

Evidence Based Medicine Essay

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Evidence based medicine (EBM) is a model of practice many physicians claim to practice by, and understandably so. After all, at face value, EBM seems to display a certain unwavering quality; inferring immunity to ignorance as granted by empirically validated clinical trials.

The oxford dictionary definition for evidence is “the available body of facts or information indicating whether a belief or proposition is true or valid”¹. Moreover, the definition of medicine is “the science or practice of the diagnosis, treatment, and prevention of disease”². Therefore, one can conclude that EBM is defined as disease prevention, identification and management as validated by the information amassed through the process of scientific investigation.

With such strong focus on and desire for an ironclad, litigious-proof means of practicing, one should wonder to where the art of medicine has disappeared. One of the major proponents and founders of EBM, David Sackett, describes EBM as “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patient”³. Such definition should resonate with any practitioner who has taken the Hippocratic oath. However, in the current medical paradigm in which we practice, it seems as though the words “judicious” and “individual” have been cast aside in the face of absolute treatment algorithms. These cookie-cutter approaches to case management have seemingly developed in response to the litigious nature of our society. Or at least, that is what it appears to have occurred. Thankfully, a physician may claim ownership to the words “judicious” and “individual” once again, if the art of medicine is embraced over the obdurate pragmatism that has become EBM.

However, let us not completely disregard the entirety of EBM, but instead elucidate its benefits and pitfalls. The original intention of EBM was to optimize clinical practice as to pair current empirically founded scientific evidence with safe, consistent care⁴. Such measures were achieved by creating standards for developing and publishing research⁵, as well as creating databases wherein information could be summarized⁶ and standards of care and practice guidelines could be made available to the practicing physician⁷. It can therefore be stated that EBM has offered the practicing physician invaluable information for case management.

Such standards of care are algorithmic extrapolations developed by the meta-analyses of numerous scientific studies. The included studies typically consist of large populations in which variables are either controlled for, or avoided whilst determining study participant population. Such large-scale studies require much capital, time, and man power. It is clear why medical professionals are so inclined to rely on the data generated by such studies. However, in the strengths also lie the weaknesses.

Standards of care are widely applied and thus may become overly relied upon for case management. However not all patient presentations are able to be properly and safely managed by statically adjusted algorithms. Judiciousness and prudent, individualized, contextual critical thinking are all but lost. The result of which may both be detrimental to the patient and to the practitioner’s liability and enjoyment of the practice and art of medicine. When EBM first came about, many were concerned

that knowledge of basic sciences and the skill developed through years of clinical practice would be severely undervalued and underutilized⁸. Moreover, concerns about being guideline driven, rather than investigation driven, could find a clinician missing important signs or symptoms of other concurrent health issues⁹. Both concerns regarding EBM are valid, and may not necessarily apply to a physician who is truly practicing the art of medicine, rather adhering to intransigent standards of care.

Large scale studies are widely considered to be the most reliable source of information, as they can offer a clearer picture of statistical significance of the data, after controlling for variables. However, in having the ability to choose a large sample size, small but perhaps important clinical variations are able to be disregarded. The implications of such were foreseen by the initial critics of EBM. They foresaw that such limited inclusion criteria may not be of benefit to real-life cases, and to those populations not represented by said clinical trial populations⁸.

In the world of EBM, capital, time, and man power allows for stringent oversight of many aspects of research. Firstly, it allows for the ability to collect participants based on strict inclusion criteria, once again avoiding the cases that are outliers. This process also allows researchers to choose those most likely to respond to treatment. Additionally, it allows for those with vested interest to pre-determine interventions, controls, and end points of studies. Lest we fail to acknowledge that undesirable outcomes may also be omitted from publication at the determination of the vested party¹⁰.

Having reflected upon the aforementioned, shouldn't one be concerning themselves with the clinical detriments of overly stringent practice guidelines or entirely generalized standards of care?

Unfortunately, many physicians are too busy, have poor access to information, are ill equipped, or are unaware of the proper way by which to analyze scientific data. Instead, physicians today rely on news blurbs, automated point of care templates, position statements, and standards of care offered by various associations. It should be noted that it is not uncommon for standards of care to differ depending on their source. Such recent examples include but are not limited to timing of initiation of HIV screening¹¹ and periodicity of pelvic exams¹². Keep in mind insurance companies may be apt to disagree with the physician on their chosen practice guidelines, further complicating the matter. So there we find today's physician, defensively forced to choose among varying standards of care by which to manage their practice.

