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Evidence based decision making: One size fits all

[1]Shefali Goel, MDS, Senior resident, Department of Prosthodontics, Maulana Azad Institute of Dental Sciences, Delhi, India

[2]Poonam Kadain, MDS, Senior resident, Department of Prosthodontics, Maulana Azad Institute of Dental Sciences, Delhi, India

[3]Rekha Gupta, MDS, Professor and HOD, Department of Prosthodontics, Maulana Azad Institute of Dental Sciences, Delhi, India

[4]Shubhra Gill, MDS, Professor, Department of Prosthodontics, Maulana Azad Institute of Dental Sciences, Delhi, India

[5]Aishwarya Saini, BDS, Junior resident, Department of Prosthodontics, Maulana Azad Institute of Dental Sciences, Delhi, India

[6]Nikita Singh, BDS, Junior resident, Department of Prosthodontics, Maulana Azad Institute of Dental Sciences, Delhi, India

Corresponding Author: Poonam Kadain, MDS, Senior resident, Department of Prosthodontics, Maulana Azad Institute of Dental Sciences, Delhi, India

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Abstract

Evidence based decision making is an emerging reality which is becoming discernible across various sectors across the globe. Its eminence can be seen in its application in the field of medicine, dentistry, healthcare administration and healthcare policy. Evidence based medicine entails the use of best research evidence along with clinician's expertise, judgement and patient's need with desires. Lack of homogeneity and disparity in clinical approaches and results is the major impetus behind its uptake in various sectors. Now days, patients are self-aware and plays an active role in decision making. EBM provides a scientifically sound, objective, patient centric approach which provides predictable and favorable results. It equips practitioners with latest information and serve as their armor in medico-legal cases. Proper protocol and rigorous assessment of evidence needs to be done before its application. Different study designs require specific guidelines for their reporting. Doctor hesitancy, hurdles in research retrievability and lack of awareness are the major impediment to Evidence based decision making. Evidence Based Dentistry is another counterpart of EBM. Positive outcomes of Evidence based Medicine

have also carved a way for its dissemination to the healthcare administration sector. However, amalgamation of Political interest, Organizational policies and prevalent social notions makes evidence-based decision making a tough row to hoe. Evidence-based policy have also faced similar contrariety with the reasoning that gold standard evidence might not shine in every context. Thus, a holistic understanding of the context with meticulous implementation of Evidence based decision is the need of the hour.

Keywords: Evidence Based Decision Making; Evidence Based Medicine; Cochrane library; Pubmed; Evidence Based Policy; Evidence Based Dentistry; Evidence Based Healthcare Management; Randomized controlled trials

Introduction

To be or not to be, is one of the most quoted line across the globe. But it truly manifests the crux of the dilemma entangled in this quagmire of Evidence based decision making. But as they say there is no smoke without fire, so there is no change without need. In case of evidence application this change was first witnessed in 1980's in the sector of healthcare to realize the utopia in which quality healthcare is not just a rich's paradise but a common man reality too. This eureka moment didn't just stay limited to healthcare but its elixir has trickled down to multiple other areas like policy making, healthcare administration, Dentistry. Evidence based decision making is not just grounded in use of best available evidence alone but is akin to a plant that needs the light of clinical expertise and fertilizer catering to needs of the targeted population in context that may be susceptible to winds of political values, rain of financial constraint to bear the sweet fruit of what is desired which may manifest as quality healthcare, policy or administration.

Evidence Based Medicine

In healthcare this phenomenon is addressed as Evidence Based Medicine (EBM) which rests on 3 pillars namely best research evidence; clinical expertise and judgement; patient values, needs and desires. Amalgamation of above cultivate a patient centric high quality healthcare therapy. The objective nature of research evidence in contrast to subjective nature of other 2 components make it a vital element of the triad. The thrust driving EBM is absence of homogeneity in clinical decision making with disparity in the achieved results.[1] Transition to EBM has been fostered with the need to reduce knowledge transition gap (KT gap) whose presence can be felt by disparity in what should be applied and what actually is practiced.[2] Curtailment of variation in treatment by adoption of evidence-based rationale will augment patient treatment success.[3] Patients are no longer just the beneficiary but have robust partnership with the doctor in decision making. Plethora of information that is readily accessible at click of a button has equipped patients with awareness, knowledge and high expectations.

