Evidence-based strategies for implementing guidelines in obstetrics: a systematic review
Chaillet N, Dube E, Dugas M, Audibert F, Tourigny C, Fraser W D, Dumont A

CRD summary
This review assessed what strategies effectively implement clinical practice guidelines in obstetric care. The authors concluded that multifaceted strategies, based on audit and feedback, and strategies facilitated by local opinion leaders, may effectively change behaviour. Although very broad, the conclusions appear to follow the results of this generally well-conducted review.

Authors' objectives
To evaluate what strategies effectively implement clinical practice guidelines in obstetric care, and to identify barriers to change and facilitators in obstetrics.

Searching
The Cochrane Library (Cochrane Controlled Trials Register), EMBASE and MEDLINE were searched from January 1990 to June 2005; the search terms were provided. Reference lists of retrieved articles were also checked and experts were contacted for additional studies.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs), controlled before-and-after studies and interrupted time series were included. Controlled trials had to have an appropriate control site. Interrupted time series had to either report at least three data points before and three after the intervention or authors had to provide information about secular trend for the first outcome. Qualitative studies, opinion letters and studies with no patient data were excluded.

Specific interventions included in the review
Studies that evaluated the implementation of clinical practice guidelines in low, middle and high resource settings in obstetric care were eligible for inclusion. Broadly, these included educational strategies, audit and feedback, opinion leaders, quality improvement strategies, academic detailing, reminders, and multifaceted strategies (including at least two of the above strategies and/or physician and hospital payment, and malpractice reform).

Participants included in the review
Study participants included health professionals, non-health professionals and women receiving peripartum care. Studies including less than 100 patients, or less than 75% of health professionals, were excluded.

Outcomes assessed in the review
Broad outcomes of interest were objective measures of performance during the implementation of clinical practice guidelines in obstetric care. The included studies aimed to increase compliance for the management of mild hypertension; decrease use of foetal heart monitoring; promote vaginal birth after Caesarean delivery; reduce pregnant smoker rates; reduce infection after Caesarean delivery; reduce Caesarean delivery rates; reduce admission to labour ward of women with a low cervical score; improve breast-feeding rates; enhance use of antibiotics in Caesarean delivery, ventouse and Pg acid in episiotomies, and steroids in pre-term deliveries; reduce clinic visits with no change for low birth weight rates and maternal morbidity index; reduce maternal mortality; reduce suboptimal care rates in low-Apgar babies; and encourage the use of antenatal corticosteroid for foetal maturation.

How were decisions on the relevance of primary studies made?
The authors used the Cochrane Effective Practice and Organisation of Care criteria to assess whether studies were eligible for inclusion in terms of study design. They did not state how many reviewers performed the selection.
Assessment of study quality
Quality was assessed using the Cochrane Effective Practice and Organisation of Care criteria. For controlled trials, broadly, these criteria evaluate selection bias, characteristics of study and control providers, exclusion bias, follow-up of patients, detection bias, baseline performance, reliability of first outcomes, and protection against contamination. For interrupted time series, the criteria evaluate protection against secular changes, appropriate data analysis, reason for the number of points pre- and post-intervention, specification of the shape of the intervention effect, protection against detection bias, completeness of data set, and reliable first outcome (details of specific criteria were not reported). Only studies determined to be of 'fair' or 'good' quality were included. Two reviewers were involved in the validity assessment, and any disagreements were resolved by consensus.

Data extraction
Two reviewers independently extracted data from the studies, with any disagreements resolved by consensus. The data were extracted using a standardised published checklist. Odds ratios (ORs) were calculated if not reported. Adjusted risk ratios were determined for cluster RCTs. Authors were contacted for missing data. When information was only available in graphical form, a data set was derived by computer scanning the figures. Based on the study results, each study was classified as 'ineffective'(not statistically significant or negative effect), 'mixed-effects' (studies that partially met their objectives) or 'effective' (strategies with a significant positive effect).

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative.

How were differences between studies investigated?
The studies were grouped by type of strategy.

Results of the review
Thirty-three studies were included: 10 cluster RCTs, 6 RCTs, 1 controlled before-and-after study and 16 interrupted time series studies. The sample sizes were not reported.

Five RCTs and 3 interrupted time series studies were considered to be of a good quality; the remaining studies were considered to be fair quality.

Generally, the 4 studies that evaluated educational strategies were variable: two were considered to be ineffective, one had mixed effects and one was effective. Nine of the 11 studies evaluating audit and feedback had a successful impact on guideline implementation. One study evaluating the effectiveness of an opinion leader was ineffective, while another had mixed effects. The 4 studies evaluating quality improvement strategies also demonstrated variable results. One study on academic detailing had mixed effects for the use of systematic reviews in the management of labour. Two studies demonstrated that reminder strategies (computerised or paper reminders) were effective. The 9 multifaceted interventions were all found to be effective for a number of different outcomes. The proportion of successful strategies was higher when the intervention included an identification of barriers to change, compared with interventions that did not (p=0.004).

Authors’ conclusions
The authors suggested that the findings in this review be considered with caution; the current evidence suggests that a multifaceted strategy, based on audit and feedback, facilitated by a local opinion leader, may change behaviours in the field of obstetric care.

CRD commentary
Due to the broad review question, specific interventions, participants and outcomes were not clearly defined. Three databases were searched and additional references were sought. However, the authors did not state if they searched for
non-English (or non-French) papers, therefore language bias cannot be ruled out. Given the lack of unpublished papers, they appropriately suggest that their results may reflect publication bias. A validity assessment was conducted using a published checklist, although the authors only broadly reported what criteria were used. Two reviewers independently extracted the data and assessed the quality of the studies. The information provided on the individual studies was incomplete: details of sample sizes, participant characteristics and duration of study were lacking. The studies were appropriately combined as a narrative synthesis and possible reasons for differences in the effectiveness between the studies were discussed, including issues of quality and statistical power. The conclusions appear to follow from the results of review.

**Implications of the review for practice and research**

Practice: The authors stated that a multifaceted intervention strategy, based on audit and feedback, facilitated by a local opinion leader, is recommended to effectively change behaviours in the field of obstetric care.

Research: The authors stated that more studies are needed to evaluate the effectiveness of opinion leaders, the use of reminders and academic detailing.

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