

SR-10. Overview of systematic reviews of the effects of exposure to heat on pain, burns, cataract and heat-related illness

The World Health Organization's (WHO) Radiation Programme in the Department of Public Health, Environmental and Social Determinants of Health (Geneva, Switzerland) has an ongoing project to assess potential health effects of exposure to radiofrequency electromagnetic fields (RF EMF) in the general and working population. To prioritize potential adverse health outcomes, WHO conducted a broad international survey in 2018. Ten major topics were identified for which WHO will now commission systematic reviews to analyze and synthesize the available evidence.

One of the well-known effects of RF EMF on the body is that it can increase the temperature of the human body or body parts. Based on dosimetric modelling studies, the relationship between exposure to RF EMF and localized or whole-body heating is well characterized. Given this relationship, it is important to determine at which local or whole-body temperatures, regardless of the source of heating, the following adverse health effects occur: pain, burns, cataract and heat-related illnesses (e.g. exhaustion, dehydration, heat shock).

Through this Call, WHO invites eligible teams to indicate their interest in undertaking an overview of systematic reviews of the effects of exposure to heat and pain, burns, cataract and heat-related illnesses based on epidemiological and human experimental studies.

Participating review teams will receive methodological support from the WHO Secretariat on the planning and conduct of the systematic reviews. The team's contribution of a systematic review will be acknowledged in the official WHO publication on radiofrequency fields. The systematic reviews will be submitted for open-access international peer-reviewed publication(s).

Scope of the research

The review team should conduct an overview of systematic reviews of the effects of exposure to heat (from any source) on pain, burns, cataract and heat-related illnesses for the following PECO¹ question:

- Effect of exposure to heat from any source (E) on pain, burns, cataract and heat-related illnesses (O) compared to no/low exposure (C) in the general population (P) taking into account differences between age-groups and sexes in the removal of excessive heat from the body and obtaining a temperature balance and what is the threshold temperature at which these effects start to occur.

Systematic review approach

The overview of systematic reviews should be conducted according to the quality requirements for systematic reviews as formulated in the [WHO Handbook of Guideline Development](#) and should be reported according to the [PRISMA standard](#). WHO will provide review teams with a detailed draft

¹ PECO is an acronym for the four elements that should be considered in any question governing a systematic search of the evidence: (P) population, (E) exposure, (C) comparator and (O) health outcome.

protocol stating the PECO question and methods for conducting the systematic review based on the state-of-the-art methods. The systematic review teams will be asked to finalize the protocol and to register them in the [PROSPERO](#) database. The overview of systematic reviews will then be conducted according to the lines set out in the protocol. The final deliverable is an overview of systematic reviews in scientific article format. A small contribution towards the operating costs for the conduct of the systematic review will be available.

Requirements and process

The systematic review team will be selected from the submitted expressions of interest and based on the members' qualifications and skills (see specifications below). The team should be composed of at least two members to enable study selection, data extraction and risk of bias analysis in duplicate. Geographical diversity is encouraged.

The systematic review team leader must provide information regarding the composition of the team (proposed team members, their organizational affiliations and their relevant expertise and skills), description of similar assignments, examples of relevant reports or publications using the enclosed curriculum vitae for each team member. The team members will participate in their individual capacity rather than as a representative of their employer. Each member will also need to complete the standard [WHO Declaration of Interest form](#), which will be assessed for conflict of interests. Expressions of interest must be delivered electronically to the WHO Secretariat at emfproject@who.int with subject line: “**Expression of interest for SRT-10**” no later than 16:00 (CET) on **7 February 2020**.

The team leader can be asked to further elaborate the expression of interest in a video meeting with the WHO Secretariat. The final candidates will be selected through a competitive process in accordance with WHO's policies and procedures.

Expected deliverables and timelines

The systematic review should be completed within a 12-month timeframe. It is anticipated that the systematic review will begin as soon as practicable.

1. Final version of protocol and registration in Prospero (+ 1 month from start)
2. Operational search strategies for all relevant databases as listed in the protocol (+ 1 month)
3. Risk of bias assessment tool(s) developed, including aspects related to exposure assessment (+ 1 month)
4. List of references to be checked as full-text studies (+ 1 month)
5. List of included and excluded studies (+ 1 month)
6. Tables on (i) characteristics of included studies, (ii) effects of exposure to heat on the outcome, and (iii) risk of bias in included studies (+ 3 months)
7. Draft manuscript ready for peer review (+ 1 month)
8. Final manuscript for journal submission (+ 1 month after receipt of comments)

Qualifications and skills required

The successful teams would have to fulfil the following criteria:

- Expertise in effects of heat exposure;
- Expertise in human experimental and epidemiological studies;
- Demonstrated experience in conducting systematic reviews in environmental health;

- Experience in scientific writing and communications on environmental health and/or epidemiology;
- Strong communication skills in English, both written and oral.