



A Study of Evidence-Based Medicine (EBM) Online Database Resources and the Roles of Health Science Librarian in Information Delivery

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ABSTRACT

Evidence-based Medicine (EBM) is rapidly growing and has been receiving more recognition since last decade, due to its potential to effectively handle clinical challenges of a patient. EBM involves making sound decisions about treatment of patients which can significantly improve health care delivery and save human lives. The current emphasis on evidence-based healthcare has required and increases the demand for information resource. The need for timely and quality-filtered information during care and treatment has necessitated the search for reliable information source(s). Conversely, one of the main challenges facing EBM physician today is, where to find available and reliable clinical evidence for effective decision making. The information explosion caused by the internet as well as many untrustworthy sources of information in the electronic environment, coupled with the lack of time on the part of physicians to assess desired information has further created vital roles for health librarians at the point of care. Therefore, the objective of this study is to bridge the gap between physician and EBM research by providing knowledge and gateway access to EBM online database resource for health professionals, as well the roles played by health Science Librarian in the practice. It is hoped that, it will become a tool and guide resource for evidence-based medicine decision making in the health sciences which would, in turn, provides quality health care for patients, and also improves responsibility for well-being care practices and knowledge among the physician.

Keywords: Evidence-based medicine, Online, Databases, Librarian, Health science.

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I. Introduction

The Internet has become a universal source of health information for health care providers and consumers. It has been widely accepted as an imperative mechanism for changing medical care. The internet provides healthcare practitioners unparalleled access to vast amount of quality, up-to-date and significant health care information. Medical learning resources such as online database and journals on the internet have been progressively increasing over the last decade as well as accessibility (Amin, Kaliyadan & Wadani, 2011; Ajuwon, 2015). This has stirred and enhances access to evidence-based medicine (EBM) resources as well as given opportunity to free access medical information. Nevertheless, it is still yet to be ascertained if these resources are actually being identified and exploited in an optimum manner.

Evidence-based Medicine (EBM) required information from reputable evidence-based sources to accomplish

their research work and to be able to discharge their duties, especially for patient-care. EBM requires that clinicians search the appropriate literature to find answers to their clinical questions and such information sources must be relevant, reliable, and accurate. Failure to access required literature poses a great threat. This is because, the information presented for decision-making aids focuses on treatment options and their possible outcomes. The key to finding this evidence-based medicine (EBM) information is awareness and effective searching strategies of the database that are relevant and reliable. These database resources allow health librarians' the quick and easy search and the retrieval of abstract, bibliographic results and full-text articles sometimes for the physician.

Evidence-based practice depends on a literature search. The key underlining factors for successful search is awareness of where to search. Therefore, it is the duty of health science librarians to provide evidence-based medical information to health professionals which will enable them to make better informed clinical decisions. It

is on this basis that, this study intends to examine available online database resources for evidence based medicine as well as the roles health science librarians perform in the delivery of such information. It is hoped that it will become a tool and guide resource for evidence-based medicine (EBM) decision making in the health sciences, which would, in turn, provides quality health care for patients, and also improves accountability for well-being care practices and knowledge among the physician.

II. Objectives

The objective of this study is to provide knowledge and access to evidence-based medicine (EBM) online database resource for health professionals and Librarians.

III. Evidence - Based Medicine

Evidence-based practice (EBP) is an interdisciplinary method to clinical practice that has been gaining attention and ground following its formal introduction in 1992. It began in medicine as evidence-based medicine (EBM) and spread to other fields of study (Wikipedia, 2015). Sackett *et al.* (1996) define EBM as the “conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients”. EBM involves procedure of assessing, systematically finding, appraising, and using current research findings as the basis for clinical decisions. It probes questions, finds and appraises the relevant data, and links that information for clinical practice (Case Western Reserve University, 2005).

The key emphasis is “evidence” of various studies/review. It is all about finding evidence and using that evidence to make clinical decisions. The principles of EBP are to motivate and encourage health care professionals to use practices with proven benefit and help eliminate those use that has shown to be ineffective or harmful. Such evidence is found in high quality publications, such as systematic reviews, meta-analyses, and clinical guidelines available in various sources such as online database and journals (Kinengyere, Ssenono, & Obuku, 2015).

