

## Economic and methodologic aspects of Evidence-based medicine

Alexsander Telia, Irma Korinteli, Nana Gvarjaladze

Tbilisi State Medical University. Georgia

### ABSTRACT

Evidence-based medicine is a strategy to integrate clinical expertise with the best evidence available in order to make effective clinical decisions. Evidence-based medicine is an information management and learning strategy that seeks to integrate clinical expertise with the best evidence available in order to make effective clinical decisions that will ultimately improve patient care. In Georgia the knowledge of evidence-based medicine to have increased over the past few years. The variation in the use of economic evaluation guidelines in the each countries differences in national pharmaceutical policies and is in line with policy makers' continuous attempts to contain costs.

**KEYWORDS:** *evidence-based medicine, economic aspects, methodologic aspects*

The knowledge of evidence-based medicine to have increased over the past few years in Georgia. Evidence-based medicine is an information management and learning strategy that seeks to integrate clinical expertise with the best evidence available in order to make effective clinical decisions that will ultimately improve patient care [1,2,5]. The aspects of care looked at include treatment (including specific interventions and systems of care), diagnosis, etiology, prognosis/outcome research, quality improvement, continuing education, and economic evaluation [4].

The aim of this present is to review articles about EBM. We review two trends of the evidence-based medicine: economic and methologic.

EBM was intended to be a systematic process whereby a clinician would effectively find and implement the "best evidence" to answer specific clinical questions [5]. EBM integrates three strategy (Fig.2).

The best research evidence-clinically relevant research - including the clinical examination, and precision of diagnostic tests, the power of prognostic markers, the efficacy and safety of therapeutic, rehabilitative, and preventive regimens.

The clinical expertise - the ability to use our clinical skills and past experience to rapidly identify each patient's unique health state and diagnosis, their individual risks and benefits of potential interventions, and their personal values and expectations.

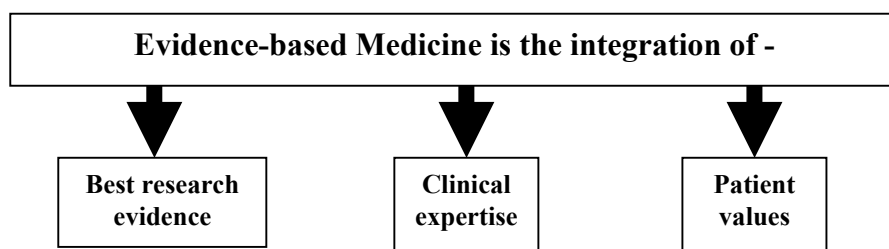
The patient values - the unique preferences, concerns and expectations each patient brings to a clinical encounter and which must be integrated into clinical decisions if they are to serve the patient.

Evidence-based practice is defined guidelines. Guidelines are provided for the development of protocol. These include 6 steps (Fig.2).

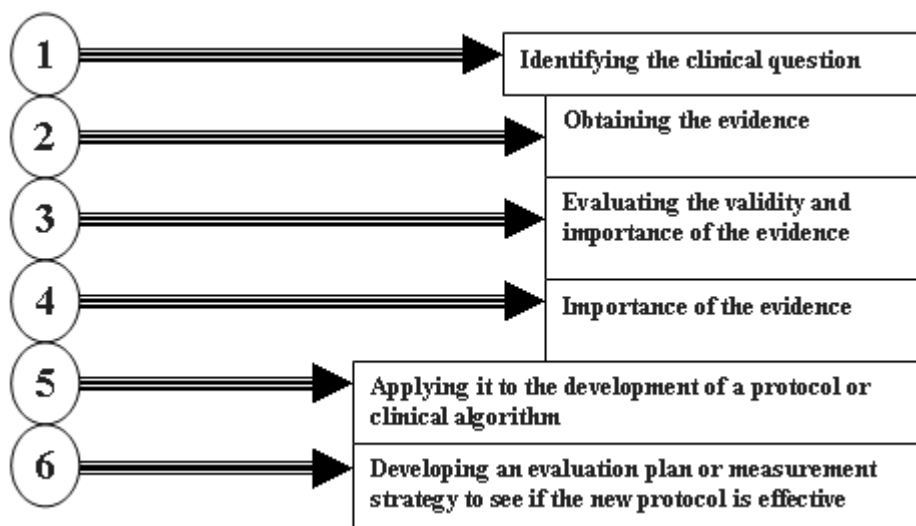
Without critical analysis of research methodology, there is an inherent risk of drawing incorrect conclusions that may affect clinical decision-making [3]. Structure' elements of Study Design on Fig.3.

