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***Review of the Research on the
Effectiveness of Health Service
Interventions to Reduce Variations in
Health***

CRD REPORT 3

**Review of the Research on the Effectiveness of
Health Service Interventions to
Reduce Variations in Health**

Part 1

October 1995

FOREWORD

This is the first of two reports which review the evidence regarding the effectiveness of health service interventions in reducing variations in health.

This report concentrates on studies which evaluate interventions specifically aimed at reducing morbidity or improving health in Health of the Nation areas in disadvantaged groups. It is being published now in order to coincide with the deliberations of the Chief Medical Officer's Sub-group on Variations in Health, for which this has served as a background paper.

The second phase of the work will identify and examine systematic reviews in areas relevant to this report, and extend the search of studies to cover research published over a longer time period and covering a broader range of interventions, with a view to providing a more comprehensive assessment of the evidence.

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SUMMARY

Objective

To review the available research in order to identify evaluations of interventions which the NHS alone or in collaboration with other agencies could use to reduce variations in health.

Methods

Between October 1994 and June 1995 a search of the literature was undertaken using a number of computerised databases including Medline (from 1990), Applied Social Science Index and Abstracts (1987-1994), and the System for Information on Grey Literature in Europe (1984-1994), on a large range of key words. Existing reviews relevant to this area were also used to identify studies. In addition experts, people attending relevant conferences and the public health network were contacted to identify studies.

Studies were included if they assessed interventions designed to reduce variations in health or to improve the health of a population group relevant to the review, and could be carried out by the NHS alone or in collaboration with other non-statutory agencies. Papers reporting a direct or intermediate health outcome relevant to the Health of the Nation (HoN) target areas were of particular interest. Only intervention studies with an experimental or quasi-experimental design were included. Papers in any language were considered.

The diversity of the interventions, settings, populations and outcomes studied did not permit a sensible quantitative synthesis of the results. A narrative review of the individual study results was carried out in an attempt to identify possible patterns in the data or characteristics of successful interventions.

Results

94 studies were identified which satisfied all the inclusion criteria.

Characteristics of interventions which appear to have been successful at reducing variations in health or improving the health of high-risk groups include: systematic and intensive approaches to delivering effective interventions, improvement of accessibility to services, prompts to encourage use of services, multifaceted strategies, strategies involving collaboration between interest groups, ensuring interventions address the expressed or identified needs of the target population, and the involvement of peers in the delivery of interventions such as home visiting.

However, these characteristics alone are not sufficient for success; there are examples of interventions with these attributes in which the evaluation showed no reduction in health variations.

A comparison of these results with other reviews, including observational studies, did not indicate that any significant type of intervention which might be effective at reducing variations in health had been overlooked.

Conclusions

There are interventions which the NHS, either alone or in combination with other agencies, can use to reduce variations in health. Whilst removal of the financial barriers to accessing health care can make an important contribution to reducing variations in health, this is not in itself sufficient to prevent all avoidable variation.

This review has shown that good experimental methods such as randomised controlled trials can be used to carry out rigorous evaluations of interventions to reduce variations in health. Further coordinated and rigorous evaluations of promising interventions would be useful, as would research to estimate the proportion of the total variation in health which could be reduced by means of health service interventions of the type described. Commissioners of health services could additionally undertake an "equity audit" of the services they commission to identify priority areas for interventions and monitor change.

It is hoped that the effective interventions identified in the review will help purchasers and providers of health services at local level use their resources more equitably and assist in the shaping and evaluation of future initiatives designed to address variations in health.

1 INTRODUCTION

This is the report of a research review commissioned by the NHS Executive to inform the work of the Chief Medical Officer's sub-group on variations in health. The review aims to provide reliable evidence about the effectiveness of interventions which could be undertaken within the NHS (either alone or in collaboration with other agencies) to reduce variations in health. The interventions considered are those seeking to reduce variations in the Health of the Nation (HoN) areas (coronary heart disease (CHD) and stroke, cancers, mental illness, HIV/AIDS and sexual health, accidents and smoking (one of the targeted risk factors)) and the non-HoN area of general health (child health and development, health in pregnancy, nutrition, growth). The review was carried out between October 1994 and June 1995.

1.1 Factors associated with variations in health

The health of individuals and populations is associated with a variety of factors, including socio-economic status, gender, age, ethnicity and locality, leading to variations in health whereby certain groups in society suffer poorer health outcomes than others. The factors which influence these variations have been described extensively (Feinstein, 1993; Kreiger et al, 1993; Davey Smith et al, 1994; Mackenbach et al, 1994) and a comprehensive classification of these factors has been proposed by Whitehead (1990).

People in disadvantaged groups not only have higher mortality rates and experience increased morbidity, they are also less likely to receive good health care (Ben-Shlomo and Chaturvedi, 1995). Recent research suggests that in some areas of the UK, variations in health (as measured by mortality rates) have been increasing (Phillimore et al, 1994).

There is a substantial literature examining the possible determinants of variations in health of population sub-groups. These factors include: material circumstances associated with, for example, income, employment status and housing; non-material 'social' factors such as knowledge, beliefs and personal relationships; health behaviour such as diet, smoking and level of physical activity; risk factors such as elevated serum cholesterol levels; and access to and utilisation of effective health services. It is difficult to disentangle the relative impact of factors. Indeed, the relationships may depend on complex interactions between many such factors (Graham, 1987).

The association of particular factors with poor health does not necessarily imply a causal relationship. The exact nature of the link is the subject of considerable debate (Bartley, 1992) and

research (Mackenbach et al, 1994 and the Economic and Social Research Council's proposed programme on health variations (due to start in 1996)). This report does not review the evidence on these determinants, nor develop its own model, although an appreciation of likely causal factors is necessary in order to identify relevant interventions.

1.2 Interventions

The review focuses on studies of interventions which could be carried out within the NHS, either alone or in collaboration with other agencies, at national or local level. Clearly the scope for reducing variations in health using this type of intervention will be limited. However, the potential of other approaches, such as macro-level policy changes to improve levels of employment, income and education among people who are most deprived, is not the subject of this review.

The provision of universal access to health care free at the point of delivery, as embodied in the NHS, can itself be considered an intervention to reduce variations in health. When the NHS was established there were huge variations in the quality of, and access to, health care between different parts of the country and social groups. Significant progress has been made since then in reducing the geographical variations in access to services and in improving access to health care for people who are poor, principally through free access to health care and attempts to ensure a more equitable distribution of health services. Studies in the USA have clearly demonstrated that reducing financial barriers to access to health care so that it is free at the point of delivery can improve the health of disadvantaged groups and contribute to equity (RAND Health Insurance Experiment, Brook et al 1983; Keeler et al, 1985; Orr and Miller 1981; Rosenbach 1989). However, evidence also exists to show that, while removing financial barriers may be a necessary condition to improving equity, it is not in itself sufficient (Short and Lefkowitz, 1992).

There is some evidence that access to health care is not directly proportional to need, and that for some procedures (such as coronary heart bypass graft surgery and hip replacements) people in more deprived areas receive less health care than those living in more affluent areas with lower levels of morbidity (Stitt and Grant, 1993; Ben-Shlomo and Chaturvedi, 1995). There is also evidence that people from ethnic minority groups might not get equal access to health care (Hughes et al, 1989; Ahmad et al, 1995). Thus one approach to reducing variations in health is to ensure that the health services which are known to be effective at maintaining or improving health are provided in an equitable manner. This means ensuring access, in some cases preferential, for people in the groups with the greatest health needs.

Literature addressing this approach is not considered in this review in a comprehensive way since it would mean a general review of effectiveness of all health-care interventions in which relevant social or geographical groups had poorer health outcomes. There have been systematic reviews of evidence relating to interventions likely to reduce variations in health in particular areas (prevention of CHD and stroke in older people; ethnicity and health). Furthermore, there are other systematic reviews which, although not aimed specifically at reducing variations in health, have findings which, if applied selectively, could be expected to do so given that the socially disadvantaged are at higher risk (preventing childhood accidents, improving pregnancy outcomes). Summaries of the conclusions of these reviews are provided after discussion of the results of this review, on pages **Error! Bookmark not defined.** to **Error! Bookmark not defined.**. Enough is known about effective health promotion or treatment interventions to be able to develop a strategy for improving equity of access for those with poorer health outcomes. This approach will be effective only to the degree to which the interventions used are effective and acceptable to people in these groups.

1.3 Extent of the review

Although the review has been conducted systematically, it will necessarily omit a substantial proportion of best or effective practice which has never been formally evaluated or reported. Published evaluations have often failed to measure or systematically record relevant outcomes, and these too have been excluded. This review will also have missed some studies (particularly prior to 1990) because the literature is scattered over a wide range of journals and covers several disciplines.

In addition to socio-economic status and ethnicity the remit of the review included gender, age and regional differences. However, the small number of relevant studies identified for these latter categories were considered to be an unrepresentative sample and data from these studies were not systematically abstracted (eg Wilson and Barry, 1993).

A number of comprehensive general approaches to improving health in disadvantaged groups have used pre- and peri-school interventions, particularly in the USA (George et al, 1982; Schorr and Schorr, 1988). One of the most important of these was the Project Head Start programme in the USA. Given the number and diffuse nature of these programmes, it was decided not to review systematically these early, primarily educational, interventions. However, the results of the evaluation of Project Head Start are considered in the results section.

2 RESEARCH QUESTION AND METHODS

2.1 Research question

The broad question addressed by the review is, what interventions of a broad public health nature have been shown to be effective in reducing variations in health, or in influencing intermediate outcomes which are likely to impact on these variations?

From this question, the reviewers set out to identify the strategies which appear successfully to reduce variations in health and, from these strategies, to identify common characteristics of successful interventions.

In the light of these findings the review examines the implications for methods by which the health services in the UK can reduce variations in health, and provides recommendations for the design of future evaluations of interventions.

For the purposes of the review:

- i) The variations in health status of primary interest are those associated with differences in socio-economic status, gender, ethnicity, age or geographical region.
- ii) The health issues of primary concern relate to the Health of the Nation key areas: CHD/stroke, cancer and smoking, mental health, sexual health and AIDS/HIV, accidents as well as the risk factor of smoking. Interventions which address more general health areas (child health and development, health in pregnancy, nutrition and growth) are included where possible.
- iii) An intervention is defined as an activity for which resources (public, voluntary or private) are used with the intention of improving the health status of a target group both absolutely and relatively.

2.2 Methods

2.2.1 Inclusion and exclusion criteria

To be included in the review, reports of research had to satisfy criteria of relevance, outcome and design.

- i) Relevance - Studies which reported evaluations of interventions which were designed to reduce variations in health or to improve aspects of the health of a disadvantaged population relevant to this review, and which could be carried out by the health services alone, or in conjunction with other non-statutory agencies, in the UK. Macrosocio-economic interventions were excluded.
- ii) Outcome - Studies reporting outcomes which were either (a) health outcomes or (b) intermediate outcomes for which either the reviewers were aware of evidence of an impact on health (eg smoking) or it was plausible that there was an impact on health, although the reviewers were not aware of supporting evidence.

The reviewers were inclusive in their approach and the review examined a wide range of outcomes. Emphasis was placed on interventions which examined the direct impact on health or intermediate outcomes for which the reviewers were aware that there was reasonable evidence to indicate an effect on health. No attempt was made to identify literature to support the use of outcome measures for which the reviewers were not aware of any evidence of an impact on health.

- iii) Design - Research which used an experimental or quasi-experimental study design. Observational studies such as cohort and case control studies were excluded because they are more susceptible to bias which makes it more difficult to attribute cause and effect.

It is usual in conducting a review to develop a hierarchy of evidence (Box 1) which distinguishes between study designs according to their susceptibility to bias (Sheldon et al, 1993). Well-conducted randomised controlled trials (RCTs) are more reliable than non-randomised controlled trials. It is generally acknowledged that well-designed experimental studies are more reliable than observational (epidemiological) studies when evaluating the effectiveness of interventions because of greater control over the study variables and confounding factors.

In reality the variability in the quality of experimental designs means that poor experimental studies probably are less reliable than good prospective cohort studies. However, due to the broad nature of the review, the extent of the potentially relevant literature and the limitations on the time available, the whole range of study designs could not be examined in detail, and so only experimental studies were considered. The

implications of excluding observational study designs are discussed on pages **Error! Bookmark not defined.** to **Error! Bookmark not defined.** in order to ascertain the degree to which significant research findings might have been missed.

Studies from all countries and in any language were considered. No attempt was made to assess the total impact on variations in health that equitable access to known effective health-care services might have.

It is very likely that there are interventions which can reduce variations in health which have not been evaluated using the study designs considered in this review. The reviewers identified many descriptions of interventions which have not been formally evaluated and therefore the results presented here, while hopefully representing a good summary of the research, may not adequately reflect the full range of potentially effective interventions.

Box 1 Hierarchy of evidence (adapted with permission from Woolf et al, 1990)

I	Well designed randomised controlled trial
II-1	Other types of trials: <ul style="list-style-type: none">• Well designed controlled trial without randomisation• Quasi-experiments
II-2	Well designed cohort (prospective) study, preferably from more than one centre
II-3	Well-designed case-control (retrospective) study, preferably from several centres
III	Large differences from comparisons between times and/or places with or without the intervention
IV	Opinions of respected authorities based on clinical experience; descriptive studies and reports of expert committees.

2.2.2 Identifying the relevant literature

The relevant literature was identified by means of discussions with consultants to the review, requests for materials, and direct and indirect approaches to experts in the field.

- i) Consultants (Appendix I) helped by providing references, identifying researchers working in the area, and by commenting on draft documents.
- ii) Requests for relevant literature, including both published and unpublished evaluations of interventions to reduce variations in health, were made to:

Researchers and experts working in this area (Appendix II)
 Directors of Public Health in UK health authorities and boards
 Regional directors of research and development
 Executives of Family Health Services Authorities
 Staff of academic departments of public health
 Representatives of the Medical Royal Colleges
 Non-statutory bodies such as voluntary agencies (Appendix III)

- iii) Delegates to conferences and meetings were approached for information directly and indirectly (Appendix IV) and arrangements were made for the translation of a major Dutch review of interventions in this area (Gepkins and Gunning Schepers, 1993).

2.2.3 *The search strategy*

Search terms were identified for use in obtaining preliminary information from databases (Appendix V) and a preliminary search of fourteen databases was undertaken. This was revised in the light of the findings, and a final search strategy was developed for use with three major databases: Medline (1990–September 1994), Applied Social Science Index and Abstracts (1987–1994) and the System for Information on Grey Literature in Europe (1984–1994). Full details of the databases searched are contained in Appendix VI.

The final search strategy used on Medline (Appendix VII) retrieved papers which included MeSH headings or textwords to indicate that they:

- i) reported a research study or evaluation
- ii) described an appropriate strategy
- iii) mentioned one of the factors associated with variations in health defined above on page **Error! Bookmark not defined.**
- iv) mentioned outcomes appropriate to the study or words suggestive of changes in indicators

of health.

In addition, a number of literature reviews, particularly in the area of health promotion, were examined to identify cited studies of relevance.

2.2.4 Inclusion and data extraction

One reviewer assessed titles and abstracts for relevance, outcome and target population using the criteria set out above and a second reviewer checked the assessments. Papers that were selected were then examined using the criteria above. Those to be excluded were checked by a second reviewer, and in the case of uncertainty, passed to a third member of the review team before a final decision on exclusion was made.

Data from each study were extracted by one reviewer using a standard form (see Appendix VIII) and checked by another. Studies which had been published in more than one place were included only once. Where feasible, attempts were made to check related papers and/or to contact authors to obtain important data not included in published reports.

3 RESULTS

The final search of the Medline database (1990–1994) produced 8400 titles. Abstracts for 353 of these were each assessed by two reviewers, and a hard copy was obtained for more than 250 papers. In addition a number of papers referenced in articles and relevant reviews were read. Two of these reviews specifically examined the evidence of effectiveness of interventions to improve the health of people living in areas of socio-economic deprivation (Gepkens & Gunning-Schepers, 1993; Bunton et al, 1994).

This report on 94 studies which relate to Health of the Nation (HoN) and general health areas includes 19 papers from the UK, 68 from the USA and 7 from other countries; 63 relate to HoN categories and 31 to general health categories; 38 used randomised controlled trials. Although studies which used both qualitative and quantitative outcome measures were included, no studies relevant to the review which used an experimental/quasi-experimental design with only qualitative outcomes were identified by any part of the search strategy.

Tables 1–7 (pages 39-53) detail the relevant studies categorised by HoN area with brief summaries of the interventions and outcomes measured. The studies which carry the strongest evidence of the

success of the intervention in reducing variations in health are marked with an asterisk. Table 8 (pages 54-124) summarises the key findings extracted from all the studies included in the review, but does not reproduce the full methodology, findings and discussion points.

Table 8 presents the following features.

- i) Study - The authors and the year of publication of the paper which was used as the main source of information about the study are recorded.
- ii) Review categories, study population, country, study design, study size - The first entry denotes the health area addressed as either HoN or general health. The second identifies the characteristics of the target group associated with variations in health considered in the study (eg either socio-economic, ethnicity or both). The third entry contains a description of the people to whom the intervention was given, and includes the country in which the study was carried out (n.b. several entries refer to public (American definition) clinics or schools. This implies that the clinics or schools are attended by people who are predominantly from low income backgrounds). The fourth entry contains the reviewers' description of the study design. For RCTs the unit of allocation is the individual, unless otherwise stated. Finally, the study size refers to the numbers allocated to each intervention group, unless otherwise stated.
- iii) Intervention - Presents a summary of the key features of the intervention(s) studied.
- iv) Outcomes - A list of those outcomes measured after the intervention which the reviewers considered most relevant to this review (health outcomes have received priority). Unless otherwise stated the period of follow-up refers to the time between the delivery of the intervention and the final outcome measurement.
- v) Results - Those results considered most important to this review have been summarised. The results of tests of statistical significance have been quoted as given in the study.
- vi) Commentary - Features of the study design which have a bearing on the reliability of the evidence, and a note of other key factors which should be taken into account when interpreting the results are described.
- vii) Implications - A general indication of the strength of the research evidence reported from

the study and how much this appears to be a potentially useful intervention which the NHS could use in attempts to reduce variations in health has been given. Where relevant, suggestions for future research have been made.

3.1 Characteristics which may affect the success of interventions

Results are discussed according to the characteristics of ways of delivering initiatives (e.g. intensive, multidisciplinary) and features of the content of initiatives (e.g. prompts and reminders to attend, provisions of materials). However, these characteristics are not of themselves sufficient for success; there are examples of interventions with these attributes in which evaluation showed no reduction in improvement in health outcomes/indicators for the target group. In addition, a number of interventions which were poorly evaluated nevertheless produced promising results which might deserve more attention.

3.1.1 Intensive approaches

Some of the interventions were characterised by a vigorous and intensive approach to the identification and subsequent treatment of individuals. Levine and Bone (1990), working in the USA, used community health workers to screen, counsel, follow-up and monitor people with high blood pressure, focusing their efforts on young black males recruited from the hospital casualty department. A similar approach was used by Stamler et al (1987). Tudor Hart et al (1991) in a less rigorous study found this approach useful in tackling a wider range of health problems in a UK primary care setting.

However, while intensively targeted interventions proved beneficial in some circumstances, they did not have an effect in all the studies reviewed, and the size of their effect varied. For example, Marsh and Channing (1988) conducted an intensive campaign to improve uptake of a variety of preventive services in primary care in the UK, and while they achieved some success in encouraging the measurement of blood pressure, little difference was demonstrated between the intervention and control groups with respect to uptake of cervical (Pap) smears.

3.1.2 Multifaceted approaches

Some interventions used a multifaceted approach in an attempt to overcome several potential barriers to success. Freeborn et al (1978) trained their outreach workers in the USA to address a number of issues in order to improve the uptake of ambulatory care services by low-income

families. These included teaching the value of good health and health practices, encouraging and assisting with the use of health services and directing people to appropriate community resources.

Also in the USA, Bush et al (1989) evaluated an intervention comprising a school-based curriculum, personalised health screen at the start of each school year, use of a personal 'health passport' record for children and a quarterly magazine for parents. While the quality of the evidence in terms of cause and effect was relatively weak, the results suggest that the intervention had a positive effect on the key risk factors for coronary heart disease in the target population.

3.1.3 Multidisciplinary approaches

Several interventions involved a multidisciplinary approach, or collaboration between agencies and between lay and professional groups. A coalition of local agencies used a variety of activities such as an improvement of play areas (children were involved in mural painting etc), provision of sports clinics, and safety programmes to reduce accidents among children and adolescents (Davidson et al, 1994).

