Childhood obesity: should primary school children be routinely screened? A systematic review and discussion of the evidence

CRD summary
This well-conducted review concluded that there was insufficient evidence to determine the effectiveness of population monitoring and screening for overweight and obesity in primary school children. Various methodological and reporting issues made it difficult to assess the reliability and generalisability of the results, but the authors considered the limitations and their conclusions and recommendations are likely to be reliable.

Authors' objectives
To determine the clinical effectiveness of monitoring for obesity and overweight in primary school children.

Searching
MEDLINE, EMBASE, CINAHL, DARE, Cochrane Controlled Trials Register and other electronic databases were searched through to July 2005. Experts in the field were contacted for unpublished and audit data. Inclusion was not restricted by language. The search strategy was available on request.

Study selection
Study designs of evaluations included in the review
Specific interventions included in the review
Participants included in the review
Outcomes assessed in the review
How were decisions on the relevance of primary studies made?

Assessment of study quality
Studies had to use a reference standard that provided a direct measurement of the percentage body fat. Included reference standards used x-ray densitometry (thresholds greater than or equal to the 85th, 90th or 95th centile), hydrostatic weighing (threshold greater than or equal to 20% or 25%) or isotope dilution (threshold greater than 20% or 30%).

Study quality was assessed by one reviewer and checked by a second using the QUADAS tool; disagreements were resolved through consensus or consultation with a third reviewer.

Data extraction
One reviewer extracted data, which were checked by a second reviewer. Agreement was reached through consensus or by consultation with a third reviewer. Data were extracted for each outcome and sensitivity, specificity and positive/negative predictive values were calculated, with 95% confidence intervals (CIs) where appropriate.

Methods of synthesis
How were the studies combined?
How were differences between studies investigated?

Results of the review
Eleven studies (n=13,388 children weighed) plus two additional studies (n=252 children weighed for one study) that reported on human resource implications of monitoring and attitudes to monitoring were reported in the review. The analysis focused on five studies (n=2,203) that reported on the diagnostic performance of indices of overweight and obesity. None of the studies were controlled trials and none assessed the effectiveness of monitoring.
Study quality: The five studies included in the analysis met between 5 and 9 of the 12 QUADAS criteria and did not meet the National Screening Committee (NSC) criteria for monitoring in individual children.

BMI was used most often to measure overweight and obesity. Sensitivity analysis for diagnostic accuracy ranged between 0.00 and 0.94 and specificity ranged between 0.83 and 1.00. Sensitivity and specificity analyses for diagnostic accuracy of weight ranged between 0.17 and 0.58 (sensitivity) and 0.95 and 0.98 (specificity) and for skinfold measures between 0.23 and 0.97 (sensitivity) and 0.82 and 1.00 (specificity). CIs were reported. Significant heterogeneity between studies was reported.

Authors' conclusions
There was insufficient evidence to determine the effectiveness of population monitoring and screening for obesity; further research was required.

CRD commentary
This well-conducted review answered a clear research question supported by appropriate inclusion criteria. Attempts were made to identify all the relevant literature by searching several electronic databases and other sources without language limitations. Validity was assessed according to published criteria and attempts were made to minimise errors and bias at each stage of the review process. Appropriate methods were used to analyse the data. There were a number of limitations (such as the small number of studies included in the review and the poor reporting within the studies), which made it difficult to assess the reliability and generalisability of the results. The authors acknowledged the limitations and their conclusions and recommendations are likely to be reliable.

Implications of the review for practice and research
Practice: The authors stated that effective interventions were required to justify a move from population monitoring to screening to identify and treat individual children. Policy makers should consider the validity of the National Screening Committee criteria as a measure against which general health monitoring programmes were assessed.

Research: The authors stated that further large-scale well-designed studies were required to identify effective preventative measures and weight-reducing interventions for overweight children and obesity in children. Long-term studies were warranted to identify outcomes of obesity in adulthood and thus clarify the predictive value of diagnostic tools.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.