Rationale Behind EBM

Rise of EBM is by its conferment of a scientifically sound, transparent, objective, explicit, comprehensive patient-specific approach that is adorned with clinician's acumen.[4] The rationale behind EBM is the need to have robust reproducible evidence that provides highest attainable standard of care. A classic example delineating this is the journey of focal infection theory by William Hunter whose rejection and acceptance both pivoted around evidence.[5] EBM provides scientifically sound clinical research for doctors to predicate their decision on. EBM aid practitioners stay abreast with latest developments in material, technology and techniques. In addition, practicing evidence-based

methodology serves as an armor for doctors in Medicolegal cases which shield them from unfounded finger- pointing.

Application of EBM

What, Why and How are the vital questions that needs to prop up in a clinician's mind while formulating a treatment plan. Rigorous assessment of the treatment that is being instituted in terms of its success, efficiency, prognosis, predictability, benefit risk ratio, cost, availability and available alternatives is needed. Formulation of a PICO question that addresses the targeted population on which intervention is being done with comparison to counterpart to assess the outcomes achieved is the first step. This is followed by articulation of a standardized and reproducible search strategy that needs to be strictly followed. Multitude high quality databases are at one's disposal for obtaining the critically appraised literature. Cochrane Library, Journal of Evidence Based Dental Practice, A-Z systematic reviews, American Dental Association Database of Systematic Reviews, Pubmed are few examples of treatise of evidence research.

Cochrane collaboration is an international charitable organization established in 1993 which promotes evidence- based research and facilitate healthcare professionals, policy makers in their healthcare intervention endeavours.[6] PubMed gives access to Medline, NLM database which contains pertinent literature in field of medicine, dentistry, nursing, health care systems and veterinary medicines.[7]

Level of Evidence

Obtained results must be first reviewed for their level of evidence.[8] Level of evidence can be characterized by a multilevel pyramid in which clinical practice guidelines occupy the highest tier. It is followed by meta-analysis and systematic review (SR) which constitute the next best level of evidence. Levels below are occupied by Randomized controlled trials (RCT), Cohort studies, case control studies, case report/ case series, Narrative reviews, Expert opinions and editorials. Critical appraisal and evaluation of the relevant studies need to be done in terms of their applicability, validity and authenticity. Quality of evidence and its strength can be assessed by the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system which scrutinizes the research data comprehensively in term of its imprecision, bias, inconsistency and study design.[9] Various guidelines have also been established for uniform reporting of various study designs like CONSORT, PRISMA, CARE.

To obtain pertinent, reproducible evidence few key features need to be incorporated in any RCT. For equal distribution of variables with elimination of allocation bias Randomization is a must. All the participants including dropouts need to be accounted for at the conclusion of the study to preclude any alteration in results. Blinding and matching of groups with sufficient follow up renders a credibility to the study. Thus, in tandem with the patients need and clinician's expertise, this critically appraised researched evidence is applied to reach best treatment outcome for the patient.[10]

Barriers to EBM

The apprehension behind the uptake of EBM is the prevalent suspicion that the clinician will surrender the power of decision making to the literature. While nothing could be far from truth, as the established clinical guidelines empower the clinician in their decision making.

Possible reasoning behind hindrance to universality of EBM is lack of awareness and hesitancy of doctors, research access difficulty, capability limitation and dearth of studies addressing clinically relevant questions.

It's also a tedious job to extract relevant literature which is compounded by prevalence of overwhelming information. Doctor's hesitancy to enter in an unknown domain with lack of motivation may also pose a challenge.[11]

Evidence Based Dentistry

Evidence Based Dentistry (EBD) is another counterpart of EBM. Similar principles and guidelines of EBM are applied in EBD. In accordance to Kotwal et al. Dentistry information wealth has experienced 3 phases of change namely phase of Expertise, Professionalism, Evidence and is currently at the brink of 4th phase.