3.1.4 Face to face interactions

Many interventions involved face to face interactions with individuals or small groups, often in an informal setting. The variation in the precise nature of these interactions makes anything other than a broad interpretation difficult.

The interventions can be described in terms of two general dimensions (Figure 1). The horizontal axis ranges from more structured interactions, such as a standardised presentation to improve knowledge and attitudes relating to HIV/AIDS (Ashworth et al, 1994), to the informal, more flexible interactions described by Wasylenki et al (1993) in the form of highly individualised meetings between homeless people and case managers seeking to improve the mental health of their clients. The vertical axis ranges from client-directed interventions according to the clients' expressed preferences or established needs (eg, the attempt to improve the mental health of homeless people, Morse et al, 1992), to professionally directed interventions (eg, aimed at increasing the uptake of cervical screening, Kegeles, 1969).

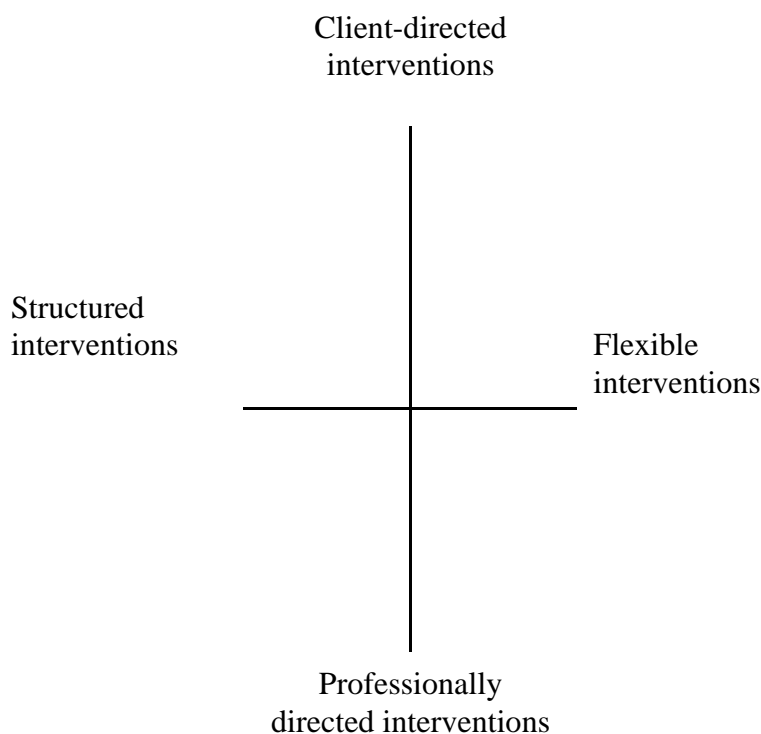
3.1.5 Interventions delivered to groups and/or individuals

Some group and individually delivered interventions were evaluated successfully. Both educational interventions given to individuals (Ashworth et al, 1994) and group education and discussion sessions (Kelly et al, 1994) were shown by the authors to improve AIDS-related knowledge and attitudes of disadvantaged women in the USA.

Insight into the potential outcomes of group as compared to individual interventions comes from Kistin et al (1990). In order to improve breastfeeding rates, they provided an educational intervention either in a group discussion session or in a one-to-one contact session. Both approaches achieved higher breastfeeding rates than a control group which received no educational intervention. However, the results also appear to show that group discussion may be better at reinforcing a decision to breastfeed, while individual contact may be more successful in changing the minds of women who had initially intended to bottlefeed.

There is no clear evidence to indicate the situations in which outcome depends on whether an intervention is given to individuals or to groups.

Figure 1 **Dimensions of face-to-face interventions**



3.1.6 *Settings*

Interventions in a variety of settings have been shown to be effective, although the findings of this review do not indicate that one setting may have advantages over another. There are advantages and disadvantages inherent in most settings, which are complex concepts, and comprise only one element of a complex intervention.

For example, many successful interventions involved home visiting. Although at first glance a home visit seems to be a relatively simple type or feature of an intervention, on closer inspection, the interventions which involved home visiting varied greatly by who was visited at home (e.g. families (Yanochik et al, 1976; Freeborn et al, 1978), pregnant teenagers (Julnes et al, 1994)); by whom they were visited (e.g. health visitor (James et al, 1992), trained peer (Graham et al, 1992)); what was done during the visit (e.g. discussion (Johnson et al, 1993), assessment of client or home (Colver et al, 1982), presentation of a video (McAvoy and Raza, 1991)); how long the home visits lasted and how frequently they occurred (Lee, 1988; James et al, 1992; Field et al, 1980) and what they were trying to achieve (e.g. to encourage attendance at clinics for preventive health services (Kegeles, 1969; Hoare et al, 1994), to improve quality of nutrition (Lee, 1988), to improve the quality of child care (Field et al, 1980), or to prevent accidents in the home (Colver et al, 1982))

These studies do not allow the reviewers to say why home visiting might contribute to the success of an intervention, although possible mechanisms include interactions taking place on the client's rather than the professional's territory and the client's perceptions that the professional cared enough or the subject was sufficiently important to warrant a visit. Home visits may also allow the intervention to be better tailored to the client's needs (e.g. Colver et al 1982).

While home visiting is seen as a component of many successful interventions, it may be more appropriate for some target populations and health objectives than others. There was no increase in uptake of breast cancer screening in an ethnic minority group in one study (Hoare et al, 1994), and Tableman et al (1985) found that disadvantaged women with young children valued the social contact provided by small group training sessions held outside the home.

Interpreting the value of other settings, such as schools, requires a similar degree of caution. School-based educational sessions may be delivered by classroom teachers who may be specially trained or not (Walter and Vaughan, 1993), volunteer medical students (Benson et al,

1986) or trained older pupils from the same school (Howard and McCabe, 1990), to mixed or single-sex groups of different sizes, dealing with different topics.

3.1.7 Prior needs assessment to inform intervention design

Some studies reported a form of needs assessment of the target group before the design of the intervention was complete. This consideration of needs is intuitively appealing. However, it is not possible to establish from the studies reviewed the extent to which tailoring the intervention contributed to the outcome. Examples of interventions derived from needs assessment were reported by Dennison (1972), who based an instructional programme for schoolchildren in general health areas on the findings of a baseline knowledge assessment exercise, by Colver et al (1982), who identified hazards in family homes before providing specific advice on preventing domestic accidents and by Howard and McCabe (1990), who, after talking to teenagers attending a family planning clinic, ensured the intervention included techniques on how teenagers could resist pressure to have sex.

3.1.8 Ensuring interventions are culturally appropriate

A related issue is the need for sensitivity to the culture of the target group. For example, McAvoy and Raza (1991) used an identifiably Muslim assistant to visit women of New Commonwealth and Pakistani descent at home and produced videos and leaflets in relevant languages to improve uptake of cervical screening in this group.

Jemmott and Jemmott (1992) incorporated the findings of interviews with members of the target group in the design and development of their intervention to promote condom use in order to prevent the spread of AIDS. Quirk et al (1993) evaluated an AIDS-prevention programme given by a trained peer using a professionally produced rap video based on lyrics written and performed by local teenagers.

However, it should also be noted that Hoare et al (1994) found that home visiting of Bangladeshi and Pakistani women by culturally matched linkworkers to encourage attendance at breast screening clinics failed to improve uptake rates compared to the control group.

3.1.9 The importance of the agent delivering the intervention

The characteristics of the agent delivering the intervention may be difficult to separate

completely from the cultural appropriateness of the situation, but it must be recognised that the people who deliver the intervention may be as important as the intervention and its setting. They include health professionals, educational professionals and outreach workers. Several successful interventions were carried out by non-professional volunteers, often recruited from the target population and trained to perform a task such as delivering a particular message. For example, Howard and McCabe (1990) used 11th- and 12th-year pupils trained by staff from the local hospital conducting the intervention to help deliver sex education to 8th-year pupils; Johnson et al (1990) used volunteer experienced mothers trained by local public health services staff conducting the intervention to support new mothers living in deprived areas; Freeborn et al (1978) used outreach workers recruited from disadvantaged communities trained to encourage appropriate use of ambulatory care services by other low-income families.

McAvoy and Raza's (1991) study, mentioned above, provides an example of a situation where the cultural appropriateness both of the individual delivering the intervention and of the intervention were taken into consideration. They not only ensured that the materials were culturally appropriate to Asian women but also that the person delivering the intervention was Muslim.

3.1.10 Support materials

Several interventions used educational materials such as booklets and videos either in addition to other approaches or on their own. Most of the studies gave only brief details about the precise content or the presentational style. This fact, along with the diversity of educational materials and the overall range of the interventions of which they were part, makes it impossible to derive clear advice on the nature of effective educational materials.

In some circumstances, educational materials may actually increase variations in health. For example, Hibbard (1979) gave an educational booklet to pregnant women and encouraged them to attend mothercraft classes. They found that women in higher social classes showed far greater improvements in knowledge between early and late pregnancy than those in lower social classes.

3.1.11 Developing skills

Barriers to the uptake of health care, or to changing behaviour in order to reduce health risks, include not only a lack of knowledge but also a limited capacity to act upon the relevant

information, because of a lack either of skills or of material resources. Some of the interventions aimed to develop skills which might facilitate the adoption of more health-promoting activity.

Howard and McCabe (1990) used audiovisual materials to illustrate some of the pressures on adolescents to have sex and attempted in their intervention to enable this group effectively to resist these pressures by developing appropriate skills. Kelly et al (1994) used group sessions to help disadvantaged young Afro-American women recognise personal triggers to risk-taking sexual behaviour, and develop assertive techniques which would enable them to reduce their risk of HIV infection. Morse et al (1992) provided, among other things, interpersonal and community living skills training for homeless mentally ill people.

3.1.12 Provision of material support and resources

Some interventions offered material support in attempts to reduce barriers to the uptake of health services or to increase participation in group activities. This included free transportation to antenatal and child health clinics for women living in poor rural areas (Olds et al, 1994), and free transportation, child care and refreshments for young mothers attending stress-management training sessions (Tableman et al, 1985).

Setting up a citizens' advice bureau in a primary care or mental health day centre has been shown to help people in disadvantaged groups gain greater access to advice and resources, specifically in the form of welfare payments or benefits (Paris and Player, 1993; Veitch, 1994a, b).

3.1.13 Provision of prompts and reminders to attend

Several successful interventions used prompts or personal reminders to encourage people to use services or keep appointments. Planos and Glenwick (1986) found that attendance rates at a scheduled mental health assessment were higher with a telephone or postal reminder one or two days ahead than with no intervention. Lerman (1992) arranged for a health educator to telephone predominantly low income black women who had missed a previous appointment for colposcopy (cervical examination), to identify barriers to attendance and to address these using scripted messages. They showed greater subsequent attendance rates by women who received the messages than by those who did not.

Hochstadt and Trybula (1980) found that both telephone and postal reminders were associated with higher attendance rates at a community mental health clinic than if no reminders were issued. However, staff who had previously used the time created by clients missing appointments to complete reports and do other work felt increasingly overworked as more people turned up for their appointments.

3.2 Recommendations of other reviews of effectiveness of interventions

Policy-makers seeking to tackle variations in health in specific areas may find the recommendations of, and certain references from, other systematic reviews to be useful. This can be illustrated by examining four reviews focusing on a number of areas. Two of the reviews relate to areas likely to reduce variations in Health of the Nation areas directly (ie, reducing variations due to coronary heart disease (CHD)/stroke in the elderly and for CHD/stroke and mental health in ethnic minority groups). The other two (prevention of childhood accidents and improving pregnancy outcomes), while not aimed specifically at reducing variations in health of population sub-groups, may provide effective guidance since the groups at greatest risk – and therefore most likely to benefit – are those who are most socio-economically deprived. We are currently identifying and reviewing other reviews to assess their implications for tackling variations in health and this will be made available in 1996.

Since space constraints here prevent comprehensive discussion, the interested reader is directed to the relevant review for further, fuller details.

3.2.1 Ebrahim and Davey Smith (1995): 'Health promotion for CHD and stroke prevention in older people'

Because some health care professionals mistakenly assume that treatments are less effective in older people, that increases in risk factors such as high blood pressure are somehow inevitable, or that it is simply not worthwhile promoting health in older people, discrimination can occur. The review aims to define the role of health promotion for older people (defined as those aged 55 years or above) in the area of CHD and stroke prevention by systematically reviewing randomised controlled trials (RCTs) of single and multiple interventions for prevention acting through known risk factors. The review does not concern itself with examining interventions aimed at reducing smoking rates. Findings are as follows.

- i) The report finds that there is strong evidence for using antihypertensive (blood pressure-reducing) drug therapy to reduce CHD and stroke mortality in cases of even mild hypertension in individuals up to the age of 80–85 years. Medication for treating high blood cholesterol is effective in reducing CHD mortality rates among groups at high CHD risk.
- ii) Single non-drug interventions can reduce blood pressure in those at high risk, although the effects on the course of the disease are unknown. Weight reduction and exercise are found to be the most effective interventions. Fish oil supplements, salt restriction, potassium supplements, reduced alcohol consumption and stress management are also considered and found to have lesser or insignificant effects.
- iii) Diet has not been shown to be particularly effective for reducing cholesterol in populations living independently. Very low-fat diets may lower cholesterol levels, although the level of reduction is dependent upon compliance and the severity of the regimen.
- iv) Multiple interventions among general and working populations (focusing on a number of areas such as exercise, weight loss, dietary modifications and drug treatment of high blood pressure and cholesterol levels) show small, statistically insignificant effects on disease. While risk factor reductions do occur, they are usually small when compared to the reductions achieved by medical therapies. However, multiple non-drug interventions (particularly exercise and anti-smoking advice) among men who have recently suffered a myocardial infarction (heart attack) are more effective in reducing total CHD and stroke mortality.

The review recommends:

- i) In line with the recommendation of this report (see page 13 "intensive approaches") better targeting of health promotion activities at those most at risk of cardiovascular disease (particularly those who have already suffered clinical evidence of cardio-vascular disease), taking account of those interventions found to be most effective (anti-smoking advice and exercise). Specifically, older people should not be excluded from such targeting.
- ii) Use of medical therapy is of proven value in the management of even mildly raised

blood pressure among the elderly, as is the treatment of high blood cholesterol in those at high risk of CHD.

- iii) More research to help determine acceptable and effective ways of changing individuals' diets with the aim of reducing cholesterol levels since those currently used in primary care are of limited value.
- iv) Promotion of local health alliances and national policy changes in both fiscal policy and legislation to reduce smoking, dietary fat consumption, hidden salt and calories and to promote exercise.

3.2.2 *Ahmad, Sheldon, Stuart (eds) (1995): 'Ethnicity and health: reviews of literature in the areas of cardio-vascular disease, mental health and haemoglobinopathies'*

This review focuses on three areas where ethnic minority groups in the UK are thought to be at increased risk: cardiovascular disease, mental health and haemoglobinopathies (disorders of the red blood cells – sickle cell disease, thalassaemia). The following presents a brief summary of the report's findings in the first two areas.

- i) Cardiovascular disease -
 - a) Death rates from CHD in people of South Asian origin are about 40 per cent higher than those of the white population. The standard CHD prevention strategies discussed in Ebrahim and Davey Smith (1995) of smoking control, dietary control, control of blood pressure and advice to increase exercise should be adapted for use. An additional factor for consideration is the higher prevalence of insulin resistance (and thus greater risk of diabetes) among this group, and additional methods may be required to address this area.

Non-drug interventions recommended for tackling these areas are similar to those discussed in this report and in Ebrahim and Davey-Smith (1995). For example, primary care screening should be used to identify and target those who are obese, and various Asian media and voluntary organisations should be considered as conduits for health promotion.

- b) People of Afro-Caribbean origin have double the stroke mortality and four (male) and

seven (female) times greater rates of death associated with high blood pressure than the rest of the population. CHD mortality rates are however about half those of the rest of the population. Blood pressure control is a clear public health priority for this group and the strategies of weight loss and control of blood pressure with drugs are recommended as the strategies most likely to have an impact. The report notes that not all classes of anti-hypertensive drugs may be equally effective in Afro-Caribbeans. Drugs acting mainly on the renin-angiotensin system such as beta-blockers and ACE inhibitors may be less effective; first line use of low dose diuretics is recommended.

- ii) Mental health - The report finds higher rates of schizophrenia diagnosed in males and females born in the Caribbean, with this risk persisting in second-generation migrants. Referral patterns for these individuals seem more likely to be through the criminal justice system than via GPs. There appears to be evidence of unmet needs in ethnic minorities leading to a lower rate of identification, particularly of the milder mental health problems in primary care. There is evidence of increased risk of alcohol-related admissions to psychiatric units among Sikh men and of suicide in women of Indian origin between the ages of 15 and 24.

Accessibility to culturally sensitive services is a key element to consider, and recommendations are in line with those of this report. Specifically, issues such as single-sex wards, availability of religious advice, the presence of staff from similar ethnic backgrounds, acceptable food choices and information, counselling and treatment in the patient's language at all levels should, where appropriate, be considered.

Other strategies suggested for tackling these problems include improving information systems in secondary and primary care, investigation of primary care referral patterns and treatment services.

3.2.3 Towner *et al* (1993): '*Reducing childhood accidents*'

Accidental injury is the leading cause of death in children aged 1–15 years, and the death rate from unintentional injury has a steeper social gradient than any other cause of childhood mortality. The report assesses three main types of accidents – those occurring on the road, at home and in the leisure environment – and provides tables summarising each review. While there is a marked social gradient in childhood accidents, the report states that this issue is rarely

addressed in the studies reviewed. The comments below should be read with this in mind. This review is currently being updated and will appear as an NHS CRD report later in 1995.

- i) Road environment - The report strongly supports legislation for, and effective schemes to promote, the fitting and use of child restraints and finds some evidence that increased wearing of cycle helmets leads to a reduction in injury rates. Road safety programmes appear to have met with mixed success and the report calls for proper analysis of accident data to define the problem and structure the solution (Preusser and Blomberg, 1984) in line with this report's general recommendations for interventions (see page 17 "Prior needs assessment ..."). Adoption of good practice regarding organisational structure and coordination of those involved in road safety schemes is also called for (Singh and Spear 1989, Harland et al, 1991), again in line with this report's recommendations (page 14 "Multidisciplinary approaches").
- ii) Home environment - After discussing legislative and income-based interventions and product-design changes to address this area the report considers three types of incident: general home injuries (eg falls from windows), scalds, burns and fire injuries and poisoning. Installation of window bars and smoke detectors appear to be effective accident-prevention measures, although ways of increasing uptake of these preventive measures in high-risk homes have yet to be agreed. The report found no evaluations concentrating solely on the safe storage of poisonous substances.
- iii) Leisure environment - With reference to drowning and sports injuries, the report calls for educational campaigns to continue to raise awareness of the risk of drowning and of the need to teach children to swim, as well as of adult supervision of swimming pools. Few evaluated interventions have occurred with play and sport.

3.2.4 Enkin et al (1995): 'A guide to effective care in pregnancy and childbirth'

This summary of Cochrane Collaboration reviews in the pregnancy and childbirth database covers a number of areas where interventions might address variations because certain groups seen to be at a disadvantage could benefit most from effective interventions. The following comments are drawn from the publication 'A guide to effective care in pregnancy and childbirth' (Enkin et al, 1995), with additional reference made to the 'Cochrane Pregnancy and Childbirth Database' which is based on systematic reviews of randomised controlled trials.

- i) Social, financial and psychological support during pregnancy and childbirth - For those on a low income there is a close association between lack of support for medical costs and low uptake of medical services. In addition, minority groups can feel ill at ease in conventional care settings and consequently delay seeking care. Psychological social support may be particularly important for socially disadvantaged mothers, with a reduction in the likelihood of adverse outcomes for the baby, including child abuse/neglect, severe nappy rash, otitis media (middle ear infection), high blood pressure and delayed appropriate immunisation. Supported mothers are less likely to become pregnant again in the 18 months following childbirth. Clinics offering continuity of care and which are sensitive to the needs of their clients have no known risks and may have important benefits for low-income mothers and children.

- ii) Smoking during pregnancy - 'It is quite clear that smoking reduces birthweight. The effect...on other perinatal outcomes is more controversial' (Enkin et al, 1995). Smoking cessation programmes have a definite place in antenatal care, with trial results showing that behavioural self-help strategies are more effective than advice and feedback at reducing smoking in pregnancy.

