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A PERSPECTIVE OF EVIDENCE-BASED MEDICINE

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Evidence based-medicine (EBM), as currently known, emerged from team work at McMaster University in Canada in the eighties, and the concept is credited to Dr. David Sackett and Dr. Gordon Guyatt. According to one of the originators of the idea, evidence-based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.[1] Another definition states that evidence-based medicine is the integration of best research evidence with clinical expertise and patient values. Much of that, of course, was founded on the original ideas enunciated by Archie Cochrane, a Scottish epidemiologist after whom the Cochrane Collaboration and Library, a veritable repository of clinical evidence, was named. A parallel can be drawn here with the other situation where another Scot, Dr. Ronald Harden had pioneered one of the major advancements in examination procedure, the Objective Structured Clinical Examination (OSCE), his invention having also burgeoned in parts of North America before receiving world-wide recognition. These definitions of EBM not only reveal its very inclusive nature, but indeed emphasise the aspect of individuality. In that regard, EBM is now standard practice in many countries and institutions, and firmly established in curricula, guidelines and operating procedures. There is evidence though that physicians' perceptions, knowledge and practice of EBM differ widely.[2]

An empirical approach to clinical problems is often adopted especially in the face of inadequate resources but, even in that event, the chance of a proper utilization of evidence offers itself. For decades the belief was held that, in order to prevent cardiovascular disease, people above a certain age, variously held to be anywhere from 40 to 50 years, should take a low dose of aspirin daily. However, evidence accumulating over time showed no reduction in first-time cardiovascular events, but rather an increase in bleeding episodes, with some fatality. That did not lead to a discontinuation of the practice, but rather a recommendation that the expected benefits of aspirin use be weighed against the risks. Thus the practice of consumption of daily aspirin continues in those who have had an event and in those with high risk of one.[3] New ways of thinking have emerged. It is perhaps no longer totally acceptable to hold a view that the sophisticated mechanisms underpinning a particular therapy ensure its ultimate superiority over others in a clinical setting; it has to be proved.

Although not as frequently mentioned, the concept of evidence applies in other areas such as investigations, teaching methods, all very familiar in medicine, and also in the realms of human behavior and mechanical activities. By and large, evidence addresses, or answers, the question: what is the best possible answer? The presence of evidence has to be seen as an occurrence whose veracity is not dependent on the absence of evidence for some other consideration. Barring direct comparisons of medicines A and B, the finding that medicine A reduces mortality in a certain condition does not detract from the qualities of medicine B, also used in the treatment of that condition. The absence of evidence for the effectiveness of a therapy does not necessarily imply the ineffectiveness of that therapy, but simply states that it has not been ascertained, quite different from 'evidence shows that it is ineffective.' The application of evidence ensures that a practitioner remains on a justified, 'legal' course, but does not preclude the occurrence of a similar clinical outcome from another line of management, albeit not evidence tested. However, given the contextual nature of evidence, it might change with time or place, hence the need for evaluation of evidence after application.

The steps involved in EBM comprise the following:
1. Ask a focused question.
2. Search for the evidence.
3. Critically analyse the evidence for its validity, effect size, precision
4. Apply the evidence in practice.
5. Evaluate the performance.[4]

Setting the right question is crucial. In answering the question 'does taking medicine A cause a reduction in mortality from hypertension?' one might discover that A reduces blood pressure but not quite mortality. Likely explanations for this seeming improbability could be that medicine A causes severe side effects which often lead to mortality or that the BP has not been sufficiently lowered, all considered. The answer to a particular question should be based on contextual information but that answer, having been arrived at by the due processes of EBM, remains valid. An imprecise statement such as '…is useful in the treatment of…' should be avoided as it is open to many interpretations. Using appropriate terms, a search is carried out on the well-known platforms including the Cochrane library, PubMed, Web of Science, Scopus, African Journals On-Line, Google Scholar, Science Direct, Embase, and various specialist sites, a task now more easily accomplished with the availability of digital programmes. Additional searching should continue with a hand search of journals, references lists and personal contacts with personnel working in the subject area. Data or information obtained from the analyses of the search results is hierarchically classified. Meta analyses and systematic reviews of randomised controlled trials (RCTs), individual RCTs provide the highest levels of evidence, followed in order by cohort studies, case-control studies, cross-sectional studies, case series and reports, and expert opinion at the bottom. Notwithstanding the hierarchical classification, some study types often answer the posed question much better than others. Questions relating to aetiology and prevention are better answered by RCTs, cohort and case control studies; questions relating to diagnosis by RCTs; questions relating to therapy by RCTs; questions relating to prognosis by cohort and case-control studies. After the rigorous review of the papers, ideally with a checklist, evidence tables are prepared, the level of evidence is thereafter computed (usually 1- 4) and translated into strengths of recommendation (usually A – D). Applied to clinical practice, high level of evidence would lead to a decision to recommend an action, moderate evidence to suggest, and lower levels of evidence to consider.

Clinical decisions may emanate from low-level evidence, derived from a case series or even personal, expert opinion particularly regarding a rare or emerging disease. The COVID-19 pandemic is a case in which experts' opinions were heavily relied on in the early stages of the pandemic. Further gathering of evidence was later achieved by retrospective analyses of data, actual demonstrations of the appropriateness and application of a case control or retrospective design in studying emerging diseases, and ongoing cohort studies are likely to yield data on sequelae and outcome in years to come. Faced with a nagging question we look for evidence, but when resources are limited or the path to the evidence is not straightforward or ethical, there might be a recourse to lower level evidence.

EBM and guidelines simplify matters for the practitioner, who is spared many of the intricacies and complexities inherent in practice, and could save time. Largely derived from evidence, guidelines and standard operating procedures which are commonly employed in medicine, attest to the realization of the need for guidance and standardization. Because of the increasing standardization in virtually all aspects of curriculum drafting, teaching and training, and examination methods, evidence-based methods are essential in the university. It is arguable that a single set of guidelines for world coverage, for a condition such as hypertension, may not be realistic owing to the wide disparities in conditions across the countries of the world, so regions or countries are encouraged to draw up guidelines for themselves building on the global, overarching guidelines. Practice guidelines including those for hypertension, chronic kidney disease, epilepsy, asthma, malaria, tuberculosis and HIV infection have been developed in Nigeria, indicative of the recognition of their need. However, their degrees of use have generally not been established nor the amounts of locally derived evidence contained in them determined.

There might be some worries. With the increasing dependence on high quality RCTs and the resulting systematic reviews and meta-analyses, industry, in sponsoring such trials, could exert undue influence.[5] Additionally, it is feared that, in the quest for high quality evidence, that component of EBM relating to personal experience and patients' preferences may be relegated. The long time often taken in applying guidelines has also been raised as an issue, and this could also apply to the generation of EBM.[6] As with many other situations there is the need to introduce a balance.

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