Reviewer's report

Title: Systematic review and meta-analysis of the diagnostic accuracy of ultrasonography for deep vein thrombosis

Version: 1 Date: 1 July 2005

Reviewer: John Philbrick

Reviewer's report:

General

1. The topic of this review is of interest to readers of BMC Medicine.
2. It is well written.
3. I am satisfied that a reasonable effort was made to assemble all articles meeting the inclusion criteria.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. Page 4, para 3, line 3: I think, instead of "definite", the authors mean to say "definitive".
2. Page 6-7: There is insufficient description in the Statistical Analysis section of how the statistical analysis was performed. The MetaDiSc statistical software is apparently still in development phase and is not widely known. The authors should expand this section to describe more fully how the software handled their data. It is my understanding that MetaDiSc uses the method of Moses et al. (Stat Med 1993;30:1293-56) to construct diagnostic odds ratios and summary receiver operating characteristic (SROC) curves, and that this method was extended to add the capability of investigating the effect of covariates on the model. A brief description of these methods should be added to this section along with appropriate references. The drawbacks of the Moses et al. method have been pointed out (Siadaty et al. J Clin Epidemiology 2004;57:698-711).
3. Page 13, para 2 and 3: The manuscript would be improved if the authors discussed more fully and were more forceful in their comments concerning causes of "significant unexplained heterogeneity." They blame this on "poor reporting." More likely reasons are poor study design (e.g. biased sampling of patients (median prevalence of DVT in this review was 48%!), heterogeneous patient populations, and unblinded test interpretations). Although some of these factors were entered into their model, they did not significantly correlate with test performance, possibly from lack of statistical power. These methodologic weaknesses in many of the reviewed studies are also a "limitation" of the study.

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Discretionary Revisions (which the author can choose to ignore)

1. Page 12, para 2: The authors are not the first to discover that variation in diagnostic test performance is related to study-level variables. Heim et al. (Clin Chem 2004;50:1136-47), in a meta-analysis of studies on D-dimer tests for deep venous thrombosis, found that reference standard and prevalence were significant predictors of test performance.
2. This manuscript would be improved with a section in the discussion that provides a clinical message. Our current use of ultrasound has been established, not by diagnostic testing studies as reviewed in this manuscript, but by management studies showing which clinical strategies are safe for clinical care. I would like to see a description brief description of these strategies with key references added.

**Which journal?:** Appropriate or potentially appropriate for BMC Medicine: an article of importance in its field

**What next?:** Accept for publication in BMC Medicine after minor essential revisions

**Quality of written English:** Acceptable

**Statistical review:** No

**Declaration of competing interests:**

I declare that I have no competing interests.