- iii) Dietary modification in pregnancy -
 - a) Pre- and periconceptional folic acid supplements for women who are at increased risk of giving birth to a child with neural tube defects (spina bifida and anencephaly, failure of the brain to form) because they have previously carried an affected baby can reduce the risk of a recurrence by more than two-thirds. Supplementation with multivitamin preparations containing folic acid, beginning before pregnancy and continuing throughout the first trimester, can be recommended for the prevention of first occurrences of neural tube defects. Ways of ensuring that the intake of folic acid reaches the required level within affordable, available and palatable food sources for each ethnic minority should be sought within each country. This is a priority for public health nutrition advice.

 - b) Other vitamin or mineral supplementation. Vitamin D deficiency can occur in women whose clothing leaves little exposed skin. Controlled trials in vulnerable populations show a reduction in hypocalcaemia (low blood calcium levels) with vitamin D supplements. Supplementation at the end of pregnancy should be considered in vulnerable groups such as Asian women in Northern Europe.

- iv) Prevention of premature birth - 'There is a strong association between a woman's social and economic circumstances and her risk of preterm delivery. This association has prompted social programs aimed at reducing risk ... controlled evaluation has not detected any effects on the rate of preterm birth' (Enkin et al, 1995).
- v) Breastfeeding - Efforts to provide social and psychological support may increase the likelihood that mothers will breastfeed their babies successfully. Those who are most likely to be closely involved with mothers at the time that breastfeeding is becoming established should have a clear understanding of how a baby breastfeeds. Evidence suggests that continued personal support from an individual who is knowledgeable about breastfeeding is most effective.
- vi) Screening for Chlamydia infection in high-prevalence populations - In the USA there are high rates of infection with *Chlamydia* bacteria among young women, unmarried women and black women, as well as women from low socio-economic groups and those attending inner-city antenatal clinics. Congenital infection with *C.trachomatis* is the most common cause of neonatal conjunctivitis, and there is a risk that an infant born to an infected mother will develop chlamydial pneumonia (3–18%). If the prevalence of maternal infection among pregnant women is greater than 6 per cent it is cost-effective to screen those at risk and to treat infected individuals.

3.3 Results from observational studies

This review did not systematically examine the results of observational studies, and significant effective interventions may have been missed. In order to check this, we scanned studies included in two recent related reviews which did not exclude observational studies (Gepkins and Gunning Schepers, 1993; Bunton et al, 1994) and a book which broadly considered this area (Schorr and Schorr, 1988).

Sixty-six of 98 papers in a major Dutch review (Gepkins and Gunning Schepers, 1993) were excluded from this review because they did not fit at least one of the inclusion criteria, and only three of the studies included in the Yorkshire and Northern region review (Bunton et al, 1994) are also included here. The excluded studies examined interventions such as health coverage programmes for the poor uninsured, antenatal care, pre-school use of preventive services, early education, nutritional supplements for children or pregnant women, prevention of childhood

accidents, drug abuse prevention in young people, stress management, general preventive mass media campaigns and direct health education campaigns, programmes to increase the uptake of screening, unemployment-related interventions, ways of improving access to care and patient information leaflets and advocacy, especially for ethnic minority groups.

After examining these interventions and the outcomes of the evaluations, the results seem broadly in line with those reported in this review; there does not appear to be any programme which had a significant impact on variations in health which has not been reported here.

Two population-wide programmes in the USA designed to tackle the effects of poverty on growth, development and education have been extensively evaluated and are worthy of mention. One of these is the Special Supplemental Food Programme for Women, Infants and Children (WIC), initiated in 1972 to improve the nutrition of low-income women and children who had at least one nutritional risk factor. This provided packages of highly nutritious food, nutrition education and provision of health services to low-income, nutritionally at-risk women who were pregnant or breastfeeding, and children up to the age of five. An evaluation of this programme using a longitudinal study from 1980 to 1985 showed that there was a statistically significant correlation between the intensity of the WIC service and health-related outcomes such as mean birthweight and reduction in late fetal death, particularly in the poorest and highest-risk groups (Rush et al, 1988).

A second major welfare programme started in 1965 was Project Head Start. This provided pre-school children and their families with education, health and social services. Several longitudinal studies evaluating the effect of pre-school education collectively appear to show short- and long-term benefits on cognitive and health-related outcomes (Schweinhart et al, 1993; Lazar et al, 1982). There are many studies looking at the effects of pre-school education; these were not comprehensively reviewed here.

Both WIC and Head Start have characteristics which have been identified from the trials as being associated with success in reducing variations in health, in particular their intensity or targeting of those in need and their broad and multidisciplinary perspective encompassing, for example, social services, nutrition and health-related interventions.

In her review of interventions designed to reduce the poor outcomes of disadvantaged families and children, Lisbeth Schorr came to conclusions which are similar to those drawn from this review (Schorr and Schorr, 1988). In summary, the programmes which are successful in

reaching and helping the most disadvantaged should offer a broad spectrum of services crossing traditional professional and other boundaries and these should be intensively carried out, targeting populations at highest risk.

This review has not looked at community development-type programmes because generally they have not been evaluated using an experimental design. There are likely to be examples of such programmes aimed at reducing variations in health in the UK which show promising results and be worth evaluating more rigorously before dissemination. A study to identify community development programmes in the UK aimed at tackling socio-economic variations in health has recently been published by the Public Health Trust (Langlan and Black, 1995).

4 DISCUSSION

In this section we discuss the limitations of the evidence so far obtained and the implications of the results of the review for practice, commissioners and future research are considered.

The studies included in this review were extremely diverse in terms of the type of interventions used, how and by whom they were delivered, the populations targeted and the outcomes assessed. In addition, the methodological standards of the evaluations varied, with only a few being of good quality (see pages 35 to 37). For these reasons, it would be inappropriate to combine the data in a quantitative way.

Care must be taken not to over-analyse the study results in an attempt to extract lessons for practice that are not justified by the evidence. For example, although it might be tempting to draw conclusions about the relative effectiveness of different approaches to increasing the uptake of cervical screening among disadvantaged women, the relatively small number of studies, their heterogeneity and complexity would make any conclusions unreliable. Very few studies set out to discover the circumstances in which an intervention is likely to be more effective; comparisons across studies can be misleading because of the effects of so many other variables.

Most of the interventions studied were complex in character. Many were multifaceted, some were inherently flexible in nature and depended to some extent on the individuals who delivered them. The precise content and context of complex interventions were rarely described in the papers. For example, the characteristics of trained outreach workers, other than their ethnic background and possibly their age, are seldom reported, yet the success of an

outreach intervention may depend on the personal qualities of these individuals. Such inadequacies in reporting make it difficult to replicate interventions with any confidence. In most cases, contextual factors were highly likely to have influenced the outcomes achieved. Such contextual factors are often not described.

4.1 Implications for practice

Evaluations of complex interventions rarely use study designs which allow us to say which components are most effective in reducing variations in health. Some interventions have been shown to be successful, but caution should be taken applying them to different groups, or in settings different to those in which they were positively evaluated. It is usually neither possible nor appropriate to try to determine which components of complex processes are most influential and whether they might work independently.

On the other hand, we can identify issues which have been taken into account in the interventions reviewed. This information could be used in the form of a "checklist" to assist in the design of interventions to reduce variations in health (see Box 2). The use of such a checklist could lead to a more considered approach to reducing variations in health than what seems, on the basis of the evaluations studied, often to have been an ad hoc process.

4.2 Implications for commissioners

Commissioners of health care can use this work to help address inequalities in health in two main ways. Firstly, the results can be used when assessing applications for funding designed to improve the health of those in deprived groups.

A second and more active approach is to establish an 'equity audit' of services. Attempts have already been made to identify inequities in health service provision between small areas, by comparing health outcomes with the use of health services (Ben Shlomo and Chatuverdi, 1995). This process, when combined with a knowledge of local health service provision, can be used to inform commissioners about priority areas for change. Once priorities have been established, the results of this report can be used to help shape both an appropriate intervention, and effective evaluation.

4.3 Implications for research

4.3.1 Areas for research

The majority of studies identified in the review were carried out outside the UK. It is not clear how generalisable their findings are to this country within the context of the National Health Service. One important area for future research therefore is to evaluate interventions which have been shown to be effective elsewhere and which may be generalisable to the UK.

Among the features which raise doubts about the generalisability of interventions to the UK are those relating to the variations in the organisation of health services in different countries. An intervention to improve the accessibility and quality of detection and treatment of high blood pressure in the USA (Stamler et al, 1987) included an element of free care, already a feature of the NHS. The findings of another study (Freeborn et al, 1978) in which people in a deprived community were successfully encouraged to increase their use of health services may be difficult to generalise to the UK because subjects had to pay insurance contributions.

Box 2 Checklist of points to consider when designing an intervention

The following checklist of points to consider when designing an intervention to reduce variations in health has been drawn up in the light of the findings of the review.

The messages/actions delivered

- Would an assessment of the target group's needs help shape the messages/ actions appropriately?
- Are the intended messages/actions culturally and educationally appropriate to the target group?
- Are the intended messages/actions acceptable to the target group? (A pilot test might be advisable to assess this).
- Will members of the target group be involved in the design/development of the messages/actions?
- Will the messages/actions be fixed (delivered in the same way to everyone) or will they be flexibly delivered?
- Will the messages/actions be directed by the client/recipient or by the person delivering the intervention?
- How many component messages/actions will be involved?
- Will the messages/actions be repeated?
- What opportunities will there be to reinforce the messages/actions?
- Are the messages/actions likely to be strongly contested by agencies/individuals outside the intervention? If so, what might be done to counteract these?

Setting

- Where might the intervention be most appropriately delivered? (Examples: home, school, place of worship, health centre. Must take into account the degree to which it is accessible to and acceptable by the target audience)
- Audience/recipients - How homogeneous is the population of interest? Would it be more appropriate to give/deliver the messages/actions to individuals or to groups? If the messages/actions are to be given to groups, what might be the best composition and size of those groups?

Individual delivering the intervention

- Who might be the most appropriate person/group to deliver the messages/ actions? (eg health professional, teacher, community volunteer, trained peer)
- You might like to consider: how credible are these people to the target group? How readily does the target group identify with these people? What personal skills, training and support might these people need?

Support materials/resources

- Does the intervention require the use of written or audiovisual materials?
- If so, what are the most appropriate materials to help convey the messages/actions? (eg leaflets, videos, audiocassettes considering the language abilities and preferences of the target group, the literacy skills of the target population, the availability of technology required to make use of the material)
- Would the provision of assistance with transport and/or child care make it easier for members of the target group to attend the desired health-care intervention, or to receive the messages/actions which comprise this intervention?

Leda and Rosenheck (1992) examined the impact of multi-professional residential care on the mental health of homeless US war veterans. The reviewers are not aware of comparable institutions in the UK, but this approach to the problems of homeless people warrants further consideration.

Interventions delivered to individuals in particular locations, for example to improve HIV-related knowledge among clients of Women, Infants and Children clinics in the USA (Ashworth et al, 1994), and to improve stress-coping skills in groups of adolescent mothers in a US high school (Schinke et al, 1986), may need to be examined in detail to see how useful they might be in the UK.

Successful interventions which are culturally specific may well not be directly applicable to identifiable populations in the UK. It cannot be assumed that interventions designed for a particular group in the USA would be successful with apparently similar groups in this country. However, if interventions have been shown to be effective, they should be considered for evaluation in a UK setting. It would also be important to investigate the effects of modifications, for example to information presentation, intended to make interventions more culturally appropriate.

Another important area on which future research could fruitfully focus is in undertaking rigorous evaluations of interventions where the previous studies were methodologically weak but the reviewers consider either that the intervention is pertinent to reducing variations in health or that the results were promising. For example, an intensive strategy to improve the uptake of preventive services and treatment in general practice (Tudor-Hart et al, 1991) was positively evaluated, but the study design did not include a control group. Other examples are provided by the promising evaluation of a community child accident prevention programme in which the controls were not adequate to rule out secular trends as an explanation for the positive findings (Davidson et al, 1994), and an evaluation of the provision of citizens' advice bureaux in primary care settings which studied only subjective health outcomes (Veitch, 1994).

4.3.2 *Methods of evaluation*

Overall the quality of evaluations considered was poor, even when the difficulties of evaluating complex interventions given to disadvantaged populations are taken into account. It is difficult to attribute cause and effect from complex evaluations, which often entail a number of longitudinal, interpersonal and group interactions with people from deprived communities. This is particularly relevant when considering interventions which use community development principles. It has been suggested that a 'pluralistic' approach to evaluation is needed for this form of intervention, incorporating both qualitative and quantitative methods, as appropriate (Beattie 1993).

A number of common but avoidable problems have been identified with the design and execution of the studies included in the review. The main problems are outlined below.

- i) A number of studies give only a limited description of the nature and content of the interventions used (eg Ashworth et al, 1994; Bauman et al, 1983). This makes attempts to replicate the interventions difficult. In addition the methods used to recruit study subjects and the numbers of subjects participating are not clearly reported (Bauman et al, 1983).
- ii) The sample sizes used are often too small (James et al, 1992), which reduces the power to detect differences as being statistically significant and so may not allow conclusions to be drawn about the effectiveness of interventions. This weakness may be a particular problem in the populations of interest in this review as the attrition rates observed in almost all of these studies are high (Poland et al, 1992; Price et al, 1991).
- iii) Many evaluations were conducted without any attempt to identify a control group (eg Hibbard et al, 1979; James et al, 1992). This makes it difficult to attribute any change in the outcomes measured to the intervention. Although a time series analysis may sometimes mitigate against the problems associated with the absence of a control group, the effects of trends in the general population have seldom been addressed in the studies reviewed here.
- iv) When a control group was included, many studies failed to carry out and/or report baseline measurements. This makes it difficult to assess the comparability of the groups before the intervention was applied. Even in randomised studies, particularly the

smaller ones, it cannot be assumed that intervention and control groups will necessarily be similar at baseline.

- v) Several studies used outcome measures which were not particularly appropriate to the intervention being studied. For example, Graham et al (1992) undertook a randomised controlled trial to study the effects of home visits providing psychological support and advice on pregnancy to pregnant women. The outcomes measured included birthweight and the number of clinic visits, but no measures of maternal mental health were reported.
- vi) The follow-up periods used were often too short to enable the potential value of an intervention to be assessed (Tableman et al, 1985 whose follow-up was three months after the intervention finished), or to assess whether short-term effects were sustained.
- vii) In some studies which randomly allocated people to different study groups, the randomisation was broken in the reporting of results (Baranowski et al, 1990). This greatly weakens the strength of evidence presented by such studies.

While most studies contained one or two design weaknesses, a smaller number were more seriously flawed, in that they appeared to have given little or no attention to even the basics of research design, such as clarifying the research question and identifying appropriate study design and outcome measures (Cox et al, undated). Some studies collected qualitative outcome data in an ad hoc way without reference to a formal methodology.

Very few studies explicitly considered the cost-effectiveness of the intervention used. Even basic data on the cost of interventions were rarely given. Without such information, it is difficult for organisations such as the NHS to make rational decisions about which interventions to support. Research to collect and report basic cost data should be strongly encouraged.

Finally, some of the interventions used were not always accepted by the target group. The need for a prior test of acceptability is illustrated by the fact that one school-based health education programme had a different impact on pupils from different ethnic backgrounds (Graham et al, 1990), and by the example of Poland et al (1992), in which health advocacy may not have been readily accepted by many women in the target group, as suggested by the 65 per cent drop-out rate from the intervention group.

5 CONCLUSIONS

This is the first of two reports which review available research considering evaluations of interventions which the NHS alone or in collaboration with other agencies could use to reduce variations in health. Having examined 94 studies satisfying the inclusion criteria for the review, a number of characteristics which may affect the success of interventions have been identified. The recommendations of other systematic reviews of the literature have also been considered to illustrate their potential for tackling variations in health in certain areas, and reviews of observational studies have been included.

There are interventions which the NHS, either alone or in combination with other agencies, can support to reduce variations in health and this review has shown that rigorous evaluations of interventions to reduce variations in health by experimental methods (eg randomised controlled trials and quasi-experimental studies) can be carried out successfully. Whilst removal of the financial barriers to accessing health care can make an important contribution to reducing variations in health, this is not in itself sufficient to prevent all avoidable variation.

Further coordinated and rigorous evaluations of promising interventions would be useful, as would research to estimate the proportion of the total variation in health which could be reduced by means of health service interventions of the type described. Commissioners of health services could additionally undertake an "equity audit" of the services they commission to identify priority areas for interventions.

Work is currently being undertaken to identify and assess other reviews that may have implications for reducing variations in health with a view to providing more comprehensive coverage of this area. This updated report will be published early in 1996.

Tables 1-7 Interventions arranged by Health of the Nation areas

Where certain studies address more than one HoN area, they are entered in each relevant table. Details of each study are shown in Table 8.

* Denotes studies with the strongest evidence supporting their success.

Table 1 Accidents

Author	Country	Intervention	Main outcome measures
Brink et al (1989)	USA	Loan of car seat with education programme for women attending hospital antenatal classes, and in hospital for birth.	Possession of infant car seat, knowledge and beliefs about car seat use.
*Colver et al (1982)	UK	Home visit, with assessment of domestic hazards and advice on hazard reduction; booklet; notice of forthcoming television series.	Physical hazards in home; parents' knowledge of accident hazards.
Davidson et al (1994)	USA	Various activities undertaken by coalition of agencies to renovate playgrounds and involve children in safe supervised activities.	Injuries seen at local hospitals.
Dennison (1972)	USA	Health instruction programme developed after assessment of students' knowledge: daily 30 minute classes for 8 weeks.	Health-related knowledge; behaviour in hypothetical situations.
Fallat & Rengers (1993)	USA	Home visit, provision of educational booklet about burns prevention, fitting of anti-scald devices to bathroom taps.	Knowledge of burns prevention, scald burns seen in local hospital.
Gainer et al (1993)	USA	Training of inner-city children attending state elementary and junior high schools in skills associated with non-aggression to improve social problem-solving skills, attitudes related to aggression and knowledge of risk factors for violence.	Social problem-solving abilities, beliefs supportive of aggression, perceptions of risk associated with carrying weapons and with drugs.
Olds et al (1994)	USA	For pregnant women in poor rural communities, combination of free transport to antenatal and child health clinics; home visits from nurse every two weeks during pregnancy; regular home visits from nurse until child was two years old; screening of child for sensory and developmental problems.	Number of injuries and ingestions (poisonings) in physician's record; cases of child abuse and neglect; number of visits to hospital casualty department.

Parkin et al (1993)	Canada	School-based 'Be bike smart' week, using various interventions to promote use of cycle helmets.	Proportions of 5–14 year olds who cycled with helmets on.
Robitaille et al (1990)	Canada	Antenatal class education and instruction about child car seats, followed by postnatal home visits to give additional information; offer of free loan of infant car seat.	Possession and utilisation of infant car seat.
Spiegel & Lindaman (1977)	USA	Free window guards provided; information campaign using mass media, local agencies and outreach workers.	Falls from window reported by hospital casualty departments and police.

Table 2 Cancers

Author	Country	Intervention	Main outcome measure
Cohen & Dix (1992)	USA	Saturday programmes including discussion sessions for parents and field trips for children which included science activities.	Perceived value of programme: to what extent people thought the programme would help them identify and reduce cancer risks.
Davis et al (1994)	USA	Cervical cancer education programme offered to church members at selected churches, using lay 'leaders' selected from female parishioners.	Number having cervical smear, number of churches maintaining cancer control activities in the 2 years following programme.
Hoare et al (1994)	UK	Home visits by link workers to encourage Pakistani and Bangladeshi women to attend for breast screening.	Attendance at breast screening clinic.
Kegeles (1969)	USA	Home visits by trained indigenous workers who read a booklet about cervical screening to black women in urban deprived areas.	Beliefs about vulnerability to cervical cancer and effectiveness of screening and early treatment; attendance for cervical smear.
Lerman et al (1992)	Eire	Telephone call from health educator to establish reasons for missed colposcopy (cervical examination) appointment, scripted messages read in attempt to reduce identified barriers to compliance.	Attendance for colposcopy.
*Marcus et al (1992)	USA	Combinations of personalised letter and educational leaflet, transport incentives and tape-slide programme to disadvantaged women who received abnormal cervical smear results.	Attendance for follow-up treatment after receipt of abnormal cervical smear results.
Marsh & Channing (1988)	UK	Preventive intervention record card attached to clinical records of deprived families, with copy given to health visitor; standard letter sent to encourage uptake of preventive services; home visits by GP to carry out preventive services.	Percentage of women up to date with cervical smears; percentage of adults whose blood pressure had been taken; percentage of adults whose smoking status was known.