IV. Online Database

An online database is a database available and accessible from a linked network, most importantly from the internet. Databases in data networks may be linked by various physical component or other arrangements. Online database are searchable lists of journal articles, most of them list millions of articles from thousands of journals and are updated constantly. Databases are searched to discover what has been published in journals on a topic. As a result of the widespread of the internet, online database are commonly available and can be accessed from anywhere and by many users at the same time, hence convenient and easy to use (Kwadzo, 2015).

There are many different types of online database available in the world today; they include Bibliographic databases, citation databases, and full-text databases among others. Some authors do make difference between

online databases. Bibliographic database contain basic information on the entries such as the title of the article, authors' names and keywords. Their structure is similar to a library catalogue. In addition to general information, some databases contain the references used in each paper with links, as well as data on times cited. Unlike bibliographic and citation databases, full-text databases allow users to access the whole article. In terms of freedom of access, online academic database are either available for a fee (typically, commercial databases) or free (Dukić, 2014; Masic & Milinovic, 2012).

V. Evidence-Based Medicine Online Database Resources

Numerous dedicated EBM online databases have emerged and they are increasingly providing access to evidence-based information that has become an effective source for physicians. Therefore librarians, health practitioners, and students need to know about their existence, where to locate them, in order to access their content. Below are the lists of some popular and useful online database for EMB practice;

ACP Journal Club: <http://annals.org/>

ACP Journal Club comprises both ACP Journal Club and Evidence-Based Medicine. ACP Journal Club summarizes the best new evidence for internal medicine from more than 130 clinical journals. It encompasses value-added abstracts and commentary on particular original studies and systematic reviews. ACP Journal Club and Evidence-Based Medicine were later merged in January, 2000 and all new content is listed as emanating from the ACP Journal Club.

Bandolier: <http://www.medicine.ox.ac.uk/bandolier/>

Bandolier is a print and Internet journal that focuses on health care, using evidence-based medicine practices to provide advice about specific treatments of diseases for both healthcare professionals and their consumers. The impetus behind Bandolier was to find information about evidence of effectiveness. The information comes from randomized trials, meta-analyses, systematic reviews, and from worthy quality observational studies.

CINAHL Cumulative Index to Nursing & Allied Health Literature:

<https://www.ebscohost.com/nursing/products/cinahl-databases>

CINAHL stands for the Cumulative Index of Nursing and Allied Health Literature. This database is the largest and most in-depth nursing research database. CINAHL provides full text for evidence-based care sheets, clinical innovations, quick lessons, critical paths, drug records, clinical trials and research instrument.

Clinical Evidence: clinicalevidence.bmj.com

This is a point of care resource that is centered on systematic reviews and supplemented by subsequent randomized controlled trials that are pertinent to the question and meet identified quality criteria. It aims to cover important clinical conditions grasped in primary and hospital care. Access is provided by BMJ.

Clinical Key: <https://www.clinicalkey.com>

ClinicalKey is a comprehensive collection of surgical and medical resources in a variety of fields planned to support evidence-based clinical care and clinical

education. It is an upgraded and extended version of MD Consult that provides full-text access to designated medical information resources i.e medical journals, medical textbooks, practice guidelines, and drug information.

Database of Abstracts of Reviews of Effectiveness (DARE): <http://www.crd.york.ac.uk/crdweb>

DARE was produced and sustained by Centre for Reviews and Dissemination, University of York, between 1994 and 2015. It is a unique database that is providing access to more than 13,000 abstracts of quality evaluated and critically assessed systematic reviews. DARE comprises organized abstracts of systematic reviews from around the world. DARE abstracts critically evaluating systematic reviews of health. Systematic reviews are extensively recognized as dependable sources of information about the effects of health and social care interventions. Its records cover topics such as diagnosis, screening, prevention, treatment, and rehabilitation.

