LIBRARY COLLABORATION IN EVIDENCE BASED MEDICINE CLINICAL DECISION MAKING: CASE STUDY OF MEDICINE, PUBLIC HEALTH AND NURSING FACULTY OF GADJAH MADA UNIVERSITY

Sukirno
Library of the Faculty of Medicine, Public Health and Nursing

Abstract

Evidence Based Medicine(EBM) is the use of valid scientific evidence based on up-to-date clinical research in the management of disease healing processes. One of the main requirements to facilitate evidence-based clinical decision making is to provide relevant scientific evidence. The preferred type of study is the results of systematic reviews, meta-analyses, and randomized controlled trials (RCT). One of the five steps in evidence based medicine is tracing evidence from research results database sources that contain scientific evidence. PubMed Clinical Queries and The Cochrane Library are databases containing secondary research results (systematic-review/meta-analysis) that synthesize primary research results.

Keyword:*Librarian Collaboration*, Librarian Compatency, Evidence Base Medicine

PREFACE

Since the 1940s the number of studies in the form of clinical trials (randomized controlled trials) has increased very rapidly. According to Glasziou (2013) in 2005 around 55 new clinical trials were published every day. Therefore to stay up-to-date with the results of clinical trials a doctor must read more than one study report every half hour, day and night. Other sources state that the publication of research results in the field of medicine is currently progressing very rapidly.nearly 2 million paper work annually generate. Of this amount, only 50% have been published, of which only 50% have been published which can be accessed through medline (online). These conditions create problems in finding literature, and more often it takes a lot of time. Meanwhile, a clinical doctor who is busy providing services only has limited time to be able to search for the latest information.

On the other hand, every day doctors and health care practitioners encounter many questions that require answers to make the best decisions regarding patient care. Clinical practice of making choices. Which test is best to find out more about this condition?, which treatment is more effective for this patient? The answer to this question depends on the doctor's knowledge, skills and attitudes, available resources and the patient's interests, expectations and values. In the early 1990s David Sackett coined the term evidence based medicine (EBM) which means integrating individual clinical expertise with the best available external clinical evidence from systematic research to achieve the best possible patient management. EBM attempts to improve the quality of information that is used as the basis for making health service decisions. EBM helps practitioners to avoid information overload, but at the same time find and apply the most useful information.

The concept of clinical decision based on the latest evidence (evidence based medicine) in Indonesia is a new paradigm used in clinical decision making, the old paradigm in clinical decision making refers to the opinion or experience of an expert. The approach to the concept of evidence-based medicine is the

utilization of scientific evidence based on valid, up-to-date clinical research in the management of disease healing processes. Evidence Based Medicine requires doctors or clinicians to always update their knowledge from the latest research, so that the clinical decisions that will be made do not result in wrong decisions.

One of the abilities to apply the concept of evidence based medicine is the ability to browse the latest literature on research results that will be used as scientific evidence from reliable sources of information. Knowledge of sources and searching for literature are part of the competence of a librarian in carrying out his profession. The competence of librarians can be carried out to collaborate with clinicians in order to find literature that will be used as scientific evidence in clinical decision making.

Observing the background above, the problem is how librarians collaborate in making clinical decisions based on the latest evidence (evidence base medicine). The objectives in this study are:

1. Knowing the forms of librarian collaboration in clinical decision making based on the latest evidence (evidence base medicine).
2. Know the role of librarians in clinical decision making based on the latest evidence (evidence base medicine).

LITERATURE REVIEW

Librarian

Based on the Decree of the State Minister for Administrative Reform No. 18/MENPAN/1988 concerning Credit Scores for Functional Positions of Librarians, it is explained that librarians are Civil Servants (PNS) who are given full assignments by authorized officials to carry out library and documentation activities and work in library units of government agencies and or certain units other. In Regulation of the Head of the National Library of Indonesia No. 2 Years 2008 defines librarians as civil servants who are given full duties, responsibilities, authorities and rights by authorized officials to carry out librarian activities in library, documentation and information units (perpusdokinfo) in government agencies and/or certain other units. Sulistyo-Basuki (2009) defines librarians as people who provide and carry out library activities in an effort to provide services to the community in accordance with the mission carried out by their parent agency based on library science, documentation and information obtained through education. Law Number. 43 of 2007 concerning libraries states that a librarian is someone who has competencies obtained through librarianship education and/or training and has the duties and responsibilities of carrying out library management and services. library based on competence obtained through education.