*McAvoy & Raza (1991)	UK	Home visit by Muslim assistant to show video or provide leaflets (in appropriate language) to Pakistani women to encourage uptake of cervical screening.	Attendance for cervical screening.
Suarez et al (1993)	USA	Personal accounts of cancer screening by role models from target population broadcast via local media; newsletters distributed through various community agencies, cancer screening promoted by health professionals.	Uptake of mammography and cervical smears; knowledge and attitudes about cancer.
Zavertnik et al (1994)	USA	Programme set up by coalition of agencies to improve early detection of breast cancer in black women; mobile breast-screening facility and one-stop breast health clinic established.	Percentage of women diagnosed with breast cancer at various stages.

Table 3 **Coronary heart disease (CHD) and stroke**

Author	Country	Intervention	Main outcome measures
Ammerman et al (1992)	USA	Doctors provided with dietary guidance and material for use with patients.	Dietary advice given by doctors to patients.
Baranowski et al (1990)	USA	Family education, counselling and fitness activity sessions.	Diet.
Bush et al (1989)	USA	'Know your body' curriculum in school; annual health screen, 'health passport' held by children, quarterly magazine for parents.	Height, weight, blood pressure, serum cholesterol level, pulse recovery rate, serum thiocyanate; health knowledge, attitudes and behaviour.
*Connett & Stamler (1984)	USA	Encouragement to participate in smoking cessation and diet modification programme; stepped care programme, following treatment protocol, to lower blood pressure.	Smoking status, blood pressure, serum cholesterol level, weight.
Danforth et al (1990)	USA	Supervised exercise programme for black hypertensive children.	Blood pressure, circulatory fitness, resting heart rate, weight.
Gold & Franks (1990)	USA	Education, referrals for high blood-pressure, free screening and community meetings to improve cardiovascular health offered to residents in an area of New York where there was evidence of high cardiovascular risk.	Blood pressure, utilisation of health care services, cardiovascular health.
Levine & Bone (1990)	USA	Community health workers provided blood pressure screening, counselling, monitoring and follow-up particularly to young black males recruited from the hospital casualty department.	Percentage of people aware of hypertensive status, under care, and with blood pressure under control.
Lewis et al (1993)	USA	Provision of community physical activity programmes, including walking, aerobics, games and sports, after survey of exercise needs and preferences of local people.	Levels of physical activity.
Marsh & Channing (1988)	UK	Preventive intervention record card attached to clinical records of deprived families, with copy given to health visitor; standard letter sent to patient to encourage uptake of preventive	Percentage of women up to date with cervical smears; percentage of adults whose blood

		services; home visits by GP to carry out preventive procedures.	pressure had been taken; percentage of adults whose smoking status was known.
*Morisky et al (1983)	USA	Combinations of individual counselling, family support instruction session and invitation to attend group sessions run by social worker for hypertensive patients from deprived populations.	Appointment keeping, weight, blood pressure control, cause of death.
Piane (1990)	USA	Weekly group education sessions about controlling high blood pressure.	Blood pressure knowledge, self-reported behaviour changes.
Price et al (1991)	USA	Educational video or booklet given to pregnant women smokers, with opportunity to ask questions.	Smoking status and health beliefs relevant to smoking.
*Stamler et al (1987)	USA	Stepped care programme for high blood pressure.	Blood pressure, drug treatment for high blood pressure, organ damage leading to failure, deaths.
Tudor Hart et al (1991)	UK	Screening for high blood pressure and other risk factors, first opportunistically, then using pro-active call up and home visits.	Blood pressure, smoking status, body mass index, serum cholesterol level, lung function.
Wiist & Flack (1990)	USA	Serum cholesterol screening through local church; either invitation to attend weekly lifestyle classes at church or screening test results sent to usual physician.	Serum cholesterol level.

Table 4 Sexual health and HIV/AIDS

Author	Country	Intervention	Main outcome measures
Ashworth et al (1994)	USA	Leaflets, video or presentation by black nurse educator.	AIDS knowledge and intention to change risk behaviour.
Benson et al (1986)		2 sessions (presentation, written material, discussion) given at school by volunteer medical students.	AIDS knowledge.
*Howard & McCabe (1990)	USA	5 classroom sessions led by trained older pupils, using audiovisual techniques to illustrate pressures on adolescents to have sex.	Self-reported sexual activity, use of family planning counselling and services, treatments for sexually transmitted diseases, use of pregnancy tests.
Jemmott & Jemmott (1992)	USA	3 active participation sessions for adolescents, covering factual information about AIDS and barriers to condom use.	Knowledge about HIV/AIDS, intention to use condoms, outcome expectancies regarding condom use.
Kelly et al (1994)	USA	5 group sessions at health centre for low-income Afro-American women; provision of information about HIV/AIDS, development of personal awareness and appropriate skills.	Number of male partners, frequency of unprotected intercourse, percentage of occasions of vaginal intercourse when condoms were used.
Kirby et al (1991)	USA	School-based clinics offering primary health care, contraceptive counselling, pregnancy testing.	Self-reported sexual activity, use of contraceptives, pregnancies.
LoSciuto & Ausetts (1988)	USA	Combinations of school curriculum, training for teachers and skills training for parents on prevention of drug abuse.	Attitudes to drugs and related issues.
Nyamathi et al (1993)	USA	Culturally sensitive AIDS education given to African American and Latina women.	Various cognitive behavioural and psychological outcomes relating to AIDS and the woman's personal situation.

Quirk et al (1993)	USA	AIDS-prevention rap video based on lyrics written and performed by members of target audience; AIDS-prevention programme given by health professional using patient-centred collaborative approach.	Knowledge, attitude and behaviour relevant to HIV/AIDS.
Rotherham-Borus et al (1991)	USA	Small group sessions to enhance knowledge and skills, plus individual counselling about safe sex for adolescent runaways.	Sexual activity, use of condoms.
Sellers et al (1994)	USA	Community-based AIDS prevention programme targeted at Latino adolescents; peer-led workshops, door-to-door canvassing, distribution of condoms.	Knowledge and attitudes relevant to HIV/AIDS, sexual activity, condom use.
*Walter & Vaughan (1993)	USA	Curriculum based on assessment of AIDS-related knowledge and attitudes, delivered by trained teachers on 6 consecutive days.	AIDS-related knowledge and beliefs, perceptions of self-efficacy of preventive actions, sexual behaviour.

Table 5 **Mental health**

Author	Country	Intervention	Main outcome measures
Cohen et al (1992)	USA	Open-access day centre for homeless people, with various services available.	Services received, staff perceptions of improvements in health status.
Cox et al (undated)	UK	Newpin programme: befriending schemes, drop-in centre, group or individual counselling or therapy.	Mental health, quality of relationships, parent-child interactions.
Dennison (1972)	USA	Health instruction programme developed after assessment of students' knowledge: daily 30-minute classes for 8 weeks.	Health-related knowledge; behaviour in hypothetical situations.
Elton & Packer (1986)	UK	Assessment and statement of medical priority for re-housing on grounds of mental ill health.	Housing status; anxiety and depression.
Gordon & Swan (1994)	UK	Weekly group sessions for disadvantaged mothers of young children facilitated by health promoters.	Anxiety and depression.
Hochstadt & Trybula (1980)	USA	Telephone or written reminders to attend for initial mental health appointment.	Attendance at initial mental health appointment.
Leda & Rosenbeck (1992)	USA	Multidisciplinary care for homeless veterans provided in residential centres.	Clinical assessment at discharge (presence of psychiatric problems); mode of discharge; employment status; living arrangements.
Morse et al (1992)	USA	For homeless mentally ill people attending shelters, either clinical case manager using flexible individualised approach to meet clients needs; drop in centre, with social workers available; or outpatient treatment at mental health clinic.	Psychiatric symptoms, self-esteem, interpersonal adjustment, alcohol abuse, number of days homeless, income, resource utilisation.
Paris & Player (1993)	UK	Citizens Advice Bureau (CAB) services provided in general practice setting.	Action taken by CAB adviser, benefits claimed for patients.
Planos & Glenwick (1986)	USA	Letter or telephone reminders to parents of children due for mental health assessment.	Attendance for child mental health assessment.

Schinke et al (1986)	USA	Social worker-led group sessions for adolescent mothers to provide coping skills for common stressors.	Psychological well-being, parenting ability, interpersonal competence.
Tableman et al (1985)	USA	Small group sessions for disadvantaged women with young children, to provide stress management training.	Mental well-being.
Veitch (1994a)	UK	Citizens' Advice Bureau (CAB) services provided in community mental health service outlets.	Nottingham Health Profile score; clients' perceptions of help provided by CAB.
Veitch (1994b)	UK	Citizens' Advice Bureau (CAB) services provided in general practice surgeries.	Nottingham Health Profile score; clients' perceptions of help provided by CAB.
Wasylenki et al (1993)	Canada	Assertive client-centred case management for homeless mentally ill people.	Housing status, psychiatric status, level of functioning, number of social contacts.

Table 6 Smoking

Author	Country	Intervention	Main outcome measures
Bauman et al (1983)	USA	Information about smoking and pregnancy, observation of carbon monoxide (CO) level in breath of smokers and non smokers.	Self-reported smoking status, CO in expired air.
Botvin et al (1992)	USA	15 sessions given in school by trained teachers.	Smoking status, knowledge of and attitudes to smoking.
Connett & Stamler (1984)	USA	Encouragement to participate in smoking cessation and diet modification programme; stepped care programme, following treatment protocol, to lower blood pressure.	Smoking status, blood pressure, serum cholesterol level, weight.
Dennison (1972)	USA	Health instruction programme developed after assessment of students' knowledge: daily 30-minute classes for 8 weeks.	Health-related knowledge; behaviour in hypothetical situations.
Graham et al (1990)	USA	School-based curriculum (using either social skills or personal decision-making approaches) to prevent tobacco, alcohol and marijuana use.	Life-time and recent use of cigarettes, alcohol and marijuana.
Jason et al (1988)	USA	'Freedom from smoking' manual sent to subjects; attendance at self-help groups and supportive phone calls offered concurrently with locally televised anti-smoking campaign.	Number who stopped smoking, number smoked per day, nicotine content etc; number and usefulness of television broadcasts watched; confidence about abstaining from smoking in next three months.
O'Loughlin et al (1990)	USA	Smoking cessation guide developed for functionally illiterate women, including comic strip calendar, stickers, cigarette counters, piggy bank etc.	Self-reported smoking habits.
*Windsor et al (1985)	USA	Skills counselling session, booklet, plus self-directed 7-day 'quit' plan given to pregnant women attending public antenatal clinics.	Smoking status, health beliefs, strength of motivation to quit.

Table 7 **General health**

Author	Country	Intervention	Main outcome measure
*Baker et al (1980)	UK	Free milk given to disadvantaged school children	Height and weight
Cohen et al (1992)	USA	Open-access day centre for homeless people, with various services available.	Services received, staff perceptions of improvements in clients' health status.
Cole & Farries (1986)	UK	Re-housing on grounds of ill health.	Changes in medical condition.
Craddock et al (1990)	UK	Comprehensive well-woman clinic in non-medical setting on deprived estate.	Demographic and health profiles of women attending; health services provided; health knowledge.
Davis & Reis (1988)	USA	'Health Express' van, intended to make antenatal health education more accessible to pregnant women in deprived urban areas.	Birthweight, apgar score.
*Field et al (1980)	USA	Regular home visits by trained worker and student of same age and ethnicity as target group, to educate adolescent mothers of premature infants on child rearing and to facilitate mother-child interaction.	Child growth, development and temperament.
Freeborn et al (1978)	USA	Outreach workers, recruited from disadvantaged neighbourhood, trained to encourage and assist disadvantaged families to make appropriate use of ambulatory medical care services.	Use of ambulatory medical care services.
Graham et al (1992)	USA	Home visits by trained non-professional black women to pregnant black women in disadvantaged areas, to provide psychological support, information, advocacy and access to community support services.	Attendance at antenatal clinics, birthweight.
Grossman et al (1990)	USA	Single visit to newly delivered mothers from nurse trained to promote breastfeeding, plus support materials.	Method of infant feeding at 6 weeks; age of infant at weaning.
Heins et al (1990)	USA	Individual antenatal sessions with nurse midwife, to teach women defined as at risk about the signs of preterm labour and to provide lifestyle advice.	Live births, live birthweights, gestational age at birth.

Hibbard et al (1979)	UK	Provision of 'You and your baby' booklet and leaflets, encouragement to attend mothercraft classes for pregnant women.	Knowledge relevant to pregnancy, birth and childcare; attendance at mothercraft classes.
Hunt et al (1976)	USA	Nutrition instruction classes and vitamin/mineral supplementation for pregnant Mexican emigrants.	Nutrition knowledge, nutrient intake.
James et al (1992)	UK	Home visits to young mothers by health visitors to provide nutrition advice and develop nutrition skills.	Perceived quality of mother's and child's diet.
*Johnson et al (1993)	Eire	Home visits to disadvantaged primiparous mothers by experienced mothers trained to share experiences and foster confidence and self-esteem.	Diet of mother and child, child's immunisation and hospital records, mother's self-esteem.
Jones & Mondy (1994)	USA	Two programmes providing enhanced antenatal care to unmarried adolescent primiparous mothers.	Number of births in 5 years, mean age for birth order, schooling attained by mother at first birth, birthweight and gestational age.
Julnes et al (1994)	USA	Home visits by 'resource' mothers from similar backgrounds to pregnant adolescents; assistance with non-medical aspects of pregnancy and child care, and liaison with other agencies.	Antenatal care received, place of delivery, gestational age and birthweight.
*Kistin et al (1990)	USA	Discussion of breast- and bottle-feeding in antenatal group or one-to-one sessions for pregnant black women on low incomes.	Antenatal intention to breastfeed, breastfeeding behaviour.
Lee (1988)	Eire	Home visits to disadvantaged mothers with young children by public health nurses and dieticians, offering support and advice about parenting skills and nutrition.	Dietary intake, child's height and weight, presence of dental caries.
Madeley et al (1986)	UK	Identification of infants at high risk by applying risk-assessment score to neonates; intensive follow-up of target infants by health visitors.	Infant mortality.
Orstead et al (1985)	USA	Antenatal nutrition class, plus individual counselling from clinic dietician at antenatal visits.	Number of antenatal visits, mother's diet and weight, birth weight, infant feeding plans.

O'Sullivan & Jacobsen (1992)	USA	Special care provided for black adolescent mothers.	Attendance at clinic, subsequent pregnancy, return to school, full immunisation, at least one hospital casualty department visit by mother.
Palti et al (1982)	Israel	Preventive health measures for infants given by nurse at mother and child clinic, supplemented by discussion of mother-child interactions.	Developmental quotient.
Parsons & Day (1992)	UK	Advocates working with Asian and Turkish women as interpreters and mediators during antenatal classes and birth.	Mode of delivery, birthweight.
Perkin (1983)	USA	One-month classroom-based educational programme about nutrition during pregnancy and lactation for adolescents.	Knowledge of nutrition, dietary intake.
Poland et al (1992)	USA	Home support for disadvantaged pregnant women. Provision of information, support, referral to appropriate agencies and advocacy at medical appointments.	Level of antenatal care received, gestational age, birthweight.
Rickert et al (1993)	USA	Two types of intervention: physician-delivered anticipatory guidance and computer-aided instruction given to low-to-middle-income adolescents attending a youth clinic.	Substance use, knowledge about alcohol and marijuana and satisfaction with the intervention.
Ross (1984)	USA	Home visits by nurse and paediatric occupational therapist to low-income families with neonate.	Mental and psychomotor development; mother's knowledge of and attitudes towards child rearing.
Seitz and Apfel (1993)	USA	Alternative state school for pregnant adolescents with classes aimed at delaying subsequent pregnancy, resolving family conflict and continuing education.	Dates of conception and end of pregnancies, contraceptive use, accidents, general health status, school performance.
Veitch (1994a)	UK	Citizens' Advice Bureau (CAB) services provided in community mental health service outlets.	Nottingham Health Profile score. Clients' perceptions of help provided by CAB.

Veitch (1994b)	UK	Citizens' Advice Bureau (CAB) services provided in general practice surgeries.	Nottingham Health Profile score. Clients' perceptions of help provided by CAB.
Yanochik et al (1976)	USA	Home visits, family assessment and preparation of nutrition care plan for disadvantaged families with infants screened and defined as at risk of poor nutrition.	Food intake, height and weight, haemoglobin and haematocrit (testing for anaemia) .

Table 8 Summary of studies included in the review arranged alphabetically by author

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
Ammerman et al (1992)	<p>HoN – CHD/stroke</p> <p>Socio-economic</p> <p>People with low incomes, identified by their doctors as at increased risk for heart disease, but with no major illnesses which might restrict diet, living in rural North Carolina, USA, and attending the outpatient clinic of a university teaching hospital.</p> <p>Before–after study with non-randomised concurrent controls</p> <p>Study size: A = 30 doctors (79 patients questioned) B = 30 doctors (59 patients questioned)</p>	<p>A: Physicians given Food For Heart Program material to guide their assessment of their patients' diets and provision of behavioural counselling. Also given educational material developed for people with low literacy to use with their patients (the material emphasised regional eating patterns).</p> <p>B: Physicians not given Food For Heart material.</p>	<p>Physicians' reports of the acceptability of the material, and their use of it.</p> <p>Patients' reports of receiving dietary advice from doctor, and their opinions of these practices.</p> <p>Follow-up: 8 months</p>	<p>Percentage of patients who discussed dietary issues with their doctor in either of their previous 2 visits: A = 76% B = 44%, $p < 0.001$</p> <p>Percentage of patients given written information about diet from doctor: A = 98% B = 39%, $p < 0.001$</p> <p>Percentage of patients able to identify at least one dietary goal: A = 60% B = 35%, $p < 0.01$</p> <p>Percentage of patients satisfied with dietary information from the doctor: A = 61% B = 46%, $p < 0.01$</p>	<p>It is not clear how the samples of doctors were selected.</p> <p>Background paper with more details about methods was not available to reviewers at 10/8/95</p>	<p>This study provides reasonable evidence to suggest that giving physicians materials to guide their assessment of, and advice to, patients may improve the quality of information giving. However, the impact of this on health outcomes is not known.</p>
Ashworth et al (1994)	<p>HoN – HIV/AIDS</p> <p>Socio-economic, ethnicity</p> <p>Women living in low socio-economic areas with at</p>	<p>All women completed survey about AIDS knowledge and attitudes (a modified Centers for Disease Control (CDC) Health Risk Survey).</p> <p>A: Control group: given 15 min to</p>	<p>Modified CDC health risk score</p> <p>Follow-up: 2 months</p>	<p>Interventions B and C were both associated with improvements in AIDS knowledge which were partially sustained at 2 month follow-up.</p> <p>Mean AIDS knowledge score (max. 21): Pre-intervention:</p>	<p>Mothers in this study were regular attenders at a WIC clinic where they were given food supplements.</p> <p>We do not know in detail the</p>	<p>This study presents evidence of a reasonable quality.</p> <p>Educational presentations or videos with appropriate content, when delivered to individuals in conjunction with clinic</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>least one child under 5 years, attending a WIC clinic, USA.</p> <p>RCT</p> <p>Study size: A = 73 B = 71 C = 73</p>	<p>read current government pamphlets about AIDS and chance to ask questions</p> <p>B: Watched (on their own) 18 min video, 'The subject is AIDS'</p> <p>C: Received (on their own) standardised presentation (15-18 min) on HIV transmission and prevention from a black nurse educator.</p>		<p>A = 13.2, B = 13.4, C = 12.9</p> <p>Post-intervention: A = 13.9, B = 15.3, C = 15.9</p> <p>2 month follow-up: A = 12.9, B = 13.6, C = 13.5 (group by time interactions, $p < 0.0001$)</p> <p>There was no clear pattern of impact of the interventions on intentions to change behaviour.</p> <p>Mean intent to decrease risk taking behaviour score (score range 0-4):</p> <p>Pre-intervention: A = 1.4, B = 1.6, C = 1.3</p> <p>Post intervention: A = 1.4, B = 1.8, C = 1.6</p> <p>2 month follow-up: A = 1.6, B = 1.6, C = 1.7 (group by time interactions not significant)</p>	<p>content of the video or nurse educator programs, nor the credibility and appeal of the presenters and presentation style to the audience.</p> <p>Although the sample sizes were reasonable, the changes in scores were quite small.</p>	<p>visits, may result in slight knowledge and attitude changes among black mothers on low incomes.</p> <p>It is not clear for how long these knowledge and attitude changes would be sustained.</p> <p>The impact of these knowledge and attitude changes on health status is not known.</p>
Baker et al (1980)	<p>General health</p> <p>Socio-economic</p> <p>Disadvantaged 7- and 8-year-old-school children, UK</p> <p>RCT</p> <p>A = 281 B = 239</p>	<p>A: Free milk (190 ml/0.3 pint) given daily for 6 terms to disadvantaged children at school.</p> <p>B: Control group – no milk given at school</p>	<p>Height and weight</p> <p>Follow-up: 2 years</p>	<p>Significant difference in favour of those given milk. Mean difference in height gain was 3% or 2.93 mm ($p < 0.05$).</p> <p>Mean difference in weight gain was 130g ($p > 0.05$).</p>	<p>13 (4.6%) children in group A did not drink the milk provided.</p> <p>3 (1.2%) children in group B received milk at school.</p>	<p>This study presents evidence of a good quality.</p> <p>The provision of free school milk to disadvantaged 7 and 8 year olds is likely to result in small improvements in their growth rates.</p> <p>It is not clear what the implications of these improved growth rates are on health status.</p>
Baranowski et	HoN – CHD/stroke	All families attended baseline	Frequency with which	Nutrient assessment based on 24hr dietary recall	This was a self-selected	This study presents weak evidence.

