

# How to formulate a systematic literature review question

by  
Eldon Ager

# Stages in conducting a systematic literature review

Define your research question and inclusion criteria

Carry out comprehensive, systematic searches

Select eligible studies

Extract data

Assess risk of bias in included studies

Synthesise the evidence

# The research question

- Must be relevant and important
- Current or emerging technology
- Significant burden of disease
- Frequency-Prevalence
- Impact on quality of life
- Important social phenomenon
- Must matter to patients/farmers/stakeholders and involve them when possible
- Preferably global relevance but with varying local application

# Types of questions in health research

- What causes this condition? -Aetiology
- Is this method/strategy good to detect this condition? -Diagnosis
- What is the probability of developing this outcome? -Prognosis
- What is the effect of this treatment?/what causes the disease – Intervention/exposure
- How common is this condition? -Frequency

# How to formulate a research question; PICOS/PECOS

- Population

Who is affected

- Intervention/ Exposure

What is being done

- Comparison/control/context

What is it being compared to

- Outcome

How is the effect being measured

- Study type

What is this appropriate study design to answer the question

- Time frame, Language, cultural setting

# Population

- What are the characteristics that describe this population? (e.g. age, gender, ethnicity)
- What is the setting (e.g. healthcare setting, geographical setting)?
- If the population has a health condition, how is it defined? (e.g. severity)

# Exposure/intervention and comparison

- What is/are the exposure(s) or intervention(s) of interest?
- How are they defined?
- Does the exposure or intervention have variations? (e.g. duration)
- How is the 'unexposed' comparison defined
- What is the context for the studies

# Outcome(s)

- What are the main outcomes -Primary outcomes/Secondary outcomes
- How are they defined? (e.g. clinically, by laboratory tests, by imaging , social phenomenon etc)
- When and where are they measured?



# Ngwili et al., 2021

- **Population:** Pigs and Humans –three *T. solium* diseases
- **Intervention:** Drugs, vaccination education, latrines, sanitation, husbandry, pig housing or confinement, biosecurity, meat inspection, hand washing
- Exposure; PCC, NCC and Taeniosis
- **Comparison:** Non-treated, local/experimental study population.  
Or non if not RCT or Context –community-based studies
- **Outcomes:** acceptance, costs, risk factors, change in knowledge, attitude and practices, prevalence, contextual issues.
- **Study design:** Observational studies, RCTs; Time frame

# Beyond PICO/PECOS

- In qualitative research the PICO/PECOS will need manipulation.
- **SPIDER**-(Sample, Phenomenon of Interest, Design, Evaluation, Research type).-has not been widely used
- For use when searching qualitative and mixed methods research studies
- **SPICE**(Setting, Population, Intervention, Comparison, and Evaluation) – promoted by Joanna Briggs Institute for qualitative SLRs
- **ECLIPSE**(Expectation, Client group, Location, Impact, Professionals, Service) – in health management
- **CIMO** (Context–Intervention–Mechanism–Outcome) –for management questions

# The protocol

- A protocol is normally written after the review questions have been agreed upon.
- The protocol is detailed, technical description of the methods to be used in the review
- Ensure that the methods are systematic and rigorous and that there is transparency
- Specific structures for review protocols have been set out by relevant bodies –Aim, rationale, research question, PECOS/PICOS, eligibility, the search, data collection process
- Pre-registered <https://www.crd.york.ac.uk/prospero/>

# Protocol example

## Systematic review protocol

To synthesize the results of evaluations of past global intervention strategies used against *Taenia solium* taeniasis and porcine cysticercosis.



<b>Rationale</b>	A study to identify interventions implemented within community settings which have been used against <i>Taenia solium</i> in any geographical locality and the actors involved in implementation. The aim is to understand how the interventions both vertical and integrated were planned, implemented and evaluated in order to inform future planning and implementation of intervention options.
<b>Aim</b>	To synthesize the results of evaluations of past community-based intervention strategies used against <i>Taenia solium</i> taeniasis, porcine cysticercosis and neurocysticercosis.
<b>Research question</b>	<ul style="list-style-type: none"> <li>In any country, what interventions to control <i>T. solium</i> have demonstrated success, how were they planned, implemented and evaluated?</li> <li>Who were the stakeholders involved and what conditions were necessary for successful implementation?</li> <li>What was the level of government and private sector buy in into their implementation? Data will <u>capture</u> on the stakeholders involved and their roles and whether there are challenges reported with their involvement. This is the aspect which will also be triangulated using telephone key informant interviews with the authors.</li> <li>For interventions with a sound biological basis which failed to demonstrate success, what were the perceived reasons for failure, what part of an enabling environment was not present? This will aim to capture studies which evaluated a technology known to control or eliminate <i>T. solium</i> but for the particular case did not achieve impact.</li> </ul>
<b>Population</b>	Human and pigs

<b>Intervention*</b>	Drugs for prevention and treatment (Praziquantel, niclosamide, albendazole, mass drug administration of either albendazole or praziquantel or both, TSOL18, vaccination, oxfendazole), education, latrines, sanitation, husbandry, pig housing or confinement, biosecurity, meat inspection, hand washing or integration. <i>Intervention* (These are technologies which have been shown to control or eliminate T. solium at farm level or community level intervention like sanitation programmes)</i>
<b>Control</b>	Non-treated, local experimental study population. Or non if not RCT
<b>Outcome</b>	<ul style="list-style-type: none"> <li>Efficacy, side effects, acceptance, costs, risk factors, change in knowledge, attitude and practices, prevalence.</li> </ul>
<b>Setting</b>	Africa, Latin America or South America, Europe, Asia (including Russia) and North America
<b>Eligibility criteria</b>	<p><b>Inclusion criteria</b></p> <p>Type of studies: observational studies, secondary data analysis, (literature) reviews</p> <p>Time limits – manuscripts published between Jan 1950 and 20<sup>th</sup> May, 2019</p> <p>Language – English (all countries), Spanish, Portuguese, French. This will aim to capture studies majority from Latin America where a lot studies have been done on the control or elimination of <i>T. Solium</i> infections.</p> <p><b>Exclusion criteria</b></p> <ol style="list-style-type: none"> <li>Studies not relating to humans or pigs</li> <li>Studies on epilepsy NOT related to NCC</li> <li>Studies not conducted at community level</li> <li>Papers relating to clinical symptoms, diagnoses and treatment of NCC including case studies</li> <li>Purely epidemiological studies on <i>T. solium</i></li> <li>Papers on diagnoses of <i>T. solium</i> cysticercosis/taeniasis (including diagnostic imaging). This is because there are so many studies</li> </ol>

which are just evaluating the use of different diagnostic techniques not necessarily looking at reduction of prevalence.

7. Papers on aspects of basic sciences (immunology/molecular

(quality criteria)

# References

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**END!**