CRD summary
This review concluded that measuring thyromental distance using a ruler to predict intubation difficulties was more sensitive than non-ruler methods of measurement. The review methodology and population and intervention characteristics were poorly reported. The quality of the included studies was not assessed and heterogeneity was not investigated. Therefore, the results of the review should be viewed with caution.

Authors' objectives
To assess the accuracy of thyromental distance measurement as a test to identify where there may be difficulty with intubation.

Searching
MEDLINE, EMBASE and Cochrane Central Register of Controlled Trials (CENTRAL) were searched without language restrictions from 1980 to December 2008; search terms were reported. A survey of trainee and consultant anaesthetists was conducted.

Study selection
Prospective studies that assessed the accuracy of thyromental distance measurement in anatomically normal individuals to predict difficult intubation were eligible for inclusion where intubation was performed using a standard laryngoscope and where sensitivity and specificity were reported (or sufficient data were provided to calculate these). Measurement of thyromental distance was specified as a ruler measurement in over 58% of the studies; other studies were classified as non-ruler measurement. Potential methods identified from the survey included visual inspection, finger widths and a thyromental gauge. The cut-off used for a positive result ranged from 6cm to 8cm. The lower age limit was 15 years; no further patient characteristics were provided.

The authors did not state how many reviewers performed the study selection.

Assessment of study quality
The authors did not state that they assessed study quality.

Data extraction
Sensitivity and specificity were extracted or calculated.

The authors did not state how many reviewers performed data extraction.

Methods of synthesis
Summary estimates of sensitivity and specificity were calculated using a Mantel-Haenszel meta-analysis. No methods to investigate heterogeneity were reported.

Results of the review
Twenty-four studies were included in the meta-analysis (n=23,146, range 50 to 10,507).

Studies that used a ruler to determine thyromental distance (14 studies) had a pooled sensitivity of 48% (95% CI 43% to 53%) and specificity of 79% (95% CI 78% to 80%). Studies that used non-ruler measurements (10 studies) had a pooled sensitivity of 16% (95% CI 14% to 19%) and specificity of 94% (95% CI 94% to 95%).

Authors' conclusions
Measurement using a ruler was more sensitive than non-ruler measuring methods for predicting intubation difficulties.
CRD commentary
The review question was clear and supported by appropriate inclusion criteria. Three databases were searched without language restrictions. There was no specific search for unpublished studies and so publication bias could not be ruled out. The review methodology was not reported and so potential for error and bias could not be assessed. Study quality was not assessed and insufficient information was provided for the reader to make a judgement. Heterogeneity across studies was not investigated, which made reliability and generalisability of the pooled results uncertain. Relevant characteristics of the patients recruited into the study (such as age range, gender, ethnicity and reason for intubation) were not reported. The conclusion reflected the evidence presented, but given the limitations of the review and the uncertain quality of included studies, the results should be treated with caution.

Implications of the review for practice and research
Practice: The authors stated that accurate thyromental distance measurement required the use of a ruler or thyromental gauge, although compared to other methods sensitivity remained poor.

The authors did not state implications for research.

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