There are several competencies that librarians must have in order to be able to provide services to librarians. According to Uswah (2013) librarians must have the ability to manage information which is called competence. Competencies in the form of abilities that librarians must have consist of hard skills and soft skills. Hard skills in the form of the ability to technically manage information (collecting, processing, disseminating, preserving), including based on information and communication technology, for the implementation of library/information service activities. The soft skills include the ability to build relationships, interact and cooperate with others in managing information (collecting, processing, disseminating, preserving), such as communication skills, interpersonal skills, entrepreneurship, leadership.The competence of librarians, according to The Special Library Association (SLA) 2003, consists of 2 aspects:

1. Professional competence, related to the knowledge of librarians in the fields of

information resources, technology, management and research, and the ability to use this knowledge as a basis for providing library and information services,

2. Personal/individual competence, describes a set of skills, behaviors and values possessed by librarians in order to work effectively, be good communicators, always increase knowledge, be able to show their added value, and be able to survive changes and developments in the world of work.

Librarians who have good competence will be able to work professionally in the library environment. The librarian's contribution can be optimal according to the demands of the workplace.

Browse Literature

Information experts provide different approaches in providing boundaries to search the literature. There are those who provide terms with literature searches, information literacy, and there are information searches. Lasa Hs. (2009) search for literature by providing information search terms, namely the discovery of literature/library materials in certain fields on certain library library materials or other libraries/information centers with the help of secondary literature, information technology, or other search tools. This activity is needed by researchers, especially for the benefit of preparing academic work (thesis, thesis, dissertation, research, etc.) research, papers, and scientific papers.

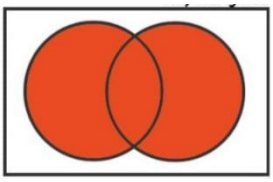
Tips that can be done in searching the literature are using specific phrases or keywords that will speed up and allow for the search results to be carried out. For that some of these techniques can be done in searching the literature.

1. *Medical Subject Heading*(MESH)
   Medical subject heading (MESH) facility used to ensure that the use of phrases or keywords to be used are standard terms for finding literature. This Medical Subject Heading (MESH) is specifically used in the fields of health and medicine.
2. Booleon Logic

Booleon logic is a technique for searching literature by combining the keywords to be searched, especially searching for literature accessed online, either in journal databases or search engines. The words used to combine key words, namely OR, AND, and NOT.

- OR word

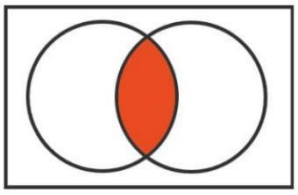
The OR word is used so that the results of a literature search result contain the first or second key word, or contain both key words. As an example of the keywords used to search for "paracetamol and child"



paracetamol OR child

- AND word

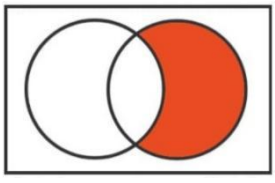
The word AND is used so that the results of searching the literature contain the first and second key words. For example, the keywords used to search for "paracetamol and child".



paracetamol AND child

- The word NOT

The word NOT is used so that the results of searching the literature contain the second key word and do not contain the first key word. For example, the keywords used to search for “paracetamol and ibuprofen”



paracetamol NOT ibuprofen

3. Truncation/Wildcard
   *Trucation*or wildcard techniques to search literature by including certain symbols in the

phrases or keywords to be searched for. Some of the symbols used in searching for literature, among others; *, ?, $ or #. The process of searching for literature with this technique is also known as the process of searching with fragments of the same words. The use of symbols in searching for literature from each database or search engine is different.

