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## Defining a Research Question in an Evidence-Based Systematic Review: a Narrative Review

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### Review Article

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#### ABSTRACT

Systematic review is a review of literature that is designed to locate, appraise, and synthesize the best available evidence related to a specific research question. Research question is the unique way to find and obtain the best evidences. It requires to ask right and unbiased questions. Moreover, asking a well-designed research question is a milestone of explicit findings.

### INTRODUCTION

Systematic reviews are considered the best (Gold Standard) method to synthesize the findings of studies evaluating the same question. They follow well-defined and systematic steps and require the definition of the research question, identification and critical assessment of the studies, interpreting the findings, and drawing conclusions <sup>[1-3]</sup>.

The principal step of an evidence-based systematic review is to design and to ask a right and relevant question <sup>[4]</sup>. Your review question is a formal statement of the intention of your systematic review. It is the answer of what you know and what you want to know. However, there have been some important aspects to ask a relevant question. In this narrative review, we will discuss asking a good and relevant question for an evidence-based research study and the importance of a defining the key components of a review.

**A Good Preparation:** When we start a research study, we need to ask a question. In this question, we describe our interest and curiosity. So, a well-defined question is the most important step of any research studies <sup>[4]</sup>. Furthermore, a well-designed research question is the primary phase of an evidence-based systematic review <sup>[5]</sup>. Therefore, a research question (or review question) needs to be clear, appropriate, well-defined, and relevant. A well-designed systematic review begins with a good preparation <sup>[6]</sup>.

**How to Develop a Research Question:** There are several steps in developing a research question. These steps are presented in (Table 1).

**Table 1.** Developing a research question.

Step 1	Identifying a topic that interest you
Step 2	Narrowing the general topic area to a narrower answerable review question
Step 3	Describing your inclusion criteria
Step 4	Relating your research question to a research design

### Step 1: Identifying a topic that interest you

It is Important to find and identify a topic area of interest to you. This also maintains a good motivation to you. Conducting a systematic review is long and tiring process. Therefore, you need to find a topic area that interest to you. We recommend that you keep your topic area broad.

### Step 2: Narrowing the general topic area to a narrower answerable review question.

Once you have selected your topic that interest you, the second step is to narrow it to an answerable review question. This step is similar to a funnel, where the wide side of the funnel represents the topics that interest you and the bottom of the funnel represents your research question.

### Step 3: Describing your inclusion criteria.

Describing the inclusion criteria forms your research question. A good question should be motivating and be researchable, be neither too broad nor too narrow, and have to focus on what you want to search and know. To avoid your question too broad, you can ignore the “who”, “what”, “how”, or “where” of your questions. Inclusion criteria should define a priory. That is, before a literature searching. The best way to develop inclusion criteria is to generate a PICO table. PICO stands for population or patients, interventions, comparison or comparator and outcome. Sometimes, an S can be added. S means study design. An example PICO table is shown in (Table 2).

Table 2. Example of Detailed PICO Table.

Review question	Does ultrasonically activated irrigation remove more intracanal Ca(OH) <sub>2</sub> than other irrigation techniques from the apical third of the human root canal system?
P	Extracted fully formed (mature) human teeth
I	Ultrasonically activated irrigation
C	Other irrigation techniques
O	Removal of Ca(OH) <sub>2</sub> used as an intracanal medicament from the apical third of the root canal
S	In vitro studies

The PICO is detailed and clearly defines the important elements of a research question.

### Step 4: Relating your research question to a research design.

After you have split your research question into its components using a PICO formulation, the next step is to relate the question to a research design. The type of a research design can be thought of as the structure of a research study. Thus, you can consider the PICO strategy as PICOT strategy. Here the “T” represents the research or study type. Some of the common research designs are cohort studies, case control studies, case reports, randomized controlled trials, controlled clinical trials, before-after studies, and systematic reviews.

## CONCLUSION

The better PICO strategy, the more robust results. Clearly defined research question and inclusion criteria will save your time and reduce stress later in the review process.

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