Effectiveness of interventions to improve follow-up after abnormal cervical cancer screening

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Authors' objectives
To determine the effectiveness of interventions designed to improve follow-up after an abnormal Pap smear.

Searching
MEDLINE was searched from 1980 to 1999 using the terms 'colposcopy', 'vaginal smears', 'cervix neoplasms', 'cervix dysplasia' combined with 'patient education', 'patient acceptance of healthcare' and 'patient compliance'. Inclusion was restricted to publications in the English language; published abstracts, review articles and letters were excluded. The reference lists of studies that met the inclusion criteria were examined, and issues of Medical Care, Preventive Medicine, American Journal of Preventive Medicine, Obstetrics and Gynecology (sic) and Journal of the National Cancer Institute (January to May 1999) were handsearched for additional studies.

Study selection

Study designs of evaluations included in the review
Randomised studies and concurrently controlled studies with a prospectively followed control group were eligible for inclusion. Observational studies, uncontrolled trials and pre-test post-test studies were excluded. Nine of the 10 included studies were randomised controlled trials (RCTs).

Specific interventions included in the review
Studies of interventions to improve follow-up were eligible. The interventions in the included studies were targeted at patients rather than physicians or health care systems. The interventions were classified as behavioural, cognitive, sociologic or combined strategies. Studies of treatment were excluded.

Reference standard test against which the new test was compared
The review did not include any diagnostic accuracy studies that compared the performance of the index test with a reference standard of diagnosis.

Participants included in the review
Studies of women with abnormal Pap smears were eligible for inclusion. Studies of other gynaecological conditions or cervical cancer screening were excluded. Abnormal was defined as any test result requiring additional follow-up. Most of the included studies were of women with multiple types of abnormal smears, and most of the women were aged 49 years or less. The included studies were conducted either in the community or in a university setting, and 6 of the 10 studies included a significant proportion of minority group women. Eight of the 10 studies were conducted in the USA.

Outcomes assessed in the review
To be included, the studies had to have defined outcomes and data available for abstraction. The outcome used in the review was the rate of compliance with the recommended follow-up. Most of the included studies assessed compliance at 6 months or less (range: 6 weeks to more than 12 months). Studies of incidence and mortality were excluded.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The authors do not state that they assessed validity.
Data extraction
The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

The data extracted included the type of intervention, participant characteristics, setting and effectiveness. The data were abstracted separately for each intervention within a study. The effect sizes were calculated for each intervention: for RCTs this was the difference in compliance with the recommended follow-up between the intervention and control groups; for concurrently controlled studies it was the difference between the rate of follow-up post and pre intervention for the intervention and control groups. The variance was calculated in each case. One RCT reported effectiveness as an odds ratio so that was abstracted.

Methods of synthesis
How were the studies combined?
The studies were combined in a qualitative narrative summary. A quantitative analysis was not performed because of differences between the studies.

How were differences between studies investigated?
The interventions were grouped as cognitive, behavioural, sociologic and combined. Within these categories, some differences between the studies in terms of the intervention and the participants were described in the text. Some details of the setting, sample size and effect size were tabulated for most of the included studies.

Results of the review
Ten studies containing 22 separate interventions were included.

Seven cognitive interventions were assessed, including educational pamphlets or brochures, telephone delivered scripted material, and interactive telephone counselling. The improvement in compliance ranged from 5 to 31%. Two RCTs of interactive telephone counselling (n=90 and 612) showed a statistically-significant difference (P<0.05) in effect size (23.8%, 95% confidence interval, CI: 3.8, 43.8 and 25.7%, 95% CI: 17.8, 33.6, respectively). There was some evidence to suggest that educational pamphlets or brochures might also improve compliance.

Six behavioural interventions were assessed, including reminders, transport incentives and other payment vouchers. A telephone reminder showed significant improvement in one RCT at the initial follow-up (n=433, effect size 17.9%, 95% CI: 8.8, 27.0) but not at the 6-month follow-up (n=77). Letters alone did not improve follow-up in one RCT (n=1,425). A letter and telephone reminder showed significant improvement in one RCT in women with any abnormal cancer screening result, not just Pap smears (n=393, effect size 20.8%, 95% CI: 13.1, 28.5).

One sociologic intervention was assessed. This comprised video-taped peer discussions containing a message about abnormal Pap smears and follow-up. This did not increase follow-up.

The findings from eight combined interventions in 3 studies (RCTs) were inconsistent.

Authors' conclusions
Cognitive interventions led to the greatest improvement in compliance with follow-up.

CRD commentary
The review addressed a clear question with explicit inclusion criteria for the study design and the outcome of interest. The more broadly defined inclusion criteria for the participants and the intervention were appropriate for the identification of potentially relevant studies. The search for studies was not extensive and was probably biased towards the identification of published literature from the USA, as is reflected by the included studies. The authors acknowledge the possible overestimation of effect because of publication bias in this review, but the possibility of language bias was not discussed. There were no details of how the review was conducted; it is not therefore possible to
assess the potential for bias or errors in the study selection and data extraction processes. The validity of the included studies was not assessed.

It was appropriate not to pool the data because of the many differences between the studies. The narrative summary was appropriate. However, there were insufficient details of the individual included studies for the reader to compare the findings from one study with another, in particular in the context of the intervention and participant characteristics. It was not stated whether the reported data were intention to treat. The results were presented by intervention, but within-study comparisons of different categories of intervention appear to have been ignored. Consequently, the authors' conclusion that cognitive interventions led to the greatest improvement is based on indirect comparisons; only one study included a direct comparison, comparing a cognitive intervention with a behavioural intervention. The data analysis in this review can only inform conclusions based on comparisons of an intervention with a control group in individual studies. Interpretation of any effect, however, is problematic because the characteristics of standard care experienced by the control groups were not reported, only that the interventions were classified by how they differed from those delivered to the control groups.

In summary, the methods of this review do not ensure a reliable conclusion.

**Implications of the review for practice and research**
Practice: The authors state that cognitive strategies appear to have the greatest potential to improve follow-up.

Research: The authors state a number of important priorities. In particular, research should address the use of similar interventions to follow-up abnormal breast and colon cancer screening; the development of physician and health care system targeted interventions; and an evaluation of cost-effectiveness.

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