4. *Nesting/Grouping*
   Nesting or grouping techniques to search the literature by using certain symbols. The symbol used in searching is ( ).

The Concept of Evidence Based Medicine (EBM)

The concept of evidence based medicine (EBM) is currently popular in the medical world. This concept began to develop in the 1990s pioneered by David Sackeet from McMaster University, Ontario, Canada. According to Hakimi (2012) from Paul Glaziou evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research to achieve the best possible patient management. Referring to this meaning, Hakimi (2012) defines evidence-based medicine as an effort to improve the quality of information used as the basis for making decisions about health services, EBM helps practitioners to avoid excess information, but at the same time seeks and applies the most useful information. Meanwhile, according to Pinzon (2014) states,

> *Evidence-based medicine has been defined as the process of systemically finding, appraising and using contemporaneous research findings as the basis for clinical decisions for more simply as the judicious use of current best evidence in making decisions about the care of an individual patient.*

According to Sisicia (2012) the main goal of Evidence Based Medicine (EBM) is to assist the clinical decision-making process, both for prevention, diagnosis, therapeutic, and rehabilitative purposes based on the latest reliable and accountable scientific evidence. One of the main requirements to facilitate evidence-based clinical decision making is to provide scientific evidence that is relevant to the clinical problem at hand. Relevant scientific evidence is prioritized in the form of results of systematic reviews, meta-analyses, and randomized controlled trials (RCTs). The following are the types of scientific studies used in the clinical field, namely:

1. Systematic Reviews, carried out by conducting a review of the literature that focuses on a topic to answer a question. The literature is analyzed and the results are summarized.
2. A Meta-Analysis, is a method that conducts an in-depth analysis of a topic from several valid studies that are put together so that it resembles a large study.
3. Randomized Controlled Clinical Trials or RCTs for short,
   a research method that uses real patient samples which are then divided into two groups, namely the control group and the treated group. The control group and those given the treatment must be the same in nature. Classification of patients into the control or treatment group is done randomly and usually also by blinding to reduce the possibility of subjectivity. Usually used for journals of the type of therapy.
4. Cohort Studies, a study which is usually an observational study that looks forward to two groups (control and treatment).
5. Case Control Studies, a study that compares a group of patients who suffer from a certain disease with patients who come without the disease.
6. Case Series and Case Reports, case reports from a patient.

Clinical doctors must have the ability to conduct critical appraisals based on EBM principles on the results of these clinical studies and be independent in making clinical decisions. The level in the type of scientific study used in EBM is as shown in the picture.

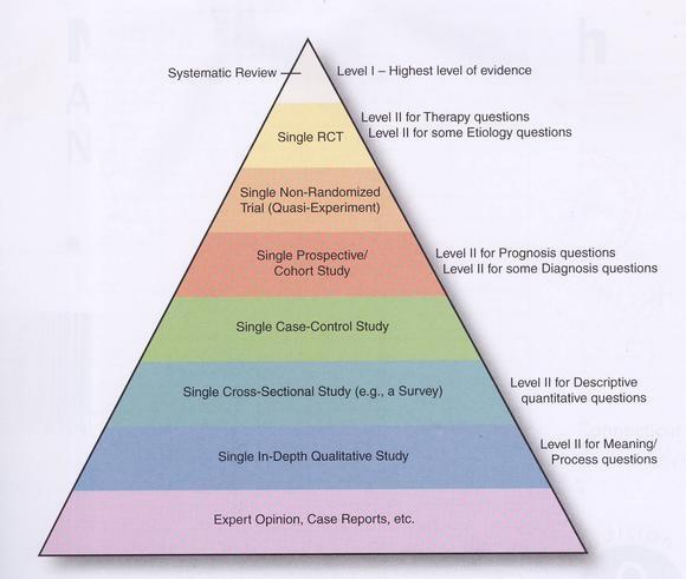


Figure 1. Study Type Levels for EBM
Source: Polit (2014)

EBM is an integration between scientific evidence originating from trusted studies (best research evidence) with clinical expertise and values that exist in society (patient values). According to Murti (2014) evidence based medicine (EBM) consists of five steps:

1. Formulate clinical questions about patient problems;
2. Looking for evidence from authoritative research results database sources;
3. Evaluate critically the evidence regarding the validity, importance, and applicability of the evidence;
4. Applying evidence to patients;
5. Evaluate the performance of the application of evidence that has been carried out on patients.