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
al (1990)	<p>Ethnicity</p> <p>Black American families with children in 5th, 6th or 7th year at school, living in an urban area, Texas, USA.</p> <p>RCT</p> <p>Study size: A = 50 families B = 46 families</p>	<p>assessment clinic.</p> <p>A: Family members encouraged to attend one education session (group education, aerobic activity, healthy snack and family behavioural counselling) and two fitness activity evenings per week at a local school over a period of 14 weeks.</p> <p>Free transport and child care provided, attendance encouraged by raffle prize incentives. Reminders to attend made the day before.</p> <p>B: No intervention – these families were excluded from the education and fitness sessions.</p>	<p>particular foods were consumed, 24hr dietary recall and nutrient analysis, behavioural capability, self-efficacy, opinions of programme and reasons to attend sessions or not.</p> <p>Follow-up: end of 14-week intervention</p>	<p>revealed no significant differences between groups, or between pre- and post-intervention measures.</p> <p>No significant effects were noted in behavioural capability or self-efficacy scores.</p> <p>Mothers' diet: mean no. of times of consumption of high total fat foods per 2 weeks at post-intervention (results presented according to no. of education sessions attended): 45.0 35.9 30.0 58.8 Differences between B and sub groups of A attending >1 session were significant.</p> <p>During interviews, 72% of adults from group A reported attempting to change the amount of fat and sodium in their diet. 36% disliked the self-monitoring forms.</p>	<p>sample. In addition, results were presented according to number of sessions attended, and those attending most sessions were probably also most motivated to change. The benefits of random allocation were diluted by groups considered in the analysis.</p> <p>Strong likelihood of contamination: families allocated to group A complained that their friends in group B were excluded from sessions.</p> <p>Baseline dietary recall was held in summer, when meals tend to be lighter.</p> <p>Possibility of response bias in self-reports of food frequency.</p>	<p>Family education and activity sessions may improve the diet of black American families.</p> <p>Family education and activity sessions may be useful interventions for certain ethnic groups within the UK, but this would need further investigation.</p>
Bauman et al (1983)	<p>HoN – smoking</p> <p>Socio-economic</p> <p>Pregnant women smokers attending public antenatal classes, USA</p> <p>RCT</p> <p>Study size: 226 women</p>	<p>All women given script about the harmful effects of smoking during pregnancy and the relationship between smoking and CO in the breath.</p> <p>All women completed questionnaire about smoking status.</p> <p>A: CO level observation - all women (smokers and non-smokers) in the</p>	<p>Self reported smoking status, CO in expired air.</p> <p>Follow-up: 6 weeks</p>	<p>Percentage still smoking at follow-up: A = 93% B = 87%</p> <p>CO > 9ppm at follow-up: A = 76% B = 77%</p>	<p>It is not clear whether or not the control group had their CO levels measured at baseline. If they did, it is not clear whether they would have been able to find out their results (and thus effectively have received the intervention).</p> <p>This brief report is ambiguous</p>	<p>This study provides weak evidence.</p> <p>Showing pregnant women smokers the amount of CO in their breath apparently has little impact on subsequent smoking behaviour.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	entered study (numbers allocated to each group not stated).	group provided a breath specimen and observed the machine reading for CO level. B: Control - women did not observe their CO readings (it is not clear whether CO readings were done or not in this group other than at follow-up)			on several important issues.	
Benson et al (1986)	HoN - HIV/AIDS Socio-economic 7th- and 8th-year students attending state schools in inner city Chicago, USA. Before-after study, non-randomised concurrent controls Study size: A = 6 schools: 452 children completed study B = 1 school: 77 children completed study	A: Multiple choice test. Discovery programme: volunteer medical students gave 2 one-hour presentations and written handouts on sex education to mixed-gender classes. Notion of self-respect was emphasised. Topics included contraception, emotional and physical changes associated with growing up, sexually transmitted diseases, etc. B: Three administrations of multiple choice test.	Knowledge scores (based on multiple choice test) Follow-up: 2-3 months	Mean knowledge scores: Pre-intervention: A = 10.43, B = 10.19 Post-intervention: A = 13.81, B = 10.21 2-3 month follow-up: A = 13.93, B = 10.26 Knowledge gain over time was significant ($p < 0.01$) for A, but not for B. Mean score for school with smallest proportion of low-income families (n = 83 pupils): Pre-intervention = 12.77 Follow-up = 15.89 Mean score for school with greatest proportion of low income families (n = 96 pupils) Pre-intervention = 10.89 Follow-up = 15.23	Many of these schools had no other sex education for their pupils. The backgrounds of, and training given to, the medical students are not stated. It is not clear what kind of rapport or credibility they would have with pupils.	This study presents evidence of a reasonable quality. A sex education programme delivered by volunteer medical students can improve the knowledge of a group of pupils, many of whom have had no other formal sex education at school. Such a programme may reduce the variations in knowledge between populations of different socio-economic status, but the evidence presented here is weak on this.
Botvin et al (1992)	HoN - smoking Socio-economic, ethnicity	All children provided breath sample for CO testing and completed questionnaire on smoking status, knowledge and attitudes.	Self-reported smoking status; knowledge of and attitudes about smoking;	Mean (SD) % of students per school reporting smoking within the last month: APre-test 4.86 (3.78) Post-test 5.19 (4.38)	Only half of the pupils received 60% or more of the intervention (due to absenteeism etc.).	This study provides reasonable evidence that the intervention was somewhat effective in preventing children living in deprived urban communities from taking

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	<p>Predominantly Hispanic children from urban deprived areas, New York, USA.</p> <p>RCT (allocation by school)</p> <p>Study size: A = 25 schools B = 22 schools (children allocated and followed up) A = 1795 B = 1358</p>	<p>A: 15 sessions delivered by regular teachers (after training workshop). Programme included: consequences and acceptability of smoking; decision-making; coping strategies; assertiveness; enhancing personal control.</p> <p>B: no educational intervention</p>	<p>assertiveness, self-efficacy, self-esteem.</p> <p>Follow-up: 4 months after pre-test (up to a month after end of programme)</p>	<p>Pre-test 5.03 (4.44) Post-test 7.15 (3.57) Post-test differences between A and B statistically significant.</p> <p>No main effects on smoking behaviour were observed when schools were compared on the basis of the % of Hispanic pupils.</p> <p>A significant relationship was found between pupils' normative expectations of the prevalence of smoking in adults and peers, and the pupils' reported smoking behaviour.</p>	<p>No information is provided about the individual pupils from whom data was collected, and it is not clear how the schools were selected for participation.</p> <p>This study was not primarily designed to analyse the differential impact of the programme on Hispanic pupils.</p>	<p>up smoking, but the evidence relating to Hispanic sub-groups is weak.</p> <p>Similar health education interventions may also be effective in UK settings.</p>
Brink et al (1989)	<p>HoN – Accidents/Violence</p> <p>Socio-economic</p> <p>Low-income mothers of neonates who attend hospital antenatal classes or receive postnatal visits in Texas, USA.</p> <p>Before–after with no controls.</p> <p>Intervention: 94</p>	<p>Families eligible were offered loan of infant car seat, and car seat education was available to all inpatient mothers antenatally. Mothers were also contacted after childbirth to encourage use of loan programme.</p>	<p>Possession of infant car seat.</p> <p>Beliefs about car seat use.</p> <p>Recall of car seat education.</p> <p>Follow-up: during hospital stay and up to 2 months post discharge.</p>	<p>$\frac{43}{94}$ mothers had a car seat when they entered hospital: 12 mothers hired a seat while in hospital; 11 hired one within 2 months post discharge.</p>	<p>Difficult to tell which of a number of interventions were significant, given the absence of a true baseline measure and a control group.</p>	<p>Weak evidence due to study design.</p>
Bush et al (1989)	<p>HoN – CHD/stroke</p> <p>Socio-economic, ethnicity</p> <p>Black children in 4th–6th year (at baseline) of urban state</p>	<p>A: 'Know your body' curriculum delivered by teachers in 2 45 min sessions a week throughout school year. Quarterly magazine for parents. Personalised health screen at start of each school year. Results sent to</p>	<p>Ponderosity index, blood pressure, total cholesterol, pulse recovery rate after exercise, serum thiocyanate.</p>	<p>Adjusted net differences between intervention (A+B) and control (C) groups of mean (standard error) changes in risk factors after 2 years: Systolic blood pressure (mm Hg): -3.03 ± 0.90 ($p = 0.001$) Diastolic blood pressure</p>	<p>Teacher effectiveness on this programme probably varied greatly.</p> <p>Many outcomes were measured and multiple</p>	<p>This is a reasonable attempt to evaluate a large-scale pragmatic intervention. However, the evidence it provides on cause and effect is relatively weak.</p> <p>A health education and screening</p>

