Plain tobacco packaging: a systematic review

CRD summary
This review concluded that available evidence suggested plain tobacco packaging had the potential to contribute to reductions in the harm caused by tobacco smoking. Despite shortcomings in the quality and generalisability of the primary evidence, the relative consistency of observed effects across studies suggests that the authors’ cautious conclusions are reliable.

Authors' objectives
The systematic review addressed a number of questions about plain tobacco packaging (defined in paper). This abstract summarises evidence related to the impact of plain tobacco packaging on the appeal of the packaging or product; salience and effectiveness of health warnings; perceptions of product strength and harm; and any other benefits or harms.

Searching
Twenty-one electronic databases, including MEDLINE, EMBASE, The Cochrane Library, PsycINFO, ERIC and Sociological Abstracts were searched for relevant studies published between 1980 and August 2011. Search terms and a PubMed search strategy were presented. Further relevant evidence was identified from searching the internet, the Legacy Tobacco Documents Library, citations from retrieved papers, and by directly contacting research and non-governmental organisations. The search was not restricted by language or publication status.

Study selection
Primary studies of any design concerned with tobacco packaging and human populations were eligible for inclusion. Two reviewers selected studies for inclusion.

Surveys, qualitative, quantitative and mixed-method studies to investigate the various impacts of plain tobacco packaging in both smokers and non-smokers (frequently young people) were included in the review. Most studies were conducted in Australasia, with others from Canada, USA, UK, France, Belgium and Brazil. Included studies assessed the impact of plain packaging on: appeal; salience and effectiveness of health warnings; perceptions of product strength and harm; smoking-related attitudes, beliefs, intentions and behaviour.

Assessment of study quality
Included studies were rated as low, medium or high quality, according to different sets of assessment criteria for different study designs. Surveys and qualitative studies were rated against six criteria related to sampling, data collection and data analysis. Intervention studies were considered trustworthy if they were judged to have avoided selection, attrition and outcome reporting biases. The relevance of each study to the review question was also assessed. Studies considered to be of low quality were excluded from the synthesis.

Two reviewers assessed study quality, with disagreements resolved by consensus.

Data extraction
Two reviewers extracted data on study characteristics and outcomes, and resolved disagreements through consensus. Where possible, effect sizes (typically odds ratios for dichotomous outcomes) were calculated for the main populations and outcomes of interest; standardised mean difference was calculated for one study reporting continuous data.

Methods of synthesis
Studies were combined in a narrative synthesis, with studies grouped by theme (impact on appeal, salience of health warnings, perceptions of product strength and harm, smoking-related attitudes, beliefs, intentions and behaviour). The direction, magnitude, and statistical significance of effects in individual studies were reported.

Results of the review
A total of 41 studies met the initial inclusion criteria. Two studies were excluded because the analysis was incomplete, a further two were excluded because they were considered to be of low methodological quality. Of the remaining 37 studies, six were considered to be high quality and 31 medium quality.

**Appeal of cigarettes, packs and brands (28 studies)**: All studies reported that adults and children rated plain packs as less attractive than branded equivalent packs. Plain packs were perceived to be poorer quality, poorer tasting and cheaper than branded equivalents. Overall, plain packaging weakened positive impressions of smoker identity and personality attributes associated with specific brands. Non-smokers and younger people responded more negatively to plain packs than did smokers and older people. Women found plain packaging less appealing than men. There were no consistent differences by ethnicity or socioeconomic status.

**Salience of health warnings (12 studies)**: Overall, included studies suggested that plain packaging increased the recall, attention and perceived seriousness and believability of health warnings. Findings appeared to be moderated by the type, size and position of the health warning. One study examining subgroup differences, reported that non-smokers and weekly smokers may pay more attention to warnings on plain packs than daily smokers. No studies examined gender, age or other socio-demographic differences.

**Perceptions of product harm and strength (16 studies)**: Overall, plain packs were perceived as more harmful than branded packs if in a darker colour but less harmful than branded packs if in lighter colours. Red packs were perceived to contain stronger cigarettes than light-coloured packs. Use of descriptors such as "gold" or "smooth" appeared have the potential to mislead consumers about harm on plain and branded packs. Generally, smokers were more likely to have misperceptions about the harmfulness of both kinds of pack than non-smokers. no consistent patterns emerged in relation to perceptions by age, gender, or other socio-demographic characteristic.

**Smoking-related attitudes, beliefs, intentions and behaviour (16 studies)**: Plain packs appeared to increase negative feelings about smoking. Plain packs were generally perceived as likely to have a deterrent effect on the onset of smoking by young people and likely to encourage existing smokers to reduce their consumption or to quit, but in some studies they were perceived as likely to have little impact. Non-smokers, less regular smokers and younger people were more likely to perceive that plain packs would discourage or reduce smoking. There were no reported differences between gender.

Results on facilitators and barriers to the implementation of plain packaging policies are reported in the paper.

**Authors' conclusions**
The available evidence suggested that plain packaging had the potential to contribute to reductions in the harm caused by tobacco smoking.

**CRD commentary**
This review addressed a broad research question that was supported by appropriate inclusion criteria and comprehensive searches to identify all relevant published and unpublished data. The authors assessed the methodological quality of included studies and excluded those most likely to have been biased or unreliable. Attempts were made to minimise the potential for errors and bias throughout the review process, and the synthesis took account of the direction and magnitude of study effects, rather than just statistical significance.

The authors of the review acknowledged limitations of the available evidence, specifically the preponderance of correlational studies, and studies using hypothetical scenarios and/or samples unrepresentative of the general public. The review pre-dates the implementation of any national plain packaging policy, so no evidence was available at the population level. However, the relative consistency in the observed effects across a range of populations, countries, and study designs suggest that the authors cautious conclusions about the potential effects of plain tobacco packaging are reliable. The authors also presented details of several ongoing studies which were not included in the review.

**Implications of the review for practice and research**
The authors did not state any implications for practice or research.

**Funding**
Department of Health Public Health Research Consortium.
Bibliographic details

Original Paper URL

Indexing Status
Subject indexing assigned by CRD

MeSH
Humans; Product Packaging; Public Health; Smoking /prevention and control; Health Promotion

AccessionNumber
12013015547

Date bibliographic record published
19/04/2013

Date abstract record published
29/11/2013

Record Status
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.