DynaMed: <http://www.dynamed.com>

DynaMed Plus is an evidence-based information resource used by physicians around the world to response to clinical questions quickly, easily and effortlessly. DynaMed Plus covers thousands of topics which include cardiology, oncology, emergency medicine, pediatrics, infectious diseases, obstetrics and gynecology and much more. It is useful for tracking back to the original studies.

Embase: <https://www.embase.com>

Embase is a database that is highly useful, versatile and up-to-date covering the most important international biomedical literature. Embase spreads the discovery of biomedical evidence to support severe life sciences functions, biomedical information to the global biomedical research community and delivering relevant up-to-date.

Evidence-Based Medicine Reviews (EBMR OVID): www.ovid.com

Evidence-Based Medicine Reviews (EBMR) is a new full-text produced by Ovid Technologies. EBMR supports the practice of evidence-based medicine (EBM) by providing access to two EBM resources: Best Evidence from the American College of Physicians-American Society of Internal Medicine and, the Cochrane Database of Systematic Reviews from the international Cochrane Collaboration. These resources alert health care professionals, librarians, and researchers to clinically relevant and methodologically rigorous studies by providing access to useful meta-analyses of clinical literature and full-text reviews (Cavanaugh, & Horne, 1999).

Essential Evidence:

<http://www.essentialevidenceplus.com/>

The aim of essential evidence is “to improve the health and lives of people by providing patient-oriented evidence that matters in a rapid and accessible format” Essential Evidence Plus is a property of Wiley-Blackwell (W-B), a leading global provider of clinical and evidence-based healthcare information. Essential Evidence Plus is one of the evidence-based source and point of care for clinical decision support system that offers access to more than

13,000 topics, abstracts images, guidelines, and summaries.

Health Systems Evidence:

<https://www.healthsystemsevidence.org/>

Health Systems Evidence is an idea of the McMaster Health Forum that is constantly collecting and updating “syntheses of research evidence about governance, financial and delivery arrangements within health systems, and about implementation strategies that can support a change in health systems”. Health Systems Evidence offers links to scientific abstracts, user-friendly summaries, and full-text reports.

JAMAevidence: <http://jamaevidence.mhmedical.com/>

JAMAevidence is an instructional resource from the American Medical Association that is intended to teach the user about concepts fundamental to the practice of evidence-based medicine (EBM). It helps decision/policy makers to identify the best accessible evidence by providing guides to the systematic consideration of the validity, significance, and applicability of assertions about the assessment of health difficulties and the outcomes of health care provided.

National Guidelines Clearinghouse:

<http://www.guideline.gov>

National Guideline Clearinghouse (NGC) is an initiative of the Agency for Healthcare Research and Quality (AHRQ) U.S. Department of Health and Human Services. It was initially formed by AHRQ in partnership with the American Association of Health Plans (now America's Health Insurance Plans (AHIP) and American Medical Association. NGC is a public resource database of evidence-based clinical practice guidelines and related documents. NGC aimed at providing physicians and other health care providers, health plans, integrated delivery systems, and others an accessible device for gaining objective, detailed information about clinical practice guidelines and to advance their dissemination, implementation, and use.

Netting the Evidence:

<http://nettingtheevidence.org.uk>

Netting Evidence is compiled and maintained by Andrew Booth, the Director of Information Resources at the School for Health and Related Research (ScHARR) in Sheffield, UK. Netting the evidence is an exceptionally trustworthy resource online, for those involved in and desiring to advance their knowledge and skills of evidence-based medicine.

Nice Database: <https://www.evidence.nhs.uk/>

The National Institute for Health and Care Excellence (NICE) was firstly set up in 1999 to deliver national guidance and advice to increase health and social care. It contains authoritative, evidence-based information emanating from dependable and endorsed sources.

PEDro: <http://www.pedro.org.au/>

PEDro is the Physiotherapy Evidence Database. It seeks “to give rapid access to bibliographic details and abstracts of randomized controlled trials (RCT's), systematic reviews, and evidence-based clinical practice guidelines in physiotherapy”.

Practice-Based Evidence In Nutrition (PEN):

<https://www.pennutrition.com>

PEN: Practice-based Evidence in Nutrition is a searchable database and vibrant knowledge translation subscription service established by Dietitians of Canada with participation from thought and recognized leaders in dietetic exercise, knowledge translation, and technology.