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	<p>schools in District of Columbia, USA</p> <p>RCT</p> <p>Total study size at baseline = 1041</p> <p>Two year data available for A+B = 283, C = 148</p>	<p>parents and also given to children to enter into their 'health passport'.</p> <p>Programme continued for 3 school years.</p> <p>B: As group A, but children not given results of their annual cholesterol screen (children received other screening results, parents received all screening results).</p> <p>C: Health screen at start of school year. Results sent to parents only. No 'Know your body' curriculum.</p>	<p>Health knowledge, attitudes, psychosocial attributes, behaviour.</p> <p>Follow-up: 2 years</p>	<p>(mmHg): -4.17 ± 0.96 (p = 0.000 (sic))</p> <p>Total cholesterol/HDL ratio: -0.43 ± 0.09 (p = 0.000 (sic))</p> <p>Serum thiocyanate ($\mu\text{mol/l}$): -15.74 ± 2.85 (p = 0.000 (sic))</p> <p>Ponderosity index: 0.23 ± 0.13 (p = 0.070)</p> <p>Fitness score (lower is fitter): -0.38 ± 0.15 (p = 0.011)</p> <p>Examination of a number of dietary changes showed no significant difference</p>	<p>significance testing was performed on the data set.</p> <p>Pupil mobility contributed to large drop-out rates.</p> <p>Drop-outs had significantly higher ponderosity indices and serum cholesterol levels at baseline than those who completed the study.</p>	<p>intervention may have a favourable effect on the prevalence of some key risk factors for CHD among black urban school children.</p> <p>The intervention may also be effective among different groups of school children in UK settings.</p>
Cohen & Dix (1992)	<p>HoN - cancers</p> <p>Socio-economic</p> <p>Parents and children from low-income, high ethnic minority population, Connecticut, USA.</p> <p>Before-after study with no controls</p> <p>Study size: 5000 invitations sent. 106 parents/guardians began programme.</p>	<p>All participants sent letter of invitation. Free program, transport and child care facilities offered, along with a stipend to parents for completing programme (US\$60 for < 4 absences).</p> <p>12 x 2 hour Saturday sessions. Children taken on field trips and given science activities. Parents met separately for seminars on science, education and health. Sessions included information on smoking, alcohol, cancer screening, and how advertising agencies target ethnic minority inner-city residents. Dietary education, cervical cancer and sexual activity also discussed.</p>	<p>Perceived value of programme to parents</p> <p>Follow-up: To end of programme</p>	<p>55 out of 55 thought programme would help protect their children against advertisements for tobacco and alcohol.</p> <p>55 out of 56 thought programme helped them to identify means to reduce cancer risk.</p> <p>51 out of 53 thought programme helped them to identify a healthier diet.</p> <p>54 out of 55 thought programme helped them to identify causes of cancer.</p>	<p>Study design does not allow any confounding factors to be eliminated.</p> <p>Participants were paid volunteers who were probably highly motivated to attend.</p> <p>No health behavioural outcomes were examined.</p>	<p>This study has no clear implications for practice.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
Cohen et al (1992)	<p>HoN - Mental health, General health</p> <p>Socio-economic</p> <p>English-speaking homeless people aged over 60 who used a day centre, New York, USA.</p> <p>Before-after study with no controls</p> <p>Study size: 132 were followed up</p>	<p>Project Rescue: an open access day centre. Provision of: respite; breakfast and lunch; medical, psychiatric and alcohol counselling services on site; assistance with accommodation and benefits claims; outreach and training; counselling.</p>	<p>Number of services received; improvements noted by day centre staff in: accommodation; physical health; mental health; sobriety; income.</p> <p>Follow-up: up to 3 years.</p>	<p>Mean number of types of service per client received over the 2 years since intake = 6.0.</p> <p>Most commonly provided services were assistance with benefits and clothing.</p> <p>Mean number of outcome areas in which client was judged to have improved = 2.8.</p> <p>Percentage of clients judged to have improved since intake in: physical health = 75% mental health = 35% income = 82%</p>	<p>Only 67% of those eligible for the study were included. Loss to follow-up for interview was 59% (although chart notes were available for all clients).</p> <p>Staff assessments of improvement of outcomes may be biased and unreliable.</p>	<p>This study provides a weak quality of evidence and has no clear implications for practice.</p>
Cole & Farries (1986)	<p>General health</p> <p>Socio-economic</p> <p>People who successfully applied to local authority (council) to be rehoused on medical grounds, Bolton, UK.</p> <p>Before-after study with no controls</p> <p>Study size: 271</p>	<p>After applying to be rehoused, all subjects were visited and assessed by a health visitor, who reported to the medical environmental officer of health (MEOH). Either the MEOH or a GP made a home visit and gave recommendations to the housing department. Houses were allocated by the Director of Housing.</p>	<p>Changes in medical condition; satisfaction with accommodation; reasons for both satisfaction and changes in health status.</p> <p>Follow-up: 3 years</p>	<p>56 (22%) had died (mean age at rehousing 75.9 years).</p> <p>57 (23%) thought their medical condition had improved and were satisfied with accommodation.</p> <p>58 (23%) thought their medical condition unchanged, but were satisfied with accommodation.</p> <p>29% of those not satisfied with their present accommodation had developed a new condition since being rehoused.</p> <p>Most common reason for satisfaction with accommodation was lack of stairs.</p> <p>Most common disease group among those reporting improvement was musculoskeletal.</p>	<p>The study design does not allow us to establish an understanding of the factors which may have led to a change in health status.</p>	<p>This is a valid attempt to evaluate rehousing on medical grounds as an intervention.</p> <p>The results suggest that rehousing poor people on medical grounds may not be the best or most cost effective way of improving their medical conditions.</p> <p>Further, comparative research would be needed to establish the relative effectiveness of alternative approaches more clearly.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
Colver et al (1982)	<p>HoN – Accidents</p> <p>Socio-economic</p> <p>Families with children under 5 years old, living in deprived areas of Newcastle, UK.</p> <p>RCT (units of allocation = clinics, day nurseries and nursery classes)</p> <p>Study size: 101 families entered study A: 37 families followed up B: 43 families followed up</p>	<p>Between October and December 1981, ten 10-minute programmes in the 'Play it Safe' series, which focused on childhood accidents, were shown on Sunday nights on BBC 1 television.</p> <p>Before the television series, parents completed a short questionnaire about their knowledge of children's accidents, and were asked to identify the hazards portrayed on a picture of a mother and her children.</p> <p>A: Families were visited at home, given the 'Play it safe' booklet, and the hazards in their home were assessed. They were given specific advice on how to reduce the hazards.</p> <p>B: Families were told about the television programmes and sent a reminder letter before the series started.</p>	<p>Physical hazards in the subjects' homes.</p> <p>Follow-up: after the television programmes (3 months after baseline assessment)</p>	<p>Number (%) of families watching different numbers of the television programmes:</p> <p>A: 03 (8%) 10 (27%) 6 (16%) 18 (49%)</p> <p>B: 7 (16%) 16 (37%) 8 (19%) 12 (28%)</p> <p>Number (%) of families who increase their score on the hazard identification picture: A: 26 (70%) B: 24 (56%) (difference not significant)</p> <p>Number (%) of families who made changes to make their homes safer: A = 22 (60%) B = 4 (9%), p < 0.001</p>	<p>Of the 4 families in group B who made a change to their home, two had received specific advice (one from a health visitor and one from a friend).</p> <p>17 (40%) families in group B obtained a 'Play it Safe' booklet for themselves (eg by writing to the BBC).</p>	<p>This study provides quite good evidence that a prearranged personal home visit, in which specific targets for change were identified and clear, detailed advice given, in conjunction with a television series, can encourage people from deprived backgrounds to make changes in their homes which may reduce the risk of childhood accidents.</p>
Connett & Stamler (1984)	<p>HoN – smoking, CHD/stroke</p> <p>Socio-economic, ethnicity</p> <p>Middle-aged men, USA.</p>	<p>All participants given screening examination.</p> <p>A: Encouragement to participate in smoking cessation and diet</p>	<p>Blood pressure, smoking status, serum cholesterol, weight.</p> <p>Follow-up: 2 years</p>	<p>Mean (% change) diastolic blood pressure in mm Hg at 6 years: A White 80.4 (-11.4%) A Black 81.3 (-13.6%) B White 83.5 (- 7.9%)</p>	<p>The study was not designed to investigate differences between black and white subjects: this was a sub-group analysis, albeit of a large trial.</p>	<p>This study provides reasonable evidence to suggest that an intensive treatment and education programme is likely to have a similar impact on black and white subjects.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>RCT (comparison of sub-groups)</p> <p>Study size: 5,338 416 5,227 414</p>	<p>modification programme. Stepped-care programme, following a treatment protocol, to lower diastolic blood pressure.</p> <p>B: Usual medical care</p>	and 6 years	<p>B Black 85.6 (- 8.1%)</p> <p>% achieving goal diastolic blood pressure by 6 years: A White 71% A Black 72%</p> <p>% smokers (% change) at 6 years: A White 33.3% (-46.2%) A Black 38.0% (-43.0%) B White 43.8% (-29.0%) B Black 42.9% (-22.5%)</p> <p>Mean weight (% change) at 6 years (lb): A White 187.7 (-0.7%) A Black 192.3 (-0.2%) B White 190.1 (+0.7%) B Black 190.1 (+0.7%)</p>	The cultural backgrounds and language preferences of the subjects were not considered.	
Cox et al (undated)	<p>HoN – Mental health</p> <p>Socio-economic</p> <p>Young mothers in inner city areas, UK.</p> <p>Before–after study, non-randomised concurrent controls.</p> <p>Study size: A = 45 B = 29</p>	<p>A: Newpin programme: women referred to programme were assessed at home by Newpin staff, and a 'focus for change' was agreed. Depending on need, women were offered help from a befriender, attendance at a drop-in centre, group or individual counselling, or therapy. Some participating women went on to undertake training (2 half days per week for 6 months) to become bendifenders. Ethos of caring community encouraged.</p> <p>B: No access to Newpin programme. Women assessed for suitability for</p>	<p>Involvement in Newpin programme; mental health of mother and partner; quality of mother–partner relationship; developmental assessment of child; mother–child interaction as recorded at bath time.</p> <p>Follow-up: 6 months</p>	<p>Of group A, 12 (30%) had less than 2 months' involvement with Newpin or dropped out (10 befriended, 2 bendifenders).</p> <p>Mean severity of mental state (scale 0–5, 5 is worst): A: Before 2.18, after 1.40 B: Before 1.25, after 1.08 Sub-group of A well involved in Newpin (n = 21): Before 2.10, after 1.00 Sub-group of A poorly involved in Newpin (n = 19): Before 2.26, after 1.84 No significant difference in size of change between groups.</p> <p>No significant difference in change in quality of women's relationship with partner between groups.</p>	<p>This was a highly complex intervention, and different women received different components of it.</p> <p>There were several major problems with the evaluation: the sample was small, and was divided into smaller sub-groups for analysis; the women had had varying degrees of involvement with Newpin at baseline; the appropriateness of some of the outcome measures used was questionable.</p>	<p>This was a very weak evaluation which does not allow us to draw any useful conclusions about the effectiveness of the Newpin programme.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
		Newpin programme by Newpin staff.		No significant difference in change in quality of parent-child interaction between groups.		
Craddock et al (1990)	<p>General health (women)</p> <p>Socio-economic</p> <p>Women living in areas of multiple deprivation, Glasgow, UK.</p> <p>Before-after study, non-randomised concurrent controls</p> <p>Study size: Knowledge scores assessed for: A = 100 B = 100 C = 50 Health profile administered to 222 new attenders of A.</p>	<p>A: Comprehensive well-woman clinic set up on a deprived estate in which the following characteristics were emphasised: setting was non-medical; access to services was on a drop-in basis; consultations could last as long as necessary; atmosphere was informal and relaxed; free tea and coffee were readily available; creche; health information on display to take away or loan; all staff were female.</p> <p>B, C: Well-woman clinics run on traditional lines.</p>	<p>Numbers and demographic characteristics of women attending; health profile of women attending; health services given to women attending; health knowledge scores; women's reasons for attending clinic A.</p> <p>Follow-up: 18 months after clinic A was set up.</p>	<p>The demographic characteristics of the women attending clinic A altered over time (apparently women from less deprived areas sought out the clinic after hearing about it via local media).</p> <p>Percentages of women attenders of clinic in A who:</p> <p>(i) lived outside the estate on which the clinic was situated: At clinic inception: 7% After 18 months: 12%</p> <p>(ii) were employed: At clinic inception: 16% After 18 months: 25%</p> <p>(iii) had partners who were employed: At clinic inception: 43% After 18 months: 57%</p> <p>The services most commonly taken up at clinic A were: contraception; women's health counselling with a female doctor; advice and other non-medical services, including counselling.</p> <p>At clinic A, trying to have both drop-in arrangements and consultations which lasted as long as necessary meant that waiting times were sometimes excessive.</p> <p>Women's stated reasons for attending clinic A included: availability of female doctor; convenience</p>	<p>Clinic A was set up in accordance with Association of Community Health Councils of England and Wales guidelines.</p> <p>The evaluation of this clinic did not attempt to correct for non-response or confounding factors when comparing clinics A, B and C.</p> <p>The qualitative observations presented in this report, including descriptions of the practical problems encountered when trying to establish a well-woman clinic, make a useful contribution to the attempt to assess the possible benefits of this form of intervention. However, this part of the evaluation would have been more useful if it had been systematically undertaken to address a clearly specified research question.</p>	<p>This was a very weak evaluation which does not allow us to draw any useful conclusions about the effectiveness of the Ballantay clinic.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
				of clinic; it offered more reassurance, information and explanation than their GPs.	The evaluation was not particularly well designed to give useful quantitative data.	
Danforth et al (1990)	<p>HoN – CHD/stroke</p> <p>Socio-economic, ethnicity</p> <p>Low socio-economic-status black hypertensive children, USA</p> <p>Before–after study with no controls</p> <p>Study size = 11</p>	<p>Children exercised (jogging, walking, or with a stationary bike) 3 days a week, gradually increasing to 30 minutes a day. Intervention period lasted 3 months.</p> <p>Blood pressure measurements taken every week, fitness assessments every four weeks.</p>	<p>Blood pressure, circulatory fitness, resting heart rate, weight</p> <p>Follow-up: during, at the end of, and 2 and 4 months after the end of the intervention period.</p>	<p>Mean diastolic blood pressure (mm Hg): baseline = 84 end interv'n = 75 2 months = 79 4 months = 85</p> <p>Mean systolic blood pressure (mm Hg): baseline = 130 end interv'n = 121 2 months = 117 4 months = 123</p> <p>From baseline to end of intervention period, resting heart rates decreased an average of 6.8%</p> <p>From baseline to end of intervention period, heart rates during submaximal stress tests decreased an average of 9.7%.</p> <p>The improvements in blood pressure and heart rates were not sustained after the intervention stopped.</p>	<p>The sample size was very small.</p> <p>The presentation of data in this paper, which is based on a very small sample, may be misleading.</p> <p>This study did not control for regression to the mean, and important bias to consider in interventions aimed at reducing blood pressure.</p>	<p>This study provides very weak evidence, and does not allow us to draw any conclusions about the effectiveness of the intervention.</p>
Davidson et al (1994)	<p>HoN – Accidents</p> <p>Socio-economic, ethnicity</p> <p>Children living in deprived circumstances in predominantly black or Hispanic communities, New</p>	<p>A: (Central Harlem): A number of agencies formed a Safe Kids, Healthy Neighborhoods coalition which worked to: renovate Central Harlem playgrounds; involve children and adolescents in safe supervised activities that would teach them useful skills; provide</p>	<p>Numbers of children from the target population who were hospitalised due to all causes of injury (including trauma, poisoning, burns), or who died as a result of</p>	<p>Mean adjusted annual incidence rates (per 100,000) of all severe injuries in 5-16 year olds:</p> <p>A (Central Harlem): Pre-intervention: 1035 Post-intervention: 833</p> <p>B (Washington heights): Pre-intervention: 509 Post-intervention: 387</p>	<p>Incidence of accidents in the target population had varied widely prior to the intervention. It is therefore difficult to attribute the reported reduction in incidence to the intervention.</p>	<p>This was a good attempt to evaluate a complex community intervention. However, strong secular trends mean that the evidence of effectiveness is weak.</p> <p>This kind of intervention could be replicated in UK settings.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>York, USA.</p> <p>Before–after study with historical and non-randomised concurrent controls</p> <p>Study size: community intervention targeted at 5-16 year olds in Central Harlem</p>	<p>injury and violence prevention education; provide bicycle helmets at reasonable costs.</p> <p>Over the first 3 years, specific activities included: improvements to playgrounds (involving youngsters in mural painting etc); sports clinics; a dance programme; a pedestrian safety programme.</p> <p>B: (Washington Heights) No intervention.</p>	<p>injury.</p> <p>Follow-up: first 3 years of programme.</p>	<p>Relative risk (95%CI), post intervention, of injuries, for 5–16 year olds:</p> <p>All targeted injuries: Central Harlem: 0.56 (0.45–0.71) Washington Heights: 0.68 (0.52–0.87)</p> <p>Assault: Central Harlem: 0.52 (0.34–0.79) Washington Heights: 1.13 (0.63–2.03)</p> <p>Outdoor falls: Central Harlem: 1.35 (0.75–2.42) Washington Heights: 0.89 (0.49–1.54)</p>	<p>There was a strong possibility of contamination (residents of Washington Heights being exposed to aspects of the intervention programme, and increasing numbers of programme participants living in Washington Heights).</p> <p>The authors hypothesise that the provision of new supervised sports activities may have increased exposure to the risks of outdoor falls.</p>	
<p>Davis et al (1994)</p>	<p>HoN – Cancer</p> <p>Socio-economic, race ethnicity</p> <p>Minority groups, especially African-Americans and Hispanics attending Protestant or Catholic churches in Los Angeles, USA.</p> <p>Before–after study with no controls.</p> <p>1012 women in 23 churches.</p>	<p>Cervical cancer education sessions run at selected churches, screening offered to those who had not been screened within the last 2 years. Education and screening sessions publicised during church services and lay 'leaders' within the church were identified and trained to co-ordinate dates, recruit women, organise child care etc.</p>	<p>Those who underwent screening.</p> <p>Number of churches maintaining the service over 2 years after education programme's conclusion.</p> <p>Follow-up: immediate post education and after 2 years.</p>	<p>Percentage of targeted women who presented for screening</p> <p>African-American 72</p> <p>98</p> <p>90</p> <p>52% of churches continued with the cancer screening campaign 2 years after the end of the programme.</p>	<p>The lack of a control group in this study makes the results difficult to interpret.</p> <p>The types and levels of activity undertaken within each church varied.</p> <p>This is a highly complex intervention, and the impact of its different component parts are difficult to disentangle.</p>	<p>This study provides moderate evidence that church-based interventions which make use of trained lay workers may encourage uptake of preventive services among church-going communities.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
Davis & Reis (1988)	<p>General health</p> <p>Socio-economic, ethnicity</p> <p>Pregnant women in a deprived area of Chicago, USA</p> <p>Before-after study, non-randomised concurrent controls.</p> <p>Study size: A = 58 B = 55</p>	<p>A: Attendance at 5 or more antenatal classes on a 'Health Express' van which was intended to make antenatal health education more locally accessible. Health education focused on increasing knowledge about pregnancy and childbirth, and on improving self-esteem.</p> <p>B: Attendance at community health centre, apparently for routine antenatal care.</p>	<p>Birthweight, apgar score</p> <p>Follow-up: to birth</p>	<p>Significant difference in favour of non-intervention group B.</p> <p>Mean birthweights: A = 3,080.60g (SD 593.08) B = 3,132.64g (SD 432.12) p < 0.05.</p> <p>Mean apgar score: A = 8.76 (SD = 0.80) B = 8.88 (SD = 0.51) p < 0.05</p>	<p>No demographic data or baseline characteristics were presented. It is unclear whether the intervention and control groups were comparable.</p> <p>Women were selected for the study after the birth of the child.</p> <p>Group attending Health Express van were self-selected.</p>	<p>This study presents very weak evidence.</p> <p>It does not allow a clear assessment of the effectiveness of the type of health education delivered on the Health Express van, or of the value of making access to antenatal health education easier.</p>
Dennison (1972)	<p>HoN – Mental health, Accidents, Smoking</p> <p>Socio-economic</p> <p>10th-year students of lower- and middle-class backgrounds, attending a high school in south-west Pennsylvania, USA.</p> <p>RCT</p> <p>Study size: A = 32 B = 32</p>	<p>All students completed a baseline inventory, measuring their knowledge of health practices and assessing how they would act in particular health-related situations.</p> <p>A: A health instruction programme, developed after analysis of the baseline findings. Daily 30-minute class periods for 8 weeks, covering 7 topic areas and emphasising those topics in which the class had demonstrated low knowledge at baseline. Regular tests were marked by teachers or students. Praise and prizes were given to encourage learning.</p>	<p>Test of pupils' knowledge, and assessment of their behaviour in hypothetical situations (Le Maistre-Pollock health inventory).</p> <p>Follow-up: end of 8-week instruction programme.</p>	<p>Mean (standard deviation) of post-test knowledge scores: A = 85.8 (10.6) B = 61.5 (10.6)</p> <p>Mean (standard deviation) of knowledge scores for subgroups of group A: Middle social class: Pre-test = 62.9 (7.3) Post-test = 87.7 (7.0) Lower social class: Pre-test = 56.4 (13.1) Post-test = 83.9 (13.3)</p> <p>Differences between scores of middle and lower social classes were not significant at either baseline or follow-up.</p> <p>The absolute difference in mean scores for middle and</p>	<p>The social class analysis presented in this paper was a sub-group analysis, with results presented for the social class sub-groups of group A only.</p> <p>There was a possibility of contamination, since all pupils attended the same school.</p> <p>The students selected for this study were not representative of the school population.</p> <p>Group A received 20 hours of teaching: a Hawthorne effect may have been operating.</p>	<p>This study provided reasonable evidence that an intensive school-based health education intervention tailored to address the specific knowledge deficiencies of the target audience can improve the knowledge of students from both lower- and middle-class backgrounds.</p> <p>The likely impact of the changes in knowledge on health status is not known.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
		B: Control group – no intervention.		lower social classes reduced from 6.5 at baseline to 3.8 post intervention. The significance of this was not tested.		
Elton & Packer (1986)	<p>HoN – Mental health</p> <p>Socio-economic</p> <p>People requesting rehousing on the grounds of mental ill health symptoms alone (excluding those with psychoses and those with physical symptoms too), Salford, UK.</p> <p>RCT (alternate allocation)</p> <p>Study size: A = 28 B = 28</p>	<p>All subjects interviewed at home and assessed for anxiety and depression.</p> <p>A: Given medical priority for rehousing</p> <p>B: Not given medical priority for rehousing</p> <p>(Individuals from group A were paired with individuals from group B recruited immediately after them for the analysis)</p>	<p>Housing situation.</p> <p>Anxiety and depression (DSSI/sAD scores).</p> <p>Follow-up: 1–3 months and 12 months after rehousing of the first of the pair to be rehoused.</p>	<p>In 6 pairs, the individual from group B was rehoused before the individual from group A.</p> <p>In 3 pairs, the individual from group B was rehoused but the individual from group A was not.</p> <p>In 2 pairs, neither applicant was rehoused within a year.</p> <p>In 5 pairs, the group B individual was rehoused less than a year after the group A individual.</p> <p>One individual (group B) dropped out and the pair was excluded.</p> <p>All the above cases were excluded, leaving n = 11 pairs for the analysis.</p> <p>Mean (standard deviation) changes in DSSI/sAD scores between baseline and 1-year follow-up (negative difference denotes improvement):</p> <p>Anxiety: A = -6.5 (3.3) B = -0.6 (3.8), p < 0.005</p> <p>Depression: A = -6.0 (2.8) B = -1.5 (3.9), p < 0.01</p> <p>Total: A = -12.5 (4.7) B = - 2.1 (5.6), p < 0.01</p>	<p>It is difficult to separate out the effects of being given medical priority for rehousing from the effects of being rehoused. The sub-group analysis reported here looks at the effects of being given medical priority and being rehoused compared with the effects of not being given medical priority and not being rehoused.</p>	<p>This study provides a weak quality of evidence. It is difficult to ascertain what implications can be drawn from the study design and the analysis presented.</p> <p>However, the study did show, in the small sub-group analysed, an apparent beneficial effect of rehousing on the mental health of those who identified housing as the cause of their anxiety and depression.</p>
Fallat & Rengers (1993)	<p>HoN – Accidents</p> <p>Socio-economic</p>	Two people visited family homes in a large rental unit, administered a pre-test questionnaire to assess	General knowledge of safety issues, bathroom hot water	'Answers to general information questions on the survey improved from pre-education to post-education, although not all of the knowledge was	This was a very small study. Data for the purported knowledge scores were not	This study provides a very weak quality of evidence.

