one example, we need knowledge and training that leads from simply teaching about "diabetes" to teaching about "living with diabetes", that goes from the "map" to the "territory" and from this to the "landscapes". That is, to extend the example: "Living with diabetes as a teenager who has just had the first mense and lives with her grandparents because her parents have separated and have no arrangement to support a family"

"Living with diabetes also having COPD (chronic obstructive pulmonary disease) and being unemployed, married to a woman who cleans houses for hours, with two children studying at the university"

"Living with diabetes in the street, having been a woman diagnosed with schizophrenia, and without more follow-up than the occasional one in the emergency room when there are complications"

"Living with diabetes having had myocardial infarction, being aware of a kidney transplant and having suffered amputation of the right foot."

The future is about to develop a medicine that has knowledge and experiences of proven effectiveness in which there is no tyranny of diagnosis, in which there are no guidelines, protocols and algorithms focused on diseases, in which the search for equity is central and therefore the clinical trials also study the impacts of illiteracy (total or functional), unemployment, poverty and loneliness, among other essential characteristics. Also, a medicine that has more external relevance than internal elegance. A medicine that teaches doctors to listen, and that does not justify and give wings to "Defensive Medicine" (actually "Offensive Medicine").

## **Synthesis**

Evidence-Based Medicine (#EBM) has not demonstrated any impact on patients' health. It is honest to think that the EBM has become harmful and it

is urgent to abandon it and replace it with a Medicine Based on Living.

### **More references**

Research waste is still a scandal—an essay by Paul Glasziou and Iain Chalmers.

<https://www.bmj.com/content/363/bmj.k4645.abstract>

Map and territory

<https://www.bmj.com/content/331/7530/1462>

Quality-of-Care Research. Internal Elegance and External Relevance.

[https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-primary-care-policy-center/Publications\\_PDFs/E30.pdf](https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-primary-care-policy-center/Publications_PDFs/E30.pdf)

Why Most Published Research Findings Are False.

[https://journals.plos.org/plosmedicine/article?id=10.1371/](https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0020124)

[journal.pmed.0020124](https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0020124)

Evidence-based medicine has been hijacked: a report to David Sackett.

<https://www.ncbi.nlm.nih.gov/pubmed/26934549>

EBM is a threat to equity because its disease-focused rather than person focused care, and because the guidelines with the same focus

<http://equipocesca.org/new/wp-content/uploads/2012/04/ARPH-2012-clinical-care-equity.pdf>

"Uncertainty remains so abundant that specific human lives remain boundlessly unpredictable"

<https://www.newyorker.com/magazine/2019/09/09/what-statistics-can-and-cant-tell-us-about-ourselves>