Of the five steps in evidence base medicine, step 1 formulates clinical questions about patient problems and secondly searches for evidence (tracing) from research results database sources is an area that librarians can do.Searching the literature as a person's ability or skill to recognize the information needed, the ability to find the location of the information, evaluate it, and also be able to use the information effectively.

METHOD

This research is a case study research. According to Hartinah (2013: 2.17) case study is a qualitative research method in the field of libraries and information that looks at a phenomenon being studied. Case studies are often used as exploratory tools. It is usually used for a small number of research subjects and then an analysis of the collected data is carried out.

Data collection techniques through documentation of librarian activities collaborate in finding scientific evidence.

RESEARCH RESULTS AND DISCUSSION

Tracing Evidence Base Medicine(EBM)

Tracing scientific evidence in evidence based medicine (EBM) is carried out in order to obtain scientific information that will be used for clinical decision making. For this reason, in conducting scientific information searches, it must be able to answer the problems that will be taken by clinicians. To search for scientific information in the EBM rules, go through several steps:

1.Recognize types of clinical questions
   Formulate clinical questions into appropriate search terms
2. Develop a search strategy
3. Recognize types of publications and research designs
4. Where to search/find?
5. Do a search

The process for conducting scientific information searches according to EBM principles begins with clinical questions. For example, a clinician faces a patient case; is ibuprofen or paracetamol better for reducing pain and fever in children?. Then analyzing a question into several parts/components and rearranging them so that it is easy to find answers, is an important step in EBM. Most clinical questions can be divided into four components. The four sections are clinical questions with the acronym PICO (Population, Intervention, Comparator, Outcome). Observing the clinical cases above, if the question is formulated using the PICO method, then the clinical case will get the following formulation:

Table 1. Formulation of Clinical Questions

P*(population)*	*Children with pain and fever*
I*(intervention)*	*Ibuprofen*
C*(comparator)*	*Paracetamol*
O*(outcomes)*	*Reduction in pain and/or fever*

To reinforce the clinical question formulation, the clinical question will be reformulated as follows;

P: In children with pain and fever
I: is ibuprofen
C: compared with paracetamol
O:more effective at reducing pain or fever?

Finally, from the formulation of the clinical questions, the following search phrases will be obtained;

Table 2.*Phrases For Searching*

	Search terms	**another term**
patient	*Child* *Pain* *fever*	*Children, infants, infants* *Febrile*
intervention	*Ibuprofen*	
comparison	*Paracetamol*	*Acetaminophen*
Outcomes	*Pain* *fever*	 *Febrile*

Based on these search phrases, terms/key words will then be obtained that will be used to search for scientific evidence;

Table 3. Terms Tracing Scientific Evidence

	Search terms
patient	*(child* OR infant*) AND (pain OR(fever* OR febrile))*
intervention	*ibuprofen*
comparison	*(paracetamol OR acetaminophen)*

The terms/keywords that will be used to track scientific evidence (EBM) are as follows, (child* OR infant*) AND (pain OR (fever* OR febrile)) AND ibuprofen AND (paracetamol OR acetaminophen). After obtaining search terms, then carry out the process of tracing information

sources. Searching the medical field database that contains scientific evidence as the main source to find scientific evidence.PubMed Clinical Queriesand The Cochrane Library is the main database containing the results of secondary research (systematic-review/meta-analysis) which synthesizes the results of primary research.

