A REVIEW

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# Systematic reviews and Meta-analysis: The best evidence by combining data from several studies

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The practice of evidence based medicine is the integration of individual clinical expertise with the best available external clinical evidence from systematic research and patient's values and expectations. We need evidence for both clinical practice and for public health decision making. The evidence come from good reviews which is a state-of-the-art synthesis of current evidence on a given research question. Given the explosion of medical literature, and the fact that time is always scarce, review articles play a vital role in decision-making in evidence based medical practice. Given that most clinicians and public health professionals do not have the time to track down all the original articles, critically read them, and obtain the evidence they need for their questions, therefore, systematic reviews and clinical practice guidelines may be their best source of evidence. Hence, the objective of this article is to introduce readers to the concept of systematic reviews and meta-analysis, outlining why they are important, describing their methods and terminologies used and thereby helping readers with the skills to recognize and understand a reliable review.

Key words : Evidence based medicine, Systematic review, Meta-analysis

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## INTRODUCTION

Evidence-based healthcare is the integration of best research evidence with clinical expertise and patient values (Sackett *et al*., 1996). Using evidence from reliable research, to inform healthcare decisions, has the potential to ensure best practice and reduce variations in healthcare delivery. However, incorporating research into practice is time consuming, and so we need methods of facilitating easy access to evidence for busy clinicians. Systematic reviews aim to inform and facilitate this process through research synthesis of multiple studies, enabling increased and efficient access to evidence (Green, 2005). Objectives of this article are to introduce readers to the two approaches to evaluating all the available evidence on an issue *i.e.* systematic reviews and meta-analysis, to discuss the steps in doing a systematic review , to introduce the terms used in systematic reviews and meta-analysis, to interpret results of a meta-analysis and the advantage and flaws of systematic review and meta analysis.

**What is the effect of anti viral treatment in dengue fever?**

To find out the solutions or answers to a clinical question like this, one has either to refer textbooks, ask a colleague or search electronic data-base for reports of clinical trials. Doctors need reliable information on such problems and on the effectiveness of large number of therapeutic interventions – but the information sources are too many: nearly 20,000 journals – 2 million articles per year with unclear or confusing results. Because no study, regardless of its type, should be interpreted in isolation, a systematic review is generally the best form of evidence (Glasziou *et al.,* 2004). So the preferred method is a good summary of research reports *i.e.* systematic reviews and meta-analysis.

There are two fundamental categories of research: primary research and secondary research. Primary research is collecting data directly from patients or population while the secondary research is the analysis of data already collected through primary research.

A review is an article that summarizes a number of