In Evidence based medicine incorrect conclusions named Bias. Bias is Study processes which may result in, or lead to, conclusions differing from truth in a systematic way. Bias may occur at various study stages such as assigning subjects to study or comparison groups, intervention or exposure, performance, provision of services or conduct of processes affecting subjects, data collection, subject follow-up, measurement, analysis, interpretation and/or publication of data. Bias frequently occurs as a result of some inequality between the study and the comparison group. Bias is an error which is not due to chance [1,3,5]. For minimization bias is An important study procedure Blinding. Blinding is a method to help avoid the introduction of this kind of bias. That is to keep secret certain study procedures. Bias can result when study subjects and those involved in study procedures know treatment assignment of individual subjects. Double-blinding refers to when neither patient nor persons performing the intervention or exposure know if patient is in the study group or the comparison group. Outcomes assessors may also be blinded which can be very important in reducing bias. When patients, investigators and outcomes assessors are blinded, this is referred to as triple-blinding [2,3].

A special type of bias is confounding in which another factor associated with the study variable of interest may have "traveled" with that variable and which could account for the study conclusion instead of the variable under study [1,2,4]. There are known confounders and unknown confounders. Randomization is a method to attempt to minimize confounding by randomly allocating study subjects in hopes that any potential confounders are equally distributed between the two groups.



**Fig.1** Strategy of EBM.



**Fig.2** Evidence-based practice protocol.

Study design	Elements of structure
<b>Case-control study</b>	A study which involves identifying patients who have the outcome of interest (cases) and patients without the same outcome (controls), and looking back to see if they had the exposure of interest.
<b>Case series</b>	A report on a series of patients with an outcome of interest. No control group is involved.
<b>Cohort Study</b>	Involves identification of two groups (cohorts) of patients, one which received the exposure of interest, and one which did not, and following these cohorts forward for the outcome of interest.
<b>Crossover study design</b>	The administration of two or more experimental therapies one after the other in a specified or random order to the same group of patients.
<b>Cross-sectional study</b>	The observation of a defined population at a single point in time or time interval. Exposure and outcome are determined simultaneously.
<b>Randomized control clinical trial (RCT)</b>	Participants are randomly allocated into an experimental group or a control group and followed over time for the variables/outcomes of interest.

**Tab.1** Study design.

Category	Elements of structure
<b>Cost-benefit</b>	A comparison of alternative interventions in which costs and outcomes are quantified in common monetary units.
<b>Cost-minimization</b>	A determination of the least costly among alternative interventions that are assumed to produce equivalent outcomes.
<b>Cost-effectiveness</b>	A comparison of alternative interventions in which costs are measured in monetary units and outcomes are measured in non-monetary units, e.g., reduced mortality or morbidity
<b>Cost-consequence</b>	A form of cost-effectiveness analysis in which the components of incremental costs and consequences of alternative interventions or programs are computed and displayed, without aggregating these results.
<b>Cost-of-illness</b>	An estimation of results in terms of quality of a life, as advantages of one kind of treatment before another.
<b>Cost-utility</b>	"Cost of disease" - an estimation of direct and indirect expenses for treatment of separate disease.

**Tab.2** The economic basic category of EBM.

The variation in the use of economic evaluation guidelines in the each countries differences in national pharmaceutical policies and is in line with policy makers' continuous attempts to contain costs [1,5].

The use of economic evaluation in decision making pears to have increased over the past few years and economic evaluation is looked upon as another measure to help contain costs and improve efficiency in an evidence-based

decision-making environment [5]. The economic basic category of Evidence based medicine are six (Fig.4).