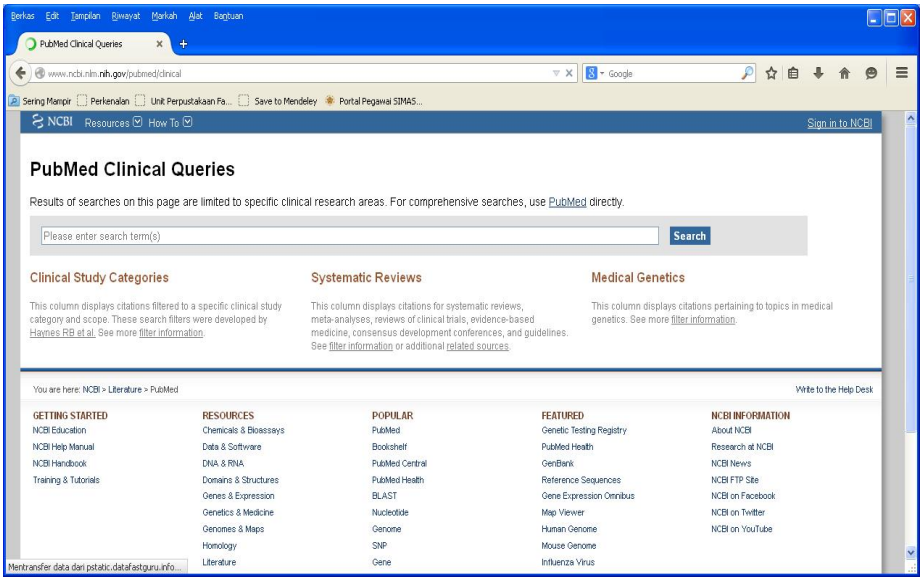


Figure 2.*home (PubMed Clinical Queries)*

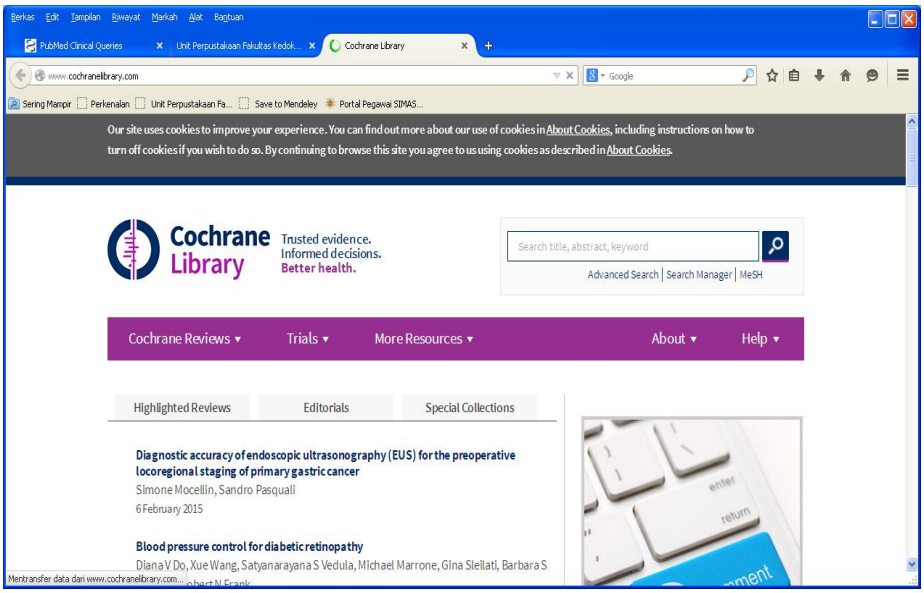


Figure 3.*Home The Cohrane Library*

Apart from these databases, to find scientific evidence used for EBM, it can also be accessed from the web or other related databases, namely:

- upToDate.com
- ClinicalKey.com
- ScienceDirect.com
- http://highwire.stanford.edu/lists/freeart.dtl, etc.

Technique of Searching Literature for Scientific Evidence (EBM)

The amount of literature for evidence is currently very large, but not necessarily that amount is relevant to needs. For this reason, in order to search for literature can be done effectively, skills in search techniques are important things to master.

