PATSAFE TOOLBOX No. 10

Template for formulating research questions for systematic reviews

A clearly defined and focused systematic review begins with a well framed research question. Defining the research question is therefore one of the most important steps in performing a systematic review. When the research question is well formulated, all the other steps for performing the review will benefit from this. To facilitate the formulation of the research question, several templates exists that break down the research question into smaller parts. This tool presents the most common template used, the PICO template.

The PICO template

P	I	C	O
Patient Population	**Intervention Indicator**	**Compare Control**	**Outcome**
Who are the relevant patients/population/people? Think about age, gender, geographic location, setting or specific characteristics that would be important to your question.	*What is the intervention (e.g. management strategy, diagnostic test) or exposure that you are interested in?*	*Is there a control or alternative intervention you would like to compare to the intervention or indicator (e.g. placebo, alternative intervention)?*	*What are the consequences of the intervention that you are interested in (e.g. incidents of certain symptoms or complications? Also consider how much time it takes to demonstrate the outcome.*

Examples of different types of research questions formulated according to the PICO template

Therapy or intervention (what should be done to treat this problem):

In _____(P), how does _____(I) affect _____(O) compared with _____(C) within _____(Time)?

In teenagers (P), what is the effect of a web-based physical activity program (I) on the incidence of obesity (O), compared with no intervention (C) within a 2 year period?

Etiology or harm (what causes this problem):

Are _____(P) who have _____(I) at _____(increased/decreased) risk for/of _____(O) compared with those with/without _____(C) over/during _____(T)?

What is the risk of developing a burn-out (O) in men between 35-45 years (P) who have worked late for three days a week or more (I) compared with men between 35-45 years (P) who work late less than three days a week (C)?

Diagnosis or diagnostic test (how good is this test at detecting this problem):

In _____(P) is/are _____(I) more accurate in diagnosing _____(O) compared with _____(C)?

Is a multiple choice test (I) more accurate in assessing knowledge gains (O) compared with a test with open-ended questions (C) in university students (P)?

Prognosis or prediction (what is the likely outcome of this problem):

In _____(P) how does _____(I) compared to _____(C) influence _____(O) over/during _____(T)?

What is the effect of monitoring blood glucose 4 times a day (I) on blood glucose control (O) in people with type 1 diabetes (P) during the first six months after being diagnosed with the condition (T)?

Meaning (how is this phenomenon being experienced):

How do _____(P) with _____(I) perceive _____(O) compared with _____(C) during/over _____(T)?

How do first-time mothers (P) of premature babies in the NICU (I) perceive bonding with their infant (O) during the first month after birth (Time)?

Prevention (how can this problem be prevented):

For_____(P) does the use of _____(I) reduce the risk of _____(O) compared with _____(C)?

What is the effect of a daily 30 minute walk (I) for adults over age 60 (P) on the future risk of heart attack (O) compared with no daily 30 minute walk (C)?

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