



Dr Ahmed Naveed Bhatti
MBBS, FRSH

Evidence Based Medicine - EBM

The concept of evidence based medicine is not clear to many of the physicians. We still see people to whom when evidence is asked for their therapeutic interventions, they simply answer by saying that I have found it useful and this is the evidence.

Evidence based medicine refers to the concept that clinical decisions are formally supported by data, Preferably data that are derived from Prospectively designed, randomized, controlled clinical trial. This is in sharp contrast to anecdotal experience, which may often be biased.

Even the most experienced Physicians can be influenced by the outcomes of their treatments, so their opinion will be considered biased unless the treatment they are giving has evidence from the authentic scientific studies.

The proposed five steps of evidence based medicine are:-

- (1) Construct a clinical question or define the problem.
- (2) Search for the evidence.
- (3) Appraise the quality and relevance of the evidence.
- (4) Apply it to the care of an individual patient.
- (5) Evaluate how effective it is.

Family Physicians should be well versed with the best evidence when making decisions about management of the clinical problems which may be a minor surgical procedure, selection of drugs or selection of an investigation.

If the best evidence reveals about our certain practice, that it is of no value or more efficacious methods are available, then we should change practicing that method.

How ever if we are practicing a certain method for which the evidence is equivocal then practice of that method may be continued.

We should also know the different levels of evidence and their significance. Here is a list of different levels of evidence.

Levels of Evidence

Level 1:-

Evidence obtained from a systematic review of all relevant randomised trials.

Level 2:-

Evidence obtained from atleast one Properly designed randomised controlled trial.

Level 3:-

Evidence from well controlled trials that are not randomised, or well designed Cohort or Case Control studies.

Level 4:-

Options of respected authorities based on clinical experience, descriptive studies or reports of expert committees.

In this era of evidence based medicine there are certain terminologies to which all the treating Physicians should be well versed. Finally for the information of family Physicians below is the brief Glossary of the terms used in evidence based medicine.

Glossary of the terms used in EBM

Glossary of Evidence-Based Medicine and Statistical Terms

Term	Abbreviation	Definition
Sensitivity	Sn	Percentage of patients with disease who have a positive test for the disease in question
Specificity	Sp	Percentage of patients without disease who have a negative test for the disease in question
Predictive value (positive and negative)	PV+ PV-	Percentage of patients with a positive or negative test for a disease who do or do not have the disease in question
Pretest probability		Probability of disease before a test is performed
Post-test probability		Probability of disease after a test is performed
Likelihood ratio	LR	LR >1 indicates an increased likelihood of disease, LR <1 indicates a decreased likelihood of disease. The most helpful tests generally have a ratio of less than 0.2 or greater than 5.
Relative risk reduction	RRR	The percentage difference in risk or outcomes between treatment and control groups. Example: if mortality is 30 percent in controls and 20 percent with treatment, RRR is $(30-20)/30 = 33$ percent.
Absolute risk reduction	ARR	The arithmetic difference in risk or outcomes between treatment and control groups. Example: if mortality is 30 percent in controls and 20 percent with treatment,

Term	Abbreviation	Definition
		ARR is $30-20=10$ percent.
Number needed to treat	NNT	The number of patients who need to receive an intervention instead of the alternative in order for one additional patient to benefit. The NNT is calculated as: $1/ARR$. Example: if the ARR is 4 percent, the $NNT = 1/4 \text{ percent} = 1/0.04 = 25$.
Number needed to harm	NNH	The number of patients who need to receive an intervention instead of the alternative in order for one additional patient to experience an adverse event.
95 percent confidence interval	95% CI	An estimate of certainty. It is 95% certain that the true value lies within the given range. A narrow CI is good. A CI that spans 1.0 calls into question the validity of the result.
Systematic review		A type of review article that uses explicit methods to comprehensively analyze and qualitatively synthesize information from multiple studies
Meta-analysis		A type of systematic review that uses rigorous statistical methods to quantitatively synthesize the results of multiple similar studies

PAFP (Regd) recommended Evidence Based Medicine resources

The following is a current listing of recommended evidence-based resources:

Free Access

[Agency for Healthcare Research and Quality Clinical Guidelines and Evidence Reports \(AHRQ\)](#)

[Bandolier](#)

[Canadian Task Force on Preventive Health Care](#)

[Cochrane Database of Systematic Reviews](#) -- abstracts only

[Database of Abstracts of Reviews of Effects \(DARE\)](#)

[Effective Health Care](#)

[Institute for Clinical Systems Improvement \(ICSI\)](#)

[National Center for Complementary and Alternative Medicine](#)

[National Guideline Clearinghouse \(NGC\)](#)

[U.S. Preventive Services Task Force \(USPSTF\)](#)

Subscription Required

[Clinical Evidence](#) -- BMJ Publishing

[Cochrane Database of Systematic Reviews](#) -- complete reviews

[DynaMed](#)

[EBM Online / Evidence-Based Medicine](#)

[Essential Evidence Plus](#)

[Natural Medicines Comprehensive Database](#)

[Natural Standard](#)

[PEPID](#)

[Physicians' Information and Education Resource \(American College of Physicians' PIER\)](#)

[UptoDate](#)

Source: American Academy of Family Physicians