Thus, Clinicians must able to distinguish systematic reviews, practice guidelines, and other integrative research focused on management recommendations, When these elements were integrated, clinicians and patients to be able optimizes clinical outcomes and quality of life.

#### REFERENCES:

1. Evidence-Based Medicine Working Group: Evidence-based medicine. A new approach to teaching the practice of medicine. JAMA. 1992;268: 2420-5
2. Gill P, Dowell AC, Neal RD, Smith N, Heywood P, Wilson AE: Evidence based general practice: a retrospective study of interventions in one training practice. BMJ. 1996;312:819-21
3. Kenny SE, Shankar KR, Rintala R, Lamont GL, Lloyd DA : Evidence-based surgery: interventions in a regional paediatric surgical unit. Arch Dis Child 1997;76:50-3.
4. Maynard A: Evidence-based medicine: an incomplete method for informing treatment choices. Lancet 1997;349:126-8
5. Sackett DL, Rosenberg WMC, Gray JAM, Haynes RB, Richardson WS: Evidence based medicine: what it is and what it isn't. BMJ 1996;312:71-2.

## Экономические и методологические аспекты доказательной медицины

*Александр Телия, Ирма Коринтели, Нана Гваржаладзе*

Тбилисский государственный медицинский университет, Грузия

### РЕЗЮМЕ

Доказательная медицина, основываясь на возможности современных средств информации разрабатывает лечебно-профилактическую стратегию путем сопоставления имеющихся клинических и информационных данных, что направлено, в конечном счете, на улучшение качества лечения. При этом необходим критический анализ методологии исследования, без которого неизбежны ошибочные выводы и, соответственно, неадекватные клинические и лечебно-профилактические вмешательства. Термин "доказательная медицина" введен в связи с необходимостью разработки клиницистами ключевых принципов, позволяющих осуществление эффективного поиска научных сведений литературы с их критической оценкой для окончательного решения вопроса о целесообразности использования полученной информации в клинической практике. В результате возникает своеобразное сотрудничество между клиницистом и пациентом, определяющее оптимизацию результатов лечения и качество жизни больного. Кроме этого, в последние годы все больше внимания уделяется вопросам экономической оценки для принятия решения в процессе лечебно-профилактического вмешательства. Такой подход, несомненно, позволяет уменьшить физические затраты, что также подчеркивает эффективность доказательной медицины.

**Ключевые слова:** доказательная медицина, методология исследования

---

□ **International committee of medical journal editors. Uniform requirements for manuscripts submitted to biomedical journals.** Ann Intern Med 1997;126:36-47.

---

*A small group of editors of general medical journals met informally in Vancouver, British Columbia, in 1978 to establish guidelines for the format of manuscripts submitted to their journals. The group became known as the Vancouver Group. Its requirements for manuscripts, including formats for bibliographic references developed by the National Library of Medicine, were first published in 1979. The Vancouver Group expanded and evolved into the International Committee of Medical Journal Editors (ICMJE), which meets annually; gradually it has broadened its concerns.*

*The committee has produced five editions of the Uniform Requirements for Manuscripts Submitted to Biomedical Journals. Over the years, issues have arisen that go beyond manuscript preparation. Some of these issues are now covered in the Uniform Requirements; others are addressed in separate statements. Each statement has been published in a scientific journal.*

*The fifth edition (1997) is an effort to reorganize and reword the fourth edition to increase clarity and address concerns about rights, privacy, descriptions of methods, and other matters. The total content of Uniform Requirements for Manuscripts Submitted to Biomedical Journals may be reproduced for educational, not-for-profit purposes without regard for copyright; the committee encourages distribution of the material.*

*Journals that agree to use the Uniform Requirements (over 500 do so) are asked to cite the 1997 document in their instructions to authors.*

*It is important to emphasize what these requirements do and do not imply.*

*First, the Uniform Requirements are instructions to authors on how to prepare manuscripts, not to editors on publication style. (But many journals have drawn on them for elements of their publication styles.)*

*Second, if authors prepare their manuscripts in the style specified in these requirements, editors of the participating journals will not return the manuscripts for changes in style before considering them for publication. In the publishing process, however, the journals may alter accepted manuscripts to conform with details of their publication style.*