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>Families with young children resident in a housing authority rental block, in an area where a large number of scald burns were seen at the local hospital, Louisville, USA.</p> <p>Before–after study, no controls</p> <p>Study size: 80 families given education: 20 of these families had safety devices fitted.</p>	<p>safety knowledge, talked through a handout of burns prevention information, tested the bathroom tap water temperature, tested the smoke alarm and checked the hot water temperature setting on the boiler. Anti-scald devices (which cut off the water supply if it became too hot) were fitted to the taps in 20 homes one month later.</p>	<p>tap temperature, functioning of smoke detector.</p> <p>Scald burns in children seen in hospital.</p> <p>Follow-up: 6 and 18 months</p>	<p>retained at 18 months' (sic).</p> <p>Pre-intervention, 71% of apartments had a hot water temperature >130F.</p> <p>At a 6-week check, 3 of 20 devices fitted did not work. At 6 months, 50% of the devices had been removed by plumbers or the housing authority because sediment build-up prevented water flow. At 9 months, all but three devices had been removed for this reason.</p> <p>Scald burns in children seen at local hospital (and % of these occurring in the zip code containing the rental code): Year before intervention: 31 (48%) Year after intervention: 37 (32%)</p>	<p>given and statistical significance levels were not reported.</p> <p>In addition, the safety devices assessed did not work well.</p> <p>The hospital involved referred about 75% of the scald burn cases it saw to child protective services because it suspected they were not accidents in the first place.</p>	<p>There are no clear implications for practice, although the study does emphasise that any technical innovation should be tested to normal commercial standards before it is promoted as a safety device.</p>
Field et al (1980)	<p>General health</p> <p>Socioeconomic, ethnicity</p> <p>Black pre-term infants and black infants born to mothers aged under 19 years, USA.</p> <p>RCT (only groups A and B were randomly allocated).</p> <p>Study size: 30 infants recruited to each of 5 groups: A, B: Maternal age < 19, gestation < 37 weeks, birth weight < 2500g.</p>	<p>A: 4 months of bi-weekly 30-min home visits by trained worker and female teenage black work/study student. Monthly visits thereafter. Visits aimed to educate mothers on child rearing, developmental milestones and age-appropriate stimulation, and to facilitate mother–child interaction.</p> <p>B, C, D, E: No intervention.</p>	<p>Child growth, child development, child temperament, and face to face interaction scores.</p> <p>Follow-up: 4 and 8 months after birth.</p>	<p>Mean weight at 4 months: A = 6730g B = 6003g (p < 0.001)</p> <p>Mean developmental expectation (higher score optimal): A: baseline = 3.7 4 months = 7.2* B: baseline = 3.9* 4 months = 3.3* D: baseline = 4.6 4 months = 5.8 * significant difference at p < 0.001</p> <p>Infant temperament (lower score optimal): A: 4 months = 2.7 (illegible) 8 months = 2.7</p>	<p>It is likely that the adolescent mothers, most of whom lived with their parents, had greater access to substitute care than the mothers in the 19–29 age group, most of whom were married.</p> <p>There were only limited supplies of toys in the low-income homes.</p>	<p>This study provides good evidence that a programme of intensive home visiting from trained people with whom the target audience are likely to identify can improve the physical and mental development of black infants born prematurely to adolescent American women.</p> <p>This intervention could be carried out in a UK setting. Its impact on different target populations would need evaluating.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>C: Maternal age < 19, gestation 40 weeks, birth weight >2500g.</p> <p>D: Maternal age 19–29, gestation < 37 weeks, birth weight < 2500g.</p> <p>E: Maternal age >19, gestation 40 weeks, birth weight >2500g.</p>			<p>B: 4 months = 4.0 8 months = 3.8</p> <p>D: 4 months = 4.0 8 months = 3.4</p> <p>There were significant differences in improvement of both maternal and infant face to face interactions between groups A and B.</p>		
Freeborn et al (1978)	<p>General health</p> <p>Socio-economic</p> <p>People enrolled in Kaiser-Permanente Medical Care Program for low-income families, Oregon, USA.</p> <p>RCT</p> <p>Study size: A1+B1 (enrolled before 1.9.69) = 3539 A2+B2 (enrolled after 1.9.69) = 1206 C1 (enrolled before 1.9.69) = 1017 C2 (enrolled after 1.9.69) = 397</p>	<p>Outreach workers recruited from disadvantaged neighbourhoods and trained to: recruit more families to the programme; teach value of good health and health practice; encourage appropriate use of services; assist families to participate in care system; direct families to appropriate community resources.</p> <p>A: Full outreach services including home visits from neighbourhood health co-ordinators.</p> <p>B: Outreach services only provided on request (for those enrolled before 1.9.69; this involved a partial withdrawal of service).</p> <p>C: No outreach services (for those enrolled before 1.9.69; this involved a withdrawal of service).</p>	<p>Use of ambulatory medical care services; volume and types of services used; appointment-keeping behaviour.</p> <p>Follow-up: year of 1973</p>	<p>Those receiving outreach services (A+B) had lower proportions of non-users of medical care services for the year studied.</p> <p>Ambulatory care utilisation rates per 100 person years (standard error): A1+B1 male = 283 (11) A1+B1 female = 434 (12) C1 male = 234 (17) C1 female = 418 (24)</p> <p>A2+B2 male = 393 (21) A2+B2 female = 504 (27) C2 male = 247 (23) C2 female = 365 (28)</p> <p>p < 0.0001 for males (A2+B2)vC2 p = 0.0004 for females (A2+B2)vC2</p> <p>Analysis was also presented of appointment-keeping behaviour (outreach had no significant effect), use of allocated physician (outreach had no significant effect), type of episode (those receiving outreach had a non-significant higher proportion of follow-up visits), type of appointment (no clear pattern) and</p>	<p>Very few baseline characteristics are presented, and no attempt was made to correct for either the demographic characteristics which were presented or for differing length of enrolment in the programme and access to outreach services.</p> <p>A problem in interpretation is created because the intervention was different for those enrolling before and after 1.9.69.</p> <p>There were problems of contamination in the groups enrolled before 1.9.69 because the outreach workers were reluctant to withdraw their services from families.</p>	<p>This study provides reasonable evidence that a programme of outreach from trained representatives of the target population can increase the uptake of ambulatory care services by low-income American families.</p> <p>This study did not examine the impact of reducing financial barriers to health care but investigated the impact of outreach to reduce social and cultural barriers to use of such services; therefore these findings may to some extent be generalisable to UK settings.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
				place of service (no clear pattern).		
Gainer et al (1993)	<p>HoN – Accidents/violence</p> <p>Socio-economic age</p> <p>Inner-city children (aged approx 10–15), Washington, USA).</p> <p>Non-randomised before–after study with controls attending the same school 6 months later</p> <p>A = 135 B = 115</p>	<p>A: A classroom-based education programme given to students at state elementary and junior high schools. pupils taught the distinction between various types of violence, relationship between drugs and violence, social problem-solving skills to achieve non-violent solutions to situations.</p> <p>B: No intervention.</p>	<p>Social problem-solving abilities.</p> <p>Beliefs supportive of aggression.</p> <p>Perceptions of risk associated with weapons carrying and drugs.</p> <p>Follow-up: 1 to 2 weeks.</p>	<p>Reduced odds of defining a hypothetical social problem in adversarial terms in intervention group compared to controls (OR = 0.44) and less likely to provide hostile solutions (OR = 0.25).</p> <p>Intervention group also showed slightly raised improvement in attitudes and knowledge about risk factors for violence especially at year 5.</p>	<p>Since the control group were in the same schools the students are likely to be similar, but controls (who came in after the programme had been run) may have gained information from older pupils. Conditions may have changed. However, results were adjusted for baseline differences.</p>	<p>It is not clear to what extent social skills training may reduce violence but study results are sufficiently suggestive to carry out a trial looking at the effect on longer-term behaviour.</p>
Gold & Franks (1990)	<p>HoN – CHD</p> <p>Socio-economic</p> <p>Individuals over the age of 17 living in a poor rural area of New York, USA, where there is evidence of high levels of cardiovascular mortality.</p> <p>Before–after study with non-randomised concurrent controls.</p> <p>A = 441 B = 625</p>	<p>A: Individuals given short educational presentation on cardiovascular risk and referred to regular providers if they had elevated blood pressure. Ongoing contact maintained for those with elevated blood pressure, those eligible offered free screening and sliding-fee medical care, various community sites used for additional cardiovascular education meetings.</p> <p>B: Received short educational presentation and were referred to regular providers if they had high blood pressure.</p>	<p>Blood pressure.</p> <p>Utilisation of health care services.</p> <p>Cardiovascular health.</p> <p>Follow-up: 2–3 years.</p>	<p>Residents in A showed adjusted systolic blood pressure levels 3.1 mm Hg lower (CI 0.9, 5.3) than those in B.</p>	<p>A significant loss of individuals to follow-up occurred due to mobility and death, which could bias results.</p> <p>No analysis was carried out on intention to treat, and the clinical significance of the estimated lower blood pressure in A is unclear.</p>	<p>This study provides weak evidence. There are no clear implications for practice.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
Gordon & Swan (1994)	<p>HoN – Mental health</p> <p>Socio-economic</p> <p>Mothers of children under 5 who live in an area of multiple deprivation and who are high users of primary care services, UK.</p> <p>RCT</p> <p>Study size: A+B: 92 (Numbers for separate groups not stated)</p>	<p>A: Weekly groups facilitated by health promoters in community venues. Discussion encouraged on subjects chosen by women, which included stress, child behaviour and childhood illnesses.</p> <p>B: Usual services only</p>	<p>Anxiety and depression (Hospital Anxiety and Depression Scale)</p> <p>Follow-up: 11 months into a 12-month intervention</p>	<p>No. (%) of women classed as depressed:</p> <p>Pre-intervention A = 7 (35%) B = 8 (33%)</p> <p>Post-intervention A = 2 (11%) B = 12 (50%)</p> <p>No. (%) of women classed as having anxiety:</p> <p>Pre-intervention A = 12 (60%) B = 14 (58%)</p> <p>Post-intervention A = 8 (44%) B = 16 (67%)</p> <p>No significance tests performed on changes in groups over time.</p> <p>The intervention was effective in setting up informal support systems among the group participants. Women in group A felt more competent in dealing with childhood illnesses. The intervention was successful in teaching stress reduction.</p>	<p>Large (54%) attrition rate was not examined. It is not clear whether the drop-outs were significantly different from those who were followed up, which limits the extent to which useful conclusions can be drawn.</p> <p>Following the intervention, two other groups have been established and are now being run by the mothers themselves.</p>	<p>This evaluation provides weak evidence.</p> <p>Group discussion sessions for mothers in areas of multiple deprivation may improve the mental health status of these mothers.</p>
Graham et al (1992)	<p>General health</p> <p>Socio-economic, ethnicity</p> <p>Pregnant black women living in inner city areas, USA, registering for antenatal care between 17th and 28th week of gestation, with low family</p>	<p>All women screened for high-risk pregnancy and given fast food voucher. All received routine antenatal care.</p> <p>A: Trained non-professional black women made home visits to provide psychological support, information on nutrition and health risks during</p>	<p>Birthweight, number of clinic visits for antenatal care made by mothers.</p> <p>Follow-up: to birth</p>	<p>52 women in group A received at least 4 home visits (subgroup A1).</p> <p>Percentage of women delivering low-birthweight infants: A1 = 7.7% B = 7.5% Difference not statistically significant.</p>	<p>The advantages of random allocation were reduced because results were presented for a sub-group of the intervention group who received the most intensive intervention.</p> <p>Other outcomes, such as</p>	<p>This study presents weak evidence.</p> <p>Supportive home visits from trained members of the target population may encourage pregnant black American women to attend for clinic-based antenatal appointments.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>function, at least one stressful life event during current pregnancy, and at least one additional pregnancy risk factor.</p> <p>RCT</p> <p>Study size: A = 87 B = 58</p>	<p>pregnancy, advocacy, access to community support services. Small gifts offered to women at each visit.</p> <p>B: Control group – no intervention.</p>		<p>Ratio of actual to expected follow-up clinic based antenatal visits: A1 = 1.17 B = 0.93 (p = 0.007)</p> <p>Women predicted to be at high risk by a screen developed for the study, which included psychosocial variables, did not have a significantly higher proportion of low-birthweight babies than those predicted to be at low risk.</p>	<p>maternal mental health, which might plausibly be affected by such interventions, were not studied.</p> <p>The sample size of this study was probably too small to detect small differences in proportions of low-birthweight infants.</p>	
Graham et al (1990)	<p>HoN – smoking</p> <p>Ethnicity</p> <p>7th-year pupils participating in project SMART, USA.</p> <p>RCT</p> <p>Study size: Total = 5070 Results presented for A = 768 B = 752</p>	<p>A: Schools-based drug (tobacco, alcohol, marijuana)-prevention curriculum: either 12-session social skills programme (SOCIAL) intended to give pupils the skills to resist offers of drugs or 12-session programme focusing on personal decision-making, values clarification and stress management (AFFECT).</p> <p>B: No drug abuse-prevention curriculum.</p>	<p>Lifetime and recent use of cigarettes, alcohol and marijuana.</p> <p>Follow-up: 1 year</p>	<p>Mean (standard deviation) for standardised drug use index (higher number indicates greater drug use):</p> <p>Overall: Before: 0.48 (0.54) After: 0.68 (0.58) Before: 0.50 (0.52) After: 0.63 (0.52)</p> <p>Asian pupils: Before: 0.20 (0.49) After: 0.44 (0.63) Before: 0.24 (0.26) After: 0.32 (0.31)</p> <p>Black pupils: Before: 0.40 (0.51) After: 0.52 (0.49) Before: 0.45 (0.62) After: 0.48 (0.39)</p> <p>Hispanic pupils: Before: 0.50 (0.55) After: 0.67 (0.56)</p>	<p>The results for the pupils of different ethnic groups are based on a sub-group analysis.</p> <p>Little information was reported about the baseline characteristics of the different groups.</p>	<p>This study presents very weak evidence which suggests that school-based health education skills programmes may have different effects on pupils of different ethnic origins.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
				<p>Before: 0.47 (0.46) After: 0.59 (0.49)</p> <p>White pupils: Before: 0.62 (0.51) After: 0.91 (0.56) Before: 0.67 (0.52) After: 0.92 (0.58)</p> <p>The statistical significance levels of these results were not quoted.</p>		
Grossman et al (1990)	<p>General health</p> <p>Socio-economic</p> <p>Pregnant women on low incomes, eligible for the WIC programme, who stated an intention to breastfeed, Ohio, USA</p> <p>RCT</p> <p>Study size: A = 49 B = 48</p>	<p>All women interviewed postpartum about various factors relevant to breastfeeding.</p> <p>A: 30–45 min personal visit from a nurse trained to promote breastfeeding. Women given teaching session on breastfeeding, booklet, telephone number of breastfeeding helpline and ongoing support.</p> <p>B: Routine care</p>	<p>Method of feeding at 6 weeks, age of infant at weaning.</p> <p>Follow-up: 6 weeks, then monthly until weaning complete.</p>	<p>Breast-feeding at all at 6 weeks: A = 59% B = 73%</p> <p>Breastfeeding at all at 6 months: A = 14% B = 23%</p>	<p>There was a strong possibility of contamination: the presence of project nurses on the wards apparently stimulated regular nurses to promote breastfeeding.</p> <p>The WIC programme may encourage some women to bottle feed because they perceive they are given 'more' (food for themselves <i>and</i> for the baby) than if they breastfeed (when they 'only' receive food for themselves).</p>	<p>This study provides weak evidence.</p> <p>It suggests that one additional visit from a trained nurse may not increase actual breastfeeding rates among women on low incomes who stated antenatally that they intended to breastfeed.</p>
Heins et al (1990)	<p>General health</p> <p>Ethnicity</p> <p>Pregnant women, described as</p>	<p>A: Nurse midwife antenatal care: individual sessions with nurse midwife. Women given lifestyle advice and taught to recognise signs of preterm labour. Cervical</p>	<p>Live births, live birthweight, gestational age.</p> <p>Follow-up: to birth.</p>	<p>Live birth weight < 1500g A: 24 (3.6%) B: 28 (4.1%)</p> <p>Live birth weight 1500-2499g A: 103 (15.4%)</p>	<p>The sub-group analysis (looking separately at black and white women) should be regarded as hypothesis generating only.</p>	<p>This study provides very weak evidence, suggesting that the live birth outcomes associated with either nurse midwife or obstetrician care are similar for black and white women defined as having high risk</p>

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	<p>at risk, USA</p> <p>RCT</p> <p>Study size: A = 689 B = 699</p>	<p>examination carried out regularly. Women given 24hr telephone helpline numbers.</p> <p>B: Control group – standard high-risk antenatal care by obstetricians.</p>		<p>B: 111 (16.3%)</p> <p>Births before 33 weeks' gestation: A: 5% B: 5%</p> <p>Births before 37 weeks' gestation: A: 16% B: 18%</p> <p>Odds ratios for low birthweight for A vs B: White women, all risk scores: 1.20 (95%CI = 0.8 - 1.9) Black women, all risk scores: 0.80 (95%CI = 0.6 - 1.1)</p>		<p>pregnancies.</p>
Hibbard et al (1979)	<p>General health</p> <p>Socio-economic</p> <p>Pregnant women from different socio-economic groups, Wales, UK.</p> <p>Before–after study with no controls (cross-sectional, different groups of women interviewed at three different stages)</p> <p>A = 256 (women attending for booking visit) B = 237 (women attending at 35 weeks' gestation) C = 251 (women postpartum)</p>	<p>Women attending for antenatal booking were given a booklet 'You and your baby - part 1', leaflets on topics such as breastfeeding, advice on other topics and literature available, and encouragement to attend mothercraft classes. They were encouraged to voice any queries or worries they might have, either then or later in pregnancy.</p>	<p>Knowledge score, state-trait anxiety, attendance at mothercraft classes</p> <p>Follow-up: at 35 weeks' gestation and postpartum, before hospital discharge</p>	<p>Knowledge scores improved over time in all social groups. However, the final mean scores for social class V remained very much lower than those of the higher social classes.</p> <p>Mean knowledge scores (max. possible score = 18)</p> <p>Social class I A = 8.97 B = 13.39 C = 13.47</p> <p>Social class II A = 7.88 B = 13.18 C = 13.08</p> <p>Social class III/N A = 6.70 B = 11.84 C = 12.08</p>	<p>Different groups of women were tested at different times.</p> <p>It is highly possible that improvements in knowledge scores at later stages in pregnancy were attributable to factors other than the leaflet and mothercraft classes.</p> <p>The scaling of the knowledge scores was not clear.</p> <p>No statistical significance tests were performed. It was not possible to carry out a meaningful analysis of anxiety by socio-economic groups because of the large spread of</p>	<p>This study provides weak evidence to suggest that written health education material and encouragement to attend traditional mothercraft classes increases the knowledge of women in higher social classes more than that of women in lower social classes.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
				<p>Social class III/M A = 6.90 B = 11.57 C = 11.31</p> <p>Social class IV A = 5.67 B = 8.53 C = 9.47</p> <p>Social class V A = 3.90 B = 5.28 C = 6.81</p> <p>No statistical significance tests were performed.</p> <p>It was not possible to carry out a meaningful analysis of anxiety by socio-economic groups because of the large spread of scores.</p>	scores.	
Hoare et al (1994)	<p>HoN – Cancers</p> <p>Ethnicity</p> <p>Asian women, UK</p> <p>RCT</p> <p>Study size: A = 247 B = 251</p>	<p>A: Home visits by link workers to Pakistani and Bangladeshi women invited for breast screening in order to encourage them to attend for breast screening.</p> <p>B: No home visits. Women were invited to attend for mammography according to usual practice.</p>	<p>Attendance at breast screening clinic.</p> <p>Follow-up: date of offered appointment</p>	<p>A: 102 (41%) women could not be contacted for the intervention.</p> <p>No significant difference in overall attendance: A 122 (49%) women B 117 (47%) women (p = 0.53)</p> <p>Overall, 14 (50%) of women resident in the UK for 0–5 years attended, compared to 80 (73%) resident for more than 5 years (p < 0.02).</p>	<p>Baseline rates of breast screening attendance for this community were not reported.</p> <p>Contamination of the control group was likely to be high since all participants were from the same community.</p> <p>We cannot tell whether the rates of attendance were unaffected by the home visits, or whether they increased in</p>	<p>This study presents weak evidence to suggest that home visits by link workers from the same ethnic group as the target population have no effect on the uptake of breast cancer screening by Pakistani and Bangladeshi women.</p> <p>This study strongly suggests that home visits to Pakistani and Bangladeshi women are likely to be inefficient.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
					both groups (in group B possibly because of contamination).	
Hochstadt & Trybula (1980)	<p>HoN – Mental health</p> <p>Socio-economic, ethnicity</p> <p>Predominantly black people referred for initial appointments to a public community mental health centre, Chicago, USA.</p> <p>Before–after study with non-randomised concurrent controls</p> <p>Study size: A = 22 B = 22 C = 22 D = 22</p>	<p>A: Reminder letter sent 3 days before initial appointment.</p> <p>B: Telephone reminder made 3 days before initial appointment.</p> <p>C: Telephone reminder made 1 day before initial appointment.</p> <p>D: No appointment reminder given.</p>	<p>Attendance at initial mental health appointment.</p> <p>Follow-up: to date of first appointment</p>	<p>Number (%) attending for first mental health appointment:</p> <p>A = 15 (68%) B = 15 (68%) C = 20 (91%) D = 10 (45%) p < 0.05</p> <p>As more clients attended for their first appointments, the time which clinic staff had previously been able to use to complete reports and do other work was increasingly filled by seeing clients, and staff became overworked.</p>	<p>The baseline characteristics of the different groups are not stated. It is therefore difficult to know if any of these may have accounted for the observed differences in attendance rates.</p>	<p>This study provides a reasonable quality of evidence.</p> <p>Reminders to attend, sent a few days before a scheduled appointment, may increase attendance rates for first mental health assessments among predominantly black people on low incomes.</p> <p>The provision of appointment reminders is feasible within a UK setting. However, the implications for staff time need to be considered.</p>
Howard & McCabe (1990)	<p>HoN HIV/AIDS</p> <p>Socio-economic, ethnicity</p> <p>Black 8th-year children from low-income families, USA.</p> <p>Before–after study, non-randomised concurrent controls</p>	<p>A: 5 classroom sessions led by trained 11th- or 12th-year pupils in which audiovisual techniques were used to illustrate pressures on adolescents to have sex. 10 classes from original curriculum about reproduction, family planning and sexually transmitted diseases.</p> <p>B: 10 classes from original curriculum about reproduction,</p>	<p>Self-reported sexual activity, pregnancy tests, use of family planning counselling and family planning services, treatment for sexually transmitted diseases.</p> <p>Follow-up: end of year 8, beginning and end</p>	<p>Percentage of students still sexually abstinent by end of year 9: A = 76% B = 61% (p < 0.01)</p> <p>95% of those in group A who were not sexually active thought the programme would be helpful in saying no to sexual involvement.</p> <p>A: Of 168 girls not sexually active at baseline, 28 (17%) became sexually active and there were 5</p>	<p>The sample sizes used for this study were reasonable.</p> <p>There were some practical problems in scheduling lessons and transportation for the trained older pupils who led the classroom sessions.</p> <p>Annual recruitment and training of older pupils</p>	<p>This study provides evidence of a good quality. A programme using peers to deliver health education messages together with skills instruction to resist peer and social pressure (need identified by pupils) can help postpone the onset of sexual activity during, and for one year following, the intervention.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	Study size: A = 395 B = 141	family planning and sexually transmitted diseases.	of year 9, 10 months after last interview.	pregnancies. B: Of 70 girls not sexually active at baseline, 19 (27%) became sexually active and there were 3 pregnancies.	required time and effort. Most of the young people who were sexually active did not use contraceptives.	
Hunt et al (1976)	General health Socio-economic, ethnicity Pregnant Spanish-speaking women (predominantly Mexican immigrants) attending public antenatal clinics, Los Angeles, USA. RCT Study size: A = 173 B = 171	All women given dietary questionnaire, including 24hr food recall. All women offered vitamin and mineral supplements. A: Women offered nutrition instruction in Spanish. Classes covered: how to plan nutritious meals using foods from four basic groups; how to buy, store and prepare foods. B: No intervention	Nutrient intake, calculated from 24hr food recall; nutrition knowledge; blood levels of vitamins and minerals in blood. Follow-up: 17 weeks (to approx. 35th week of pregnancy).	A: In practice women attended an average of only 3 out of 12 intended classes because they could not be persuaded to attend classes other than at the time of their clinic visit. After the intervention, women in group A had significantly higher nutrition knowledge scores than those in group B ($p < 0.005$). Mean (SD) changes in dietary intake (pre-intervention/post-intervention): Calories: A = 133 (779), B = 127 (602) * Carbohydrate (g): A = 23 (99), B = 18 (84) * Calcium (mg): A = 193 (497), B = 117 (464) * (* = statistically significant increase in both groups) Protein (g): A = 8 (31), B = 3 (28) (statistically significant increase in group A) Fat (g): A = 2 (45), B = 5 (37) Group A also had statistically significantly higher intake of ascorbic acid, niacin, riboflavin and iron post intervention. Reports of vitamin/mineral supplementation: Baseline: A = 26%, B = 32%	Vitamin and mineral supplementation, and physiological changes due to pregnancy, may have obscured changes in biochemical indices of nutrient intake. The authors' assumptions about diet attributed to Mexican women were shown to be unfounded, but the cultural preferences of this group are likely to differ from those of other ethnic groups.	This study provides evidence of a reasonable quality. A language-appropriate education programme for pregnant women of Hispanic origin has no significant impact on their diet. The implications of this to the UK setting is that where information is being given to ethnic minority groups, this may need to be culturally as well as linguistically appropriate.