Is there a different option? Can we encourage physicians to make informed decisions based on clinical judgement and evidence available to them? Can the current medical system focus on the quality of care rather than the scarcity of time in a clinical setting? Can physicians be supported and encouraged to take the time to think clinically, rather than being forced to practice expeditious perfunctory medicine? Is it possible for a physician to truly practice the art of medicine?

The oxford dictionary defines art as "A skill at doing a specified thing, typically one acquired through practice"¹³. Therefore, it is to be understood that the art of medicine is exercised through practice and development of skill set. It is not to be defined by mechanistic standards of practice based on controlled averages of patient populations.

In allowing physicians to independently assess and apply the evidence available to them, they are able to better serve all cases, especially those largely omitted from studies used in meta analyses—the outliers. These outliers are the patients who are largely seen in CIRS practices. These are the clients

who have been previously, and repetitively failed by commonplace EBM based standards of care. Chronic Inflammatory Response Syndrome (CIRS) patients express a multi-system, multi-symptom illness. As their cases are complex, these patients are typically not included in EBM studies due to their multi-variant presentation. They will either be controlled for statistically, or omitted from participation in large scale studies. Therefore, standards of care base on meta-analysis of large scale studies may not apply to CIRS patients; or may be applied ineffectively. Another case of square-peg, round-hole syndrome.

A properly trained CIRS physician may see the multi-system, multi-symptom presentation as a singular illness, and correctly diagnose and treat CIRS. Meanwhile another untrained physician may see the presentation as individual comorbidities, and therefore will be unsuccessful in their treatment. As an added complexity, CIRS may present with clinical variation from case to case. Therefore, it becomes nearly impossible for dogmatic EBM practice guidelines to be applied in any meaningful or successful way. After all there is very little plasticity in production and application of reliable objective scoring, metrics, interventions and guidelines ¹⁴.

Thus, it becomes increasingly important to be able to practice the art of medicine when working with an illness as difficult as CIRS. In practicing the art of medicine, we are able to best serve the patient while also collecting n=1 data. With proper documentation of variables, treatments and outcomes, a scientific research trial can occur, specific to these complex cases. The resultant data can then be developed into a scaffolding against which to practice. This is what Dr. Shoemaker has been doing for years, and is now currently doing in conjunction with other CIRS trained physicians. The art of medicine has found a home in the evidence based treatment of CIRS.

In conclusion, the union of the art of medicine and EBM is wholly possible, and may be best described and directed in its delivery, by Greenhalgh¹⁵:

“Real evidence based medicine: Makes the ethical care of the patient its top priority. Demands individualized evidence in a format that clinicians and patients can understand. Is characterized by expert judgment rather than mechanical rule following. Shares decisions with patients through meaningful conversations. Builds on a strong clinician-patient relationship and the human aspects of care. Applies these principles at community level for evidence based public health. Actions to deliver real evidence based medicine: Patients must demand better evidence, better presented, better explained, and applied in a more personalized way. Clinical training must go beyond searching and critical appraisal to hone expert judgment and shared decision making skills. Producers of evidence summaries, clinical guidelines, and decision support tools must take account of who will use them, for what purposes, and under what constraints. Publishers must demand that studies meet usability standards as well as methodological ones. Policy makers must resist the instrumental generation and use of “evidence” by vested interests. Independent funders must increasingly shape the production, synthesis, and dissemination of high quality clinical and public health evidence. The research agenda must become broader and more interdisciplinary, embracing the experience of illness, the psychology of evidence interpretation, the negotiation and sharing of evidence by clinicians and patients, and how to prevent harm from over diagnosis”

In the era of homogenous and systematic medicine, individuality and judiciousness in the clinical sphere is respectively not considered and, or underutilized. This unfortunately, results in an ill-tailored treatment plan, paying little mind the unique nature of the patient. The art of medicine necessitates consideration of all aspects of the patient including, but not limited to, their distinctive genetics, physiology, psychology, and lifestyle. Moreover, well intentioned physicians need to

understand that statistical analysis and p values do not equate to 100% successful treatment outcomes when EBM is solely relied upon. Individuality does exist in medicine, and outliers need to be considered and treated appropriately using a combination of the best clinical judgement and knowledge available to the practitioner at said time. All physicians should therefore be encouraged to investigate where and how the art of medicine and EBM converges in their unique practice.

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