Evidence Based Healthcare Management

Evidence based decision making has also paved its way in the sector of healthcare administration. Perceived success of EBM had found many proponents who are in favour of Evidence based management.[12] However, application of evidence-based approach in field of management is an arduous task. Paucity of pertinent literature,[13] ambiguity regarding what constitutes evidence in management are few of the hurdles hindering its propagation. Research evidence in healthcare management is based on a feeble social paradigm with less quantitative research. In contrast to EBM in management scientific and business evidence are needed to be applied simultaneously.[14] EBM has a more organised protocol on contrary to evidence-based decision making in healthcare management which is replete with dynamic factors including political influence, social context, organizational values which usually do not make a presence in EBM scenario.

Thus, rendering decision making in healthcare management less amenable to evidence-based guidelines and more complex. Key player here is a not an individual but the whole management who are more susceptible to public scrutiny which might influence their objectivity and make their decision a politicized one. Context plays a more pivotal role in healthcare management than in EBM where it doesn't possess the strongest voice.

In healthcare management evidence assumes polymorphism in its relevance. Besides conceptual reasoning, symbolic, interactive, instrumental and knowledge driven are its various facets.[15] Proficiency of knowledge transition to action can be accessed by Theory of Planned Behavior (TPB).[16] To gain wide spread acceptability and applicability of evidence- based decision making in healthcare management innovative insights are needed. Decision support tools, information updation programs, audit and feedback might be some helpful aids.[17] Major facilitator to this change might be presence of organisational support with training, ample resources, collaborative research partnership, authority to take action.[18]

Evidence-based policy

Evidence-based policy (EBP) paradigm is another beneficiary of EBM. Its rationale is that policy making should be invested in evidence-based research than on prevalent ideology or public sentiments. EBP found its biggest supporter in the Blair government in UK.[19] In addition, Campbell Collaboration and Evidence network are both influential propagator and mediator for EBP.[20] Critiques of EBP argue that policy making is a complex task and what might be the gold standard evidence may not work in every context. Extrapolation of evidence in a political scenario requires holistic understanding of the conditions existing in the experimental settings and need for existence of similar conditions in the target population to gain favourable outcomes.

RAPID Outcome Mapping Approach (ROMA) has been proposed to facilitate adequate transition of research into policies.[21] Thus, key strategies like social network

utilization, augmentation of technical knowledge of the policymakers, better presentation of research findings, establishing a connection between research evidence and policy outcomes might be the need of the hour to make EBP a bright reality.[22]

Assessment Tools

As goes with all, nothing is without its pitfalls. Same phenomenon also exists with evidence-based decision making. Critical thinking is necessary for assessment of evidence for which 12 tools have been proposed.[23] Skeptical nature is needed in research since preponderance of falsified results is prevalent as delineated by biased epidemiologic research. Biological plausibility should not be trusted[24], cause should preclude the effect[25], hypothesis should not be altered to fit the observations as elucidated by alteration in definition of sample size or exposure or endpoint. Opportunistic and procrustean data torturing are prime examples of above.[26] There is need for common and relevant comparisons[27], Sample should be representative of the target population, clinically relevant outcome[28], adequate sample size, accountability of placebo effect[29] are some of the tools. Conflict of interest disclosure is essential to mitigate falsification of results as misleading perceptions about effectiveness of the outcome can be propagated for personal gains. As evidenced by prevalence of increased company funded trials in which authenticity of results is questionable.[30]

Conclusion

As the saying goes that "An ounce of prevention is worth a pound of cure". Consequently, constant vigilance, comprehensive critical appraisal of evidence is required to evaluate its authenticity, validity, reproducibility and transparency before its implementation. Thus, with judicious and meticulous implementation of Evidence based decision making, the rewards will be reaped both by the public and people enforcing it, be it doctors, policy makers and administrators.

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