Several techniques that can be used in tracing, if used to search for scientific evidence, combine several of these techniques. Then the results of searching for scientific evidence on Pubmed, are as follows:

Table 4. Search Results on Pubmed

Search Phrases	Pubmed
(child OR infant*)*	2,541,887
(child OR infant*) AND pain OR (fever* OR febrile)*	242,688
(child OR infant*) AND pain OR (fever* OR febrile) AND ibuprofen*	758
(child OR infant*) AND pain AND (fever* OR febrile) AND ibuprofen AND (paracetamol OR acetaminophen)*	402
PubMed Clinical Queries 'Systematic Reviews'	39

The results of the search were then examined and selected articles that matched the needs of the clinical questions. Full text articles can be obtained from pubmed or other databases according to the information where the article exists.

DISCUSSION

The Role of Librarians in Clinical Decision Making

The development of the concept of evidence based medicine (EBM) in the medical field is a challenge for librarians working in medical libraries. Librarians are required to understand the concept of EBM, which is a necessity that cannot be avoided. The process of stages in clinical decision making based on EBM is part of the librarian's domain, namely formulating clinical questions and tracking scientific evidence. The ability of librarians to master information sources and search techniques is an asset to contribute with clinical doctors. Librarians can collaborate with clinicians in finding scientific evidence for clinical decision making. There are several roles that librarians can play in collaboration with clinicians in clinical decision making based on scientific evidence (EBM), namely:

First,librarians deliver training to track scientific evidence to students in the health sector, both medical, nursing, or midwifery students. This is what librarians at the Faculty of Medicine, Public Health and Nursing at Gadjah Mada University do. Librarians are asked by program managers or interests to deliver material on how to search literature to find scientific evidence, namely students taking the Specialist 1 or Consultant Doctor program, Masters students with an interest in Clinical Medicine, and Masters students in Midwifery at 'Asyiah University Yogyakarta.

Second,librarians help clinicians to browse articles that clinicians use as scientific evidence. The librarian's ability and mastery of various online journals and journal databases that contain scientific evidence will greatly assist clinicians.

Third,librarians create modules or manuals that can be used as a guide for tracing articles to various online databases or journals that make scientific evidence.

Collaboration of librarians in making clinical decisions to find scientific evidence (EBM), is a form of librarian contribution. Through this role the existence of librarians will be recognized by institutions or institutions. For this reason, librarians need to improve their abilities and self-development to master other things outside the field they are engaged in, so that librarians can collaborate

with other parties in developing their profession.

CLOSING

The trend in the medical world is currently developing the concept of clinical decision making based on the latest evidence (*Evidence Base Medicine*). The stages in the clinical decision-making process based on scientific evidence are tracing scientific articles as the result of the latest research. Librarians can play a role in Evidence Base Medicine (EBM), namely collaborating with clinicians. These roles can be in the form of, (1) delivering training to track scientific evidence to students in the health sector, (2) tracking research articles to be used in clinical trials, and (3) librarians creating modules or manuals that can be used as a guide for tracing articles. to various databases or online journals that make scientific evidence. Through this role the existence of librarians will be recognized and can be used as a means of self-development of the librarian profession.

BIBLIOGRAPHY

Hakimi, Mohammad. 2012. Buku Kerja *Evidence-Based Practice*. Yogyakarta: PT Buku Seru.

Irawati, Indira. 2005. Penguasaan *Information Literacy* Mahasiswa Program Studi Ilmu Perpustakaan. Jakarta: Fakultas Ilmu Pengetahuan Budaya, Universitas Indonesia.

Murti, Bhisma. 2014. Pengantar *Evidence Based Medicine*. Solo: Universitas Sebelas Maret, Bagian IKM.

Lasa Hs. 2009. Kamus Kepustakawan Indonesia. Yogyakara: Pustaka Book Publisher.

Pinzon, Rizaldy.2014.*Evidence Based Medicine.* Materi Workshop Evidence Based Medicine. Yogyakarta: CE&BU.

Polit, Denise F. 2014. *Essential of Nursing Reserarch: Appraising Evidence for Nursing Practice*. Philadelphia: Lippincott Williams & Wilkins.

Sisicia. 2012. *Evidence Base Medicine*: Definisi dari Beberapa Sumber. diunduhdari http://sisicia.wordpress.com/2012/03/14/evidence-base-medicine-definisi-dari-beberapa-sumber/