PsycINFO: <http://www.apa.org>

PsycINFO provides access to international literature in the area of psychology, and it is produced by the American Psychological Association (APA). APA coverage is respected internationally for its high quality. The database is highly enriched with literature from diverse disciplines associated with psychology and evidence-based reviews.

PubMed Health:

<http://www.ncbi.nlm.nih.gov/pubmedhealth/>

PubMed Health is built on systematic reviews of clinical trials. These clinical effectiveness reviews can display what cures and prevention methods have been proven to be reliable, and what remains unknown. PubMed Health offers full texts of selected systematic reviews in one place and their summaries.

The Cochrane Library:

<http://www.cochranelibrary.com>

The Cochrane Database is published by an international group of clinicians that write systematic reviews of randomized trials on the effects of health care. The Cochrane Library includes several databases containing articles, abstracts and further information concerning evidence-based health practices. The Cochrane Library aims to “prepare, maintain & promote the accessibility of systematic reviews of the effects of health care interventions.” These systematic reviews, focuses on a range of topics, contain comprehensive explanations of methodologies, results, discussions, and implications for practice, thereby providing current outstanding evidence, valid research regarding the impacts of health interventions worldwide. It is a reliable source for finding evidence-based scientific information and current systematic reviews in health care.

The Evaluation Center@HSRI:

<http://www.hsri.org/topics/evidence-based-practice>

The Human Services Research Institute (HSRI) was created in 1976 with the purpose of assisting the federal and states government to boost services and supports for persons with a mental disorder and people with intellectual and growing disabilities.

It integrates state of the art methods to appraise the evidence for interventions using methods such as meta-analysis, and have established tools to summarize research findings that are available and accessible to the public via print, electronic and online databases.

The Joanna Briggs Institute Library

<http://joannabriggs.org/>

The Joanna Briggs Institute (JBI) Library is a repository for publications and information for policy makers, health scientists, and others health professionals, with a concrete or academic concern in evidence-based healthcare. The JBI Database of Systematic Reviews and Implementation Reports is a refereed online journal that

issues systematic reviews of health care research and systematic review protocols.

The Knowledge Network of NHS Scotland:
<http://www.knowledge.scot.nhs.uk/home.aspx>

The Knowledge Network provides access to evidence books, journals, summaries and databases to support practice and learning. The Knowledge Network is an essential source of health care related information created by the NHS in Scotland. It encompasses a comprehensive range of freely available and accessible information including links to evaluated websites, health-related news items and patient information. It was formerly referred as NHS Scotland e-library.

The virtual health library: <http://regional.bvsalud.org>

It is an on-line digital library established by the (Latin American and Caribbean Center on Health Sciences Information, Brazil) in 1998. It is a joint space for the convergence of intermediaries, cooperative work of producers, and users of information on health care issues. It provides open access portals to full-text health related publications from the region. It contains systematic reviews, clinical trials, and evidence summaries.

Turning Research Into Practice (TRIP):
<https://www.tripdatabase.com/>

The Turning Research Into Practice (TRIP) database is a clinical search engine with a focus on evidence-based medicine (EBM) content launched 1997. Their motto is ‘Find evidence fast’. The search engine is aimed at allowing users to speedily and easily find, and use high-quality research evidence to enhance their practice/care. TRIP database allows its users to search many at one time, instead of jumping from one resource to another, (Fyfe, 2007).

UpToDate: <http://www.uptodate.com/home>

UpToDate is an evidence-based clinical decision support resource, used worldwide by physicians’, health care practitioners in order to assist them make to the right decisions at the point-of-care. It is has been proven to transform the way clinicians practice medicine and enhanced outcomes.

WHO Reproductive Health Library:
<http://apps.who.int/rhl/en/>

The WHO Reproductive Health Library is another online evidence-based resource that aims at improving the use of knowledge supported by the best accessible evidence. Randomized controlled trials, syntheses of findings through systematic reviews are the standard for producing the most dependable evidence, particularly for clinical practice.

