

Evidence-Based Medicine: Approach and References Classification

Andrew M. Hinson and Brendan C. Stack, Jr.

*I have neither the ability, knowledge, time, or space to classify all present-day therapies.
All I feel capable of is a rough classification ...*

—AL Cochrane, 1971

Contents

EBM categorical classification 12

EBM level and grade classification 12

Expert Opinion 12

References 13

Evidence-based medicine (EBM) is the process of systematically reviewing, appraising, and applying the best research available to preserve the quality of patient care [1]. In short, the process is daunting, tedious, and, by definition, never-ending. We are reminded of Sisyphus’s eternal task of rolling a large boulder up an even larger hill only to watch the rock roll back down without ever reaching the summit [2]. We begin with two great advantages. First, the task is well defined—we need to only consider four (usually) small glands that reside (usually) in the human neck. Second, unlike Sisyphus, we need not carry the burden alone. While no single person possesses the ability, knowledge, time, or space to classify all present-day therapies, we may be able to accomplish a great deal if we work together.

The goal herein was to present a simple, practical, and informative framework that the authors of this textbook could follow in order to classify the quality of their supporting evidence. We systematically reviewed previous EBM classification schemes, appraised what worked best for our purposes, and compiled these findings into the following two tables [3, 4]. Table 2.1 involves assigning a categorical classification by article type (basic science, basic science review, clinical investigation, clinical review, or population/observational study) to the cited reference. Table 2.2 involves assigning an EBM level (1–5) and adjustment factor (a, b, c) to the reference.

A.M. Hinson, M.D. (✉)
B.C. Stack, Jr., M.D., F.A.C.S., F.A.C.E.
Department of Otolaryngology-Head and Neck
Surgery, University of Arkansas for Medical
Sciences, 4302 W. Markham St Slot, #806,
Little Rock, AR 72205-7199, USA
e-mail: hinson.drew@gmail.com; bstack@uams.edu

Table 2.1 EBM categorical classification of references

Article type	Definition
Basic science	Controlled experiment; independent variable affects a dependent variable in a laboratory setting
Basic science review	Review of basic science experiments
Clinical investigation	Controlled experiment; independent variable affects a dependent variable in a clinical setting
Clinical review	Review of clinical experiments or trials
Population/observational study	Draws inferences about a particular characteristic where the assignment of a treated and control group is outside the control of the investigator

Adapted from A Guide to Practitioner Research in Education by Menter et al. [3]. SAGE Publications Inc., Washington DC

Table 2.2 EBM level (1–5) and grade (A–C) classification of references

Level	Adjustment	Description
1	A	Homogenous prospective, randomized controlled trials (RCT) or basic science (BS) with controls
	B	One prospective RCT or BS experiment supporting hypothesis
	C	Heterogeneous or mixed results from >1 RCT or BS experiment
2	A	Homogenous non-RCT with controls
	B	One non-RCT with controls
	C	Heterogeneous or mixed results from >1 non-RCT with controls
3	A	Homogenous observational studies without controls
	B	Heterogeneous observational studies without controls
4		Small case series or case reports
5		Expert opinion or inconclusive evidence

Adapted from Oxford Centre for Evidence-based Medicine Levels of Evidence (May 2001)

(In general, level 1 evidence is considered “better” than level 2, and level 2 is “better” than level 3, etc.) For further classification involving levels 1–3, an adjustment factor (a–c) was used to identify the level of agreement between studies (*a* suggests a higher level of agreement than, say, *b* or *c*, etc.).

Our EBM classification system is admittedly not perfect. However, we hope that it points the reader in the right direction, highlights the great work that has been accomplished already, and illuminates what lies ahead.

Expert Opinion

EBM classification has become the new standard of practice guidelines, consensus documents, and the peer-reviewed literature. It was the editors’ hope that by adding the EBM classification framework to the organization of this text, we would extend this new standard to medical specialty texts and identify areas in the frontiers of our collective knowledge that are deficient in high levels of evidence.

References

1. Cochrane AL. Effectiveness and efficiency: random reflections on health services. London: Nuffield Provincial Hospitals Trust; 1972 (reprinted in 1989 in association with the BMJ, Reprinted in 1999 for Nuffield Trust by the Royal Society of Medicine Press, London (ISBN 1-85315-394-X). **Clinical Review; Level 5**
2. Sisyphus. Oxford English Dictionary. 3rd ed. Oxford: Oxford University Press. <http://www.oxfordreference.com/view/10.1093/oi/authority.20110803100508973>. Accessed 30 Dec 2015. **EBM Classification N/A**
3. Menter I, Elliot D, Hulme M, et al., editors. A guide to practitioner research in education. Glasgow: SAGE Publications Ltd; 2011. ISBN 9781849201858. **Clinical Review; Level 5**
4. Oxford Centre for Evidence-based Medicine-Levels of Evidence (March 2009). <http://www.cebm.net/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/>. Accessed 30 Dec 2015. **Clinical Review; Level 5**

Medical and Surgical Treatment of Parathyroid
Diseases

An Evidence-Based Approach

Stack, Jr., B.C.; Bodenner, D. (Eds.)

2017, XIX, 617 p. 173 illus., 123 illus. in color.,

Hardcover

ISBN: 978-3-319-26792-0