Reviewer's report

**Title:** Clinical Manifestations of Tension Pneumothorax: Protocol for a Systematic Review and Meta-Analysis

**Version:** 3  
**Date:** 7 November 2013

**Reviewer:** Susanne Hempel

**Reviewer's report:**

Thank you for submitting this review protocol to Systematic Reviews. I have a number of comments that I would like the authors to consider.

Simultaneously conducting a systematic review of published studies and an individual patient data (IPD) meta-analysis is very ambitious. Do the authors have already access to a number of datasets or will the IPD analysis rely on cold calls to authors? The chances of obtaining original datasets are low and will need a dedicated approach and considerable resources. The protocol to ensure that a systematic search of IPD-eligible studies has been performed and which steps will be undertaken to ensure a reasonable and unbiased sample should be outlined further. The authors might consider restricting the review to published case studies rather than undertaking an IPD meta-analysis.

The review is currently searching for published tension pneumothorax studies to identify clinical manifestations of tension pneumothorax. The protocol should clarify how the review will address overlap between the diagnosis and the clinical manifestations. The applied working definition appears to include clinical manifestation characteristics. A systematic review of clinical definitions included in research studies might be a reasonable alternative.

The inclusion criteria should be described in more detail and should differentiate which criteria have to be met by published studies without access to the original patient data. In addition, the analysis has to consider how the lack of the reporting and the absence of symptoms will be differentiated. The protocol specifies that original study authors will be contacted for missing information but it needs to be clarified how the studies will be processed when the information cannot be secured (either authors do not answer or do not have the information anymore because it was not collected at the time). The Study Selection section should be integrated into the inclusion criteria section and the review procedure should have a dedicated subheading. As it currently stands, this section repeats some inclusion criteria, contradicts others (e.g., Study Design), and raises red flags for potential bias (the eligibility of the publication should not depend on the review outcome, i.e., the clinical manifestation).

It is not clear why CENTRAL will be searched when clinical trials are not eligible for inclusion in the review according to the study design inclusion criterion. The expression "without restriction" should be specified (without language
The term “hand-survey” should be revised. The search strategy is designed to cover studies that will not use the term “tension pneumothorax”. The inclusion criteria should specify in more detail what studies have to report in order to be eligible for inclusion in the review. If clinical manifestations will be applied to define tension pneumothorax for this review, the review result will be biased because the features were treated as inclusion criteria as well as the result of the review. The review protocol needs to address this potential source of bias.

The analysis strategy should be critically reviewed. As it currently stands, the described analysis does not seem to be suitable for secondary literature and only covers highly selected study types that do not seem to match up with the review's inclusion criteria. If existing reviews are eligible for inclusion in the current review, the inclusion criteria need to be revised. An IPD meta-analysis should follow accepted recommendations, e.g. as outlined by Stewart et al. (2012). Any reference to IPD analyses should be either removed or revised according to conventional IPD approaches. Page 21 and page 23 describe an analysis for a specific type of comparative study, the inclusion criteria should be adapted to cover (and potentially limit to) these studies. On the other hand, if page 21 describes a comparison of subgroups, the suitability and alternative of conventional meta-regressions should be described. It is not clear what the “observational studies” refer to as they seem to be compared to other observational studies. The imputation of clinical manifestation data, when the clinical manifestations are the primary outcome of the review, should be critically reviewed and the approach should be adapted for secondary data.

The approach to evaluate the body of evidence should be described, i.e. how the strength of evidence across all included studies and study types will be evaluated, given the diversity of eligible study designs.

Minor revisions
The PROSPERO number should not be called "trial registration" in the abstract. The review question should be explicitly stated in the protocol text.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.