Annotation Guidelines:
Potentially Contradictory Research Claims from Cardiovascular Research Abstracts

Definitions

Please read and carefully consider the following definitions before proceeding with the annotation task:

A review abstract is the abstract of a systematic review.

A study abstract is an abstract of a study used in a systematic review to answer the review question.

A PICO question is a well-defined question that includes four parts: population, intervention, comparator and outcome.

A research claim is the most important point that research authors want to present to the reader. It is the overall conclusion or outcome that can be understood from the research findings/results. Thus, a claim is not a result but the interpretation of the results.

A causal claim is a claim that suggests a relationship between two concepts and asserts that a concept has an influence on the other concept. The relationship can be direct (e.g. *cause, increase, decrease* and *protect)* or indirect (e.g. *is associated with)*. An example of a causal claim based on a direct relationship is "*MN-BMC transplantation improves cardiac function in ischemic heart failure patients during CABG.*" A example causal claim based on an indirect relationship is "*These results suggest that there is no HLA association with ischemic heart disease.*"

An evaluative claim is a claim that expresses a value judgement about a treatment or process. This can be expressed by stating the value directly or by comparing it against

something else. An example of an evaluative claim is *"Combined clopidogrel and aspirin are safe for bleeding."* Another example is *"The reduction in hospitalizations achieved using standardized telephonic case management in the early months after a heart failure admission is greater than that usually achieved with pharmaceutical therapy."*

Annotation Process

The annotation process consists of four stages, to be carried out in turn.

Stage-1: Formulation of PICO Questions

Formulate a PICO question for each review abstract. This question will be used in the later stages of the annotation.

Please follow this process to formulate the question:

1. Read the title of the review abstract and its content to understand the objective of the review.
2. Read the title of each study abstract associated with the review and examine its content, particularly the conclusion sections, to ensure that the study is directly relevant to the question addressed in the review. Exclude any studies that are found not to be directly associated with the main objective of the review, or where the association is unclear.
3. Formulate a PICO question for each review. The question should be a closed question; in other words, it can be answered with either a "yes" or "no".

Notes

There may be cases where there is incompatibility between the populations considered in different studies or studies use alternative terms to refer to the same or similar concepts (e.g. cardiovascular disease and myocardial infarction). In these cases the question may be formulated using either (a) a generic term covering all the concepts, or (b) list all terms via the use of *or,* e.g. "in patients with X condition, is y associated with cardiovascular disease or myocardial infarction".

Stage-2: Identification of Claims

The objective of this stage is to identify the best sentence within the each study abstract that answers the question formulated in the previous stage.

For each abstract associated with a review:

1. Carefully read the question associated with the review.
2. Examine each study abstract and identify the *best sentence* that serves as an answer to the review question.

Notes

The claim sentence can usually be found in the conclusions section of the study abstract. This can be identified by the use of the explicit label (Conclusion/Conclusions) or implicitly by the use of signal words such as "*In conclusion,*", "*We found that...*" and "*Our work suggests...*" In cases where no sentence providing an answer to the question is found in the conclusion section, a sentence from the results section can be chosen; provided the sentence answers the question and can be considered as a claim. If no suitable sentence can be identified the study abstract should be excluded from the set of abstracts associated with that particular review.

In cases where more than one sentence that could potentially serve as the answer to the review question is identified, the annotator should choose the sentence that provides the clearest answer to the question considering all of the information contained in the study abstract.

Stage-3: Annotation of Claims Assertion Values

Provide an assertion value for each claim with respect to the question. Two possible values can be assigned: ***YS*** and ***NO***.

YS should be used when the claim asserts a positive answer to the question and ***NO*** if it does not. (If the claim neither asserts nor negatives the question then the assertion value should be NO).

Stage-4: Annotation of the Claim Type

Annotate each claim as either causal or evaluative (see the definitions above). Causal claims should be annotated as ***CAUS*** and evaluative claims as ***EVAL.***

Notes

Claims in biomedical abstracts tend to be complex and a claim can be interpreted as causal and evaluative at the same time. For example, "*Among our population of largely low or asymptomatic HCM patients, the presence of scar indicated by CMR is a good independent predictor of all-cause and cardiac mortality*." This claim states that the scar indicated by CMR is a predictor of all causes and cardiac mortality, which shows an indirect causal relationship between the scar and cardiac mortality. However, at the same time the claim evaluates this relation using the term *good*. In such cases, the annotator should consult the abstract content to determine whether the purpose of the study is to identify an association between the scar and mortality or to evaluate to what degree the scar can be used as a predictor for cardiac mortality.