

## In defense of evidence-based medicine

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*"The more I learn, the more I realize how much I don't know"*

Albert Einstein.

Chronic-degenerative diseases continue to rise and the emergence of conflicting medical problems, such as antibiotic resistance, mental disease epidemics, substance abuse, environmental quality, and the exposure, leads us to encounter challenging clinical scenarios. Even after persistent training and study hours in medical school and residency, everyday questions continue to arise as we expose ourselves to different emerging diseases and novel treatments.

Evidence-based medicine (EBM) is the conscientious, explicit, judicious, and reasonable use of modern, best evidence in making decisions about the care of individual patients<sup>1</sup>. We must remember that EBM integrates not only the best quality of information available but also includes clinical experience and patient values.

Miguel and Carlos<sup>2</sup> found that on average, although physicians in Peru attend 22 cases per day, the barriers to implementing evidence-based medicine include lack of item and lack of availability to access to information. Another important disadvantage might be the language barrier since 98% of studies published in PubMed are in English.

Clinical research has a long and rich history, dating back to as early as 2,737 BCE by Shen Nung experimentation of different herbs, but the first reported systematic experiment of the modern era was published by

Dr. James Lind. "Treatise on Scurvy" in Edinburgh 1753, where groups were systematically divided and assessed for response to scurvy treatment<sup>3</sup>. Nowadays, thanks to the internet and the digital era, channels are so vast that an abundance of the literature is available for the medical community. In 2012, 1.8 million scientific research articles were published and continue to grow around 3% annually<sup>4</sup>.

To deliver evidence-based healthcare, the clinician has to have the ability to generate a clinical question, search the best evidence, appraise the information, and apply it to the patient in hand. Cullen et al. showed that most junior doctors seek their information through synthesized sources such as up to date, while the regular use of sources such as PubMed was scarce<sup>5</sup>. This fact is important since a critical review of the methodology in a study is not always evaluated by the reader, and important biases or systematic errors might be missed. Another caveat is that evidence might be taken as a dogma, especially when published in high-impact journals when any given conclusion has to be translated to specific clinical scenarios and populations.

The findings by Miguel and Carlos reflect another conflict, common to all professionals in healthcare, which is lack of time<sup>2</sup>. Given the rate of available literature, a given person would have to read up to 19 articles daily in their specialty to continue to be up to date<sup>1</sup>.

It has been shown that the formal curriculum, either through seminars or in a longitudinal course, allows a better understanding of these skills. Nevertheless, the

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retention of these skills and the confidence to maintain the competency throughout the years is diminished if not further reinforced<sup>5</sup>. As any skill, clinical decision-making requires constant practice and discipline. It has been shown that undergraduate training in EBM does not result in the continued use of knowledge in further years. The optimal way of delivering training to obtain the best evidence-based medicine search strategies for students and residents has not been clearly elucidated, but it seems that an integrated approach that involves library and academic staff is more effective<sup>5</sup>.

Formal training in EBM search and critical appraisal of the literature is fundamental for any health-care provider given the fact that medical challenges will continue to arise. This competency is fundamental to

any person working in a hectic environment, where complexity is the common denominator, and effective and reliable information is necessary for the most exquisite care of the patient.

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