VI. Roles of Librarians’ In Evidence-Based Medicine Practice

To practice evidence-based medicine (EBM) access to good and updated research is one of the core aspects that make the practice very important (Korukire & Ngenzi, 2015). Getting evidence into practice requires resources from reliable literatures and this is one the cores roles of health science librarians.

Librarians' involvement in evidence-based medicine (EBM) is embedded in previous practices, most notably in clinical medical librarianship. EBM has drastically transformed and expands the librarians' role beyond the identification of the literature to participation in practicing and teaching quality filtering and critical assessment of literature and source (Scherrer & Dorsch, 1999). It is the duty of health librarians to identify, select, evaluate, and synthesize literature relevant from good information sources for evidence-based practitioners. In order to achieve this noble task, health librarians' need to search medical libraries' collections, up-to-date journals and e-books accessible in different database, quickly.

The peculiarity of evidence-based medicine is that; in health, any actual decisions taking about management of patients can have significant effects depending on the evidence on which those decisions are centered. In order to access and use contemporary best evidence, the literature must be thoroughly searched, filtered, and appraised. If sufficient care is not taking, inimical effects can result from incorrect or misplaced information, hence EBM relies on empirical research that has been conducted before and must be supported by precise information (Hayman & Tieman, 2015).

Therefore, the roles of librarians in evidence-based medicine (EBM) cannot be over-emphasized. Health sciences librarians perform significant roles in evidence-based health practice because it involves recognizing and retrieving suitable literature from reliable sources for use in making correct healthcare decisions (Kinengyere, Ssenono, & Obuku, 2015). It is the duties of health science Librarians to deliver quality information based on best available evidence for health professionals so as to improve practice and patient outcomes. In other words, health librarians help health care professionals in evidence gathering, literature appraisal, and meta-analysis studies. These activities require librarians to continually seek new experience, knowledge and develop innovative skills so as to be familiar with health terms, study design and related practices. This offers health librarians the opportunity to fully participate during the information process. Visintini, (n.d) identified five roles of librarians' in evidence based practice to include:

- 1. Supporter:** this involves providing evidence-based literature searches, or assisting clients to answer clinical questions, one of the librarian's principal roles is supporting clients' needs. The key to the finding of the best available evidence is a well-executed search. Database of multifaceted and differing structures hold an immense and increasing amount of bibliographic information. The extent of published and indexed articles is massive; hence, it is the duty of librarians to conduct a thorough search that will meet their clinicians need within a possible time limit, so as to support their obligations (Hayman, 2015).
- 2. Teacher:** Another unique role of librarians is that of the teacher. This they do by helping health specialists to become self-learners, seminar, workshops, providing tutorials library "house calls", and putting together learning materials such as brochures, handouts, e-learning tools, etc.

- 3. Promoter:** Librarians are also saddled with the responsibility of promoting evidence-based practice tools, resources, and services. This might involve new tools, existing resources or forthcoming training, a workshop offered in the area or online.
- 4. Participant:** Being an active participant in the evidence-based practice process is also a really important role for librarians - this might mean working on a team to complete a systematic review, to sit on committees, and/or to provide expertise on various research projects.
- 5. Student:** The last and possibly the most vital tasks for librarians in providing evidence-based information is that of the student roles. Librarians need to be regularly updating and increasing their knowledge, skills, and competencies in order to be able to assist and meet their patrons' information need.

VII. Conclusion

Health care professionals should be informed about database that contains evidence-based information. Given the amount of information available online, awareness and access are important because information sources can stimulate change. The use of online database resource can help to improve evidence medicine (EBM) which will, in turn, improve the quality healthcare and provision of accurate treatment. From the foregoing, there are ranges of online database resources for evidence-based medicine which is very notable and useful for health professionals. It is no doubt, that these resources have the potential to support clinicians who are always in dire need of evidence-based information for practice. As the roles of librarians are evolving from 'source evidence identifier' to 'evidence searchers' as a result of information technology, it behooves health science librarian to know where and know how to find most appropriate evidence and evaluate the validity of the evidence.

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