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
				<p>Follow-up: A = 79%, B = 79%</p> <p>Biochemical indices were similar for both groups except for folic acid, which had increased at follow-up in group A only.</p>		
James et al (1992)	<p>General health</p> <p>Socio-economic</p> <p>Young mothers living in a deprived inner city area who had children aged 1–4 years, UK.</p> <p>Before–after study with no controls</p> <p>Study size = 44</p>	<p>Mothers completed questionnaire about social and domestic circumstances, attitudes to food and cooking, and smoking and drinking habits. Mothers recorded their children's diet in a 7-day food diary. Health visitors scored the diaries with the mothers and used omissions as a basis for nutrition teaching and discussion. Health visitors visited mothers at home for about an hour a fortnight over a 4–5- month period. They provided lists of foods in desired categories and practical advice about shopping and cooking, and set objectives tailored to the mothers' abilities and resources. Other lifestyle skills were discussed.</p>	<p>Perceived quality of own and child's diet; dietary content, shopping and organisational skills scores based on 7-day food diary</p> <p>Follow-up: end of intervention period (4 to 5 months)</p>	<p>Mean diary-based dietary content score (max = 12) pre = 5.3 post = 7.6 *</p> <p>Mean diary-based organisation score (max = 3) pre = 1.4 post = 2.6 *</p> <p>Assessed children's diet as good (N = 40) pre = 5 post = 18</p> <p>Number of mothers assessing their children's diet as OK pre = 16 post = 14</p> <p>Number of mothers assessing their children's diet as awful pre = 19 post = 8</p> <p>* p < 0.01</p> <p>Principal omissions from children's diet before intervention were milk, fruit, protein containing iron, and a second serving of vegetables. With the</p>	<p>This was a small, specially selected sample.</p> <p>Long-term effects of intervention were not studied. It is not clear for how long the dietary improvements could be sustained.</p> <p>This was a complex intervention, tailored to individuals, delivered primarily by health visitors who had been involved in its design from an early stage. It is not possible to attribute the effects to any particular components of the intervention.</p> <p>The impact of this intervention was small despite its intensity.</p>	<p>This study provides very weak evidence about the effectiveness of the intervention.</p> <p>Intensive home visiting interventions from health visitors may promote favourable changes in the diets of deprived children, but the cost-effectiveness of such interventions needs to be investigated.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
				exception of a second serving of vegetables, these were successfully introduced after the intervention.		
Jason et al (1988)	<p>HoN – Smoking</p> <p>Socio-economic, ethnicity</p> <p>Low-income ethnic minority smokers in a deprived inner-city area of Chicago, USA.</p> <p>RCT</p> <p>A: 78 B: 87</p>	<p>A: Subjects could attend self-help smoking cessation groups, were mailed a 'Freedom from Smoking' manual and received supportive phone calls.</p> <p>B: No intervention.</p> <p>Both A and B were in an area where a televised smoking cessation campaign was run during the intervention.</p>	<p>Number who had quit.</p> <p>Number of cigarettes smoked per day, nicotine content etc.</p> <p>Number of TV broadcasts watched and their helpfulness.</p> <p>Confidence about abstaining from smoking in next 3 months.</p> <p>Follow-up: immediately post test, 4 months.</p>	<p>B</p> <p>Immediate post-test 8% 1% p < 0.09</p> <p>4 month 20% 9% p < 0.06</p> <p>Not smoking at postpoint and follow-up 6% 0% p < 0.05</p>	<p>Many of the post-test/follow-up results are insignificant at the 5% level.</p> <p>It is difficult to establish the separate influences of the intervention and TV campaign.</p> <p>Study participants were volunteers.</p> <p>Group A evidenced significantly more motivation to quit at baseline.</p> <p>Use of 'white graduate student' interviewers could have affected numbers willing to participate.</p>	<p>The study provides weak evidence of encouraging smokers to quit. It suffers from potential bias and generalisability problems.</p>
Jemmott & Jemmott (1992)	<p>HoN – HIV/AIDS</p> <p>Ethnicity</p> <p>Sexually active black adolescent women living in urban New Jersey, USA, and volunteering to attend the Urban League AIDS Prevention Program.</p>	<p>Baseline questionnaire concerning condom use.</p> <p>Urban League AIDS Prevention Program: 3 active participation group sessions with a black woman health educator. Programme developed after interviews with adolescents from the target population, covered: factual information about AIDS; risks faced by young black women in New</p>	<p>Knowledge about HIV/AIDS, intention to use condoms, perceived self-efficacy to use condoms, outcome expectancies regarding condom use.</p> <p>Follow-up: end of intervention (1 week)</p>	<p>Mean scores on key variables (max 5):</p> <p>Hedonistic beliefs (condom use need not impair pleasure): Before: 3.68 After: 4.01, p < 0.01</p> <p>Partner approval of condom use: Before: 3.88 After: 4.06, p < 0.01</p>	<p>These women were self-selected, and the programme was specifically tailored to this target population.</p> <p>Intentions to use condoms were quite high to start with, and 29% of the 72% of respondents who had been sexually active in the previous</p>	<p>This study provides weak evidence of a slight improvement in knowledge, beliefs and attitudes about condom use in response to a culturally appropriate health education programme in black American adolescents.</p> <p>Similar appropriate health education programmes may be useful in UK settings.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>Before-after study with no controls</p> <p>Study size: 109 participants completed the post-intervention questionnaire.</p>	<p>Jersey; condom use; partner reactions to condom use; sexual pleasure and condom use; self-efficacy in condom use.</p>		<p>Intention to use condoms: Before: 4.03 After: 4.25, $p < 0.04$</p> <p>AIDS knowledge (max 56): Before: 44.79 After: 47.68, $p < 0.0001$</p> <p>Increases in expectancies of both hedonistic outcome and partner support predicted increases in intention to use condoms, but increases in general AIDS knowledge and prevention-related outcome expectancies did not.</p>	<p>3 months had always used condoms.</p>	
<p>Johnson et al (1993)</p>	<p>General health</p> <p>Socio-economic</p> <p>First time mothers living in deprived areas of Dublin, Eire.</p> <p>RCT</p> <p>Study size: A = 141 B = 121</p>	<p>All mothers received standard support from the public health nurse.</p> <p>A: Mothers were visited approximately once a month during the child's first year by volunteer experienced mothers who had undergone a training programme. The volunteer treated the mother on equal terms and did not give advice, but shared her own experiences and attempted to raise the new mother's self-esteem and confidence in herself as a parent.</p> <p>B: No home visits from volunteer mothers.</p>	<p>Number of visits made by volunteer mother; child's immunisation and hospital records; developmental stimulation factors; mother's and child's nutrition; mother's self-esteem.</p> <p>Follow-up: one year.</p>	<p>82 (65%) of mothers in group A had more than 10 visits from volunteers during the year.</p> <p>Number (%) of children completing immunisation schedules: A: 108 (85%) B: 68 (65%)</p> <p>No simple summary results were presented for several of the measures of interest.</p> <p>Mothers in group A were better on measures of tiredness, feeling miserable and staying in, but no difference on reported headache.</p> <p>Group A children and mothers had a better diet than Group B.</p>		<p>This study provides good evidence that a home visiting programme by trained volunteers can improve a number of measures of maternal and child health amongst disadvantaged first time mothers.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
Jones and Mondy (1994)	<p>HoN – Sexual health</p> <p>Socio-economic, ethnicity</p> <p>African-American, single, adolescent, primiparous mothers attending school in Texas, USA.</p> <p>Before–after study with non-randomised historic controls.</p> <p>Study size:</p> <p>A = 71 B = 37 C = 108</p>	<p>A: 'Special School' (SSch) program providing antenatal care in conjunction with health-care issues related to pregnancy, childbirth etc for 'pregnant adolescents' opting to attend an alternative school.</p> <p>B: 'Lifespan Program' (Lifesp) – trained volunteers taught group antenatal education to 'pregnant adolescents' who attended community-based antenatal clinics. Received incentives for attending and postpartum visit from a trained volunteer.</p> <p>C: Received routine antenatal education only.</p>	<p>Number of births in 5 years after first birth.</p> <p>Mean age for birth order.</p> <p>Schooling completed at first birth.</p> <p>Mean number of antenatal visits.</p> <p>Mean gestational age and birthweight.</p> <p>Follow-up: various points up to 5 years after first birth.</p>	<p>Significant effects only quoted</p> <p><i>Mean no. antenatal visits (1st birth)</i></p> <p>A 9.8 B 6.9 C 6.58 (p = 0.0003)</p> <p><i>Mean no. antenatal visits (3rd birth)</i></p> <p>A 1.25 B 6.5 C 5.8 (p = 0.0743)</p> <p><i>Mean gestational age (weeks) (1st birth)</i></p> <p>A 39.6 B 38.5 C 38.6 (p = 0.0830)</p> <p><i>Mean birthweight (grams) (1st birth)</i></p> <p>A 3137 B 2777 C 3027 (p = 0.0783)</p> <p>NB: Lifespan sample had to have participated in 8 or more lessons of antenatal education through the Lifespan Program.</p>	<p>Possible bias introduced by only including individuals if they had attended more than 8 Lifespan sessions.</p> <p>Lack of comparative data on the 3 groups; there was no attempt to discuss those not included in the study groups.</p>	<p>This study presents poor-quality evidence. There exists possible bias from a number of sources. No overall significant effects are shown, and there is limited discussion of results.</p>
Julnes et al (1994)	<p>General health</p> <p>Socio-economic, ethnicity</p> <p>Pregnant teenagers with limited social and financial support, many from ethnic minority groups, Norfolk, Virginia, USA.</p> <p>Before–after study with non-randomised concurrent</p>	<p>A: 'Resource mothers' from similar cultures and socio-economic status as the clients provided outreach home visits to adolescents at high risk for inadequate antenatal care and poor pregnancy outcomes. They assisted with non-medical aspects of pregnancy and childcare, including: encouraging antenatal care; practical assistance; liaison with public agencies.</p>	<p>Month in which antenatal care began; numbers of antenatal clinic visits; place of delivery; gestational age at delivery; birthweight.</p> <p>Follow-up: to birth</p>	<p>Percentage of women aged < 17years reached by the different antenatal care arrangements:</p> <p>A = 75.5% B = 45.6%</p> <p>Percentage of women enrolled for antenatal care before 4th month of pregnancy:</p> <p>A = 53.1% B = 32.6%, p < 0.05</p> <p>Percentage of women making more than 6 antenatal visits:</p>	<p>The lay home visitor programme was relatively cheap.</p> <p>The study samples were quite small, and group A were apparently more at risk for inadequate care and preterm, low-birthweight babies to start with.</p> <p>The paper gives few details</p>	<p>This study provides a poor quality of evidence.</p> <p>There are no clear implications for practice.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>controls</p> <p>Study size: A = 49 B = 46 C = 29</p>	<p>B: Clinic-based multidisciplinary professional antenatal care covering medical, nutrition, home health and home visiting services.</p> <p>C: No antenatal medical care.</p>		<p>A = 87.8% B = 73.9%</p> <p>Percentage with birthweight >2500g: A = 89.9% B = 93.5% C = 77.7%</p> <p>Percentage with gestational age < 38 weeks: A = 12.2% B = 4.3% C = 14.3%</p>	<p>about how subjects were recruited, and the results of the recruitment are not clearly presented.</p>	
<p>Kegeles (1969)</p>	<p>HoN – Cancers</p> <p>Socio-economic, ethnicity</p> <p>Black women living in an urban deprived area, USA</p> <p>Before–after study non-randomised concurrent controls</p> <p>A = 56 B = 67</p>	<p>Pre-interview about perceived vulnerability to, and possibility of avoiding serious consequences of, cervical cancer.</p> <p>A: Trained indigenous workers visited women at home and read them a booklet containing information on vulnerability to cervical cancer, the importance and effectiveness of screening and early treatment.</p> <p>B: Control group – visited at home and read a similar booklet about iron deficiency.</p> <p>Both booklets included details of screening clinic and appointment schedules. All subjects offered appointment time, with entitlement</p>	<p>Beliefs about vulnerability to cervical cancer (vulnerability scores).</p> <p>Beliefs about effectiveness of interventions to avoid consequences of cervical cancer (effectiveness scores).</p> <p>Attendance for cervical smear.</p> <p>Follow-up: one week</p>	<p>Attendance for cervical smear: A = 25 (44.6%) B = 15 (22.4%) p < 0.01</p> <p>Accepted appointment but did not attend: A = 14 (25%) B = 24 (35.8%) p < 0.05</p> <p>Women with high post-intervention vulnerability scores more likely to attend than those with medium or low vulnerability scores (p < 0.05).</p> <p>Women with high post-intervention effectiveness scores were no more likely to attend than those with medium or low effectiveness scores.</p> <p>No significant difference in changes in beliefs about vulnerability or effectiveness between the two groups.</p>	<p>The reasons underlying the attendance for cervical smear are not clarified by this study.</p>	<p>This provides reasonable evidence that personal home visits from trained members of the target population to provide information and stress the importance of screening can improve the attendance rates of black American women living in deprived urban areas for cervical screening.</p> <p>It is feasible that similar interventions might also achieve favourable results in UK settings.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
		to a free taxi ride there. Child care was available.		Other data indicated that many more experimental than control subjects discussed cervical cancer with friends or neighbours after the communication.		
Kelly et al (1994)	<p>HoN – HIV/AIDS</p> <p>Socio-economic, ethnicity</p> <p>Women aged 18–40, mainly Afro-American, from families with low incomes, living in inner city areas, with one or more of: multiple male partners, diagnosis of an STD, unprotected sexual intercourse with high-risk male in the preceding 12 months, Wisconsin, USA</p> <p>RCT</p> <p>Study size: A = 100 B = 87</p>	<p>A: 5 weekly 90-min group sessions (8–10 women) at the health clinic, with female leaders. Sessions included provision of information about HIV risk and risk-taking behaviour, and also focused on behaviour change. They involved role play, practice with condoms, recognition of personal triggers to risk taking behaviour, and techniques for assertive behaviour.</p> <p>B: 3 90-min group sessions at the health clinic about child and family nutrition.</p>	<p>Number of male sexual partners, frequency of protected and unprotected intercourse, use of alcohol and drugs, understanding of HIV risk and of measures to reduce risk, sexual assertiveness skills.</p> <p>Follow-up: 3 months after completion of intervention.</p>	<p>There was no significant difference in the change in the number of male sexual partners between the two groups.</p> <p>Mean (standard deviation) number of male sexual partners in previous 3 months: Baseline 2.3 (5.0) Follow-up 1.7 (2.6) Baseline 1.7 (1.3) Follow-up 1.2 (0.7)</p> <p>There was a significantly greater reduction in the frequency of unprotected vaginal intercourse in group A ($p < 0.04$).</p> <p>Mean (SD) frequency of unprotected vaginal intercourse: Baseline 14.0 (17.2) Follow-up 11.7 (22.8) Baseline 13.0 (18.3) Follow-up 15.0 (26.4)</p> <p>Percentage of occasions on which a condom was used in vaginal intercourse: Baseline 26%, Follow-up 56% Baseline 26%, Follow-up 32%</p> <p>There was no significant difference between the two groups in: mean number of partners for unprotected vaginal intercourse; AIDS risk behaviour knowledge; personal estimation of risk; communication skills</p>	<p>Drop-out rates were high: 46% of A and 56% of B did not complete the study. The authors attribute this to the transience of the low-income, unemployed population.</p> <p>The procedure for random allocation was not clear.</p> <p>The estimates of communication skills were based on a small sample (A = 39, B = 29).</p>	<p>This study provides reasonable quality of evidence.</p> <p>The impact of this group health education programme on the sexual behaviour of black women at high risk of HIV infection was generally positive.</p> <p>The use of such interventions for groups of high risk women is feasible in UK settings.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
				relating to discussions about condoms.		
Kirby et al (1991)	<p>HoN – HIV/AIDS</p> <p>Socio-economic, ethnicity</p> <p>Children attending schools serving low-income, mixed ethnic communities, urban and rural areas, USA.</p> <p>Before–after study with no controls (2 sites) and non-randomised study with concurrent controls (four sites)</p> <p>Study size: A = 6 schools of 200–400 pupils B = 4 schools of 200–400 pupils</p>	<p>A: School-based clinics employing at least one doctor and one nurse and offering primary health care, contraceptive counselling and pregnancy testing. The clinics varied in their educational content.</p> <p>B: No school-based clinic</p>	<p>Whether pupils reported being sexually active, sexual activity in previous 4 weeks, age of first sexual activity, use of contraceptives, pregnancies.</p> <p>Follow-up: 2 years</p>	<p>Results were presented separately for all school sites.</p> <p>In one school, pupils were significantly more likely to be sexually active after the clinic opened than before ($p < 0.05$).</p> <p>In a regression analysis, for 2 pairs of schools, pupils attending the school with a clinic were significantly less likely to be sexually active than those attending the school without a clinic ($p < 0.05$). In one case this was true for males, in the other it was true for females: in neither case was it true for both.</p> <p>Little difference over time was seen in the overall use of any contraceptive.</p> <p>In one school, there was a significant increase in condom use on the last occasion of sex (29% to 56%, $p < 0.001$) after the clinic opened.</p> <p>The only school in which the clinic seemed to have a significant effect on contraceptive use gave pregnancy and AIDS prevention a high priority.</p> <p>Clinic presence was not associated with lower rates of pregnancy at any of the sites.</p>	<p>The results for 4 schools were based on data from concurrent controls, and no data was collected before the intervention.</p> <p>The results from 2 schools did allow for before–after comparison, but had no control data.</p> <p>The bias associated with selective reporting may be a problem in this study</p>	<p>This study provides us with poor quality evidence.</p> <p>There are no clear implications for practice.</p>
Kistin et al (1990)	<p>General health</p> <p>Socio-economic, ethnicity</p> <p>Pregnant black women on low</p>	<p>A. At least one antenatal group session, of 50–80 min, discussing breast- and bottle feeding, common problems with breastfeeding and how to overcome them. Women</p>	<p>Antenatal intention to breastfeed.</p> <p>Breastfeeding behaviour.</p>	<p>Breast ed at all: A = 45% B = 50% C = 22% $p < 0.05$</p>	<p>Possibility of bias: women who dropped out for reasons other than medical conditions were significantly older than women completing the study</p>	<p>This study provides good evidence that antenatal group or individual sessions to discuss issues and problems of breastfeeding can have a positive impact on the breastfeeding rates among</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>incomes, USA</p> <p>RCT</p> <p>Study size: A = 42 B = 42 C = 68</p>	<p>were encouraged to share experiences and discuss topics of interest not initiated by the leaders.</p> <p>B. One-to-one contact for 15–30 min discussing same issues with group session leaders, before 30th week of pregnancy.</p> <p>C. No educational intervention.</p>	<p>Follow-up: 12 weeks post partum or until breastfeeding stopped.</p>	<p>Planned to breastfeed and did: A = 12 (86%) B = 6 (50%) C = 10 (59%) p < 0.01</p> <p>Planned to bottle feed and breastfed: A = 5 (21%) B = 9 (38%) C = 3 (8%)</p> <p>Adjusted odds of breastfeeding at all: (A+B) v C = 4.26 (95% CI = 2.59-7.03 p = 0.004)</p>	<p>(drop-out was roughly 15%).</p>	<p>low-income black American women.</p> <p>This type of intervention is likely to have a positive impact if used in UK settings.</p>
<p>Leda & Rosenheck (1992)</p>	<p>HoN – Mental health</p> <p>Socio-economic</p> <p>Homeless veterans admitted to a domiciliary care programme, Florida, Ohio and California, USA.</p> <p>Before–after study with no controls</p> <p>Study size: 421</p>	<p>Care for homeless veterans provided in residential centres, which were established from November 1987. Multidisciplinary professional team provided medical and psychiatric treatment for the seriously ill. Social–vocational rehabilitation services, including group therapy and individual counselling was also provided. Prevocational work programmes and community activities.</p>	<p>Clinical assessment at discharge; mode of discharge; employment status; living arrangements.</p> <p>Follow-up: to 3 months post discharge</p>	<p>Mean scores for psychiatric problems: Baseline: 1.183 Follow-up: 0.659, t = 0.0001</p> <p>Mean alcohol problems scores: Baseline: 0.210 Follow-up: 0.176, p = 0.03</p> <p>Mean social contact index score: Baseline: 196.5 Follow-up: 367.2, p < 0.0001</p> <p>Mean monthly income: Baseline: \$255.00 Follow-up: \$725.00, p = 0.001</p>	<p>It is difficult to attribute cause and effect with this study design.</p> <p>Only 38.4% of those recruited completed the programme. 27.1% were asked to leave primarily because of substance abuse and 29% left against medical advice. Attempts were made to follow up all these groups.</p>	<p>This study provides weak evidence that participation in a multi-dimensional treatment programme may result in improvements in mental health status, and other factors contributing to good health.</p> <p>Multi-dimensional programmes may have a similar impact in the UK.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
Lee (1988)	<p>General health</p> <p>Socio-economic</p> <p>Families with infants aged 1–6 months living in deprived areas of Dublin, Eire.</p> <p>RCT</p> <p>Study size: A = 126 B = 67</p>	<p>A: Monthly home visits of up to an hour by public health nurses, offering support to the mother, building her parenting skills, and advising on nutrition (advice based on findings of a baseline nutrition survey of this population). Visits continued for 2 years.</p> <p>2 visits from dietician, during and at the end of intervention period.</p> <p>B: No intervention</p>	<p>Dietary intake (4 day weighed intake and 1 day dietary recall); child's height and weight; presence of dental caries.</p> <p>Follow-up: to child's age approx. 30 months and 45 months.</p>	<p>Children from group A were on average 2cm taller than children from group B ($p < 0.05$).</p> <p>Children free of dental caries at follow-up: A: 65.0% B: 65.7%</p> <p>For group A, there was a general improvement in the quality of diets at follow-up. The proportion of group A children with low intake of a wide range of micronutrients was reduced substantially compared with B.</p>	<p>Baseline data were not clearly presented. There seem to be important baseline differences between the two groups.</p>	<p>Without the baseline data, this study provides weak evidence of the success of a programme of home visiting for disadvantaged families in improving the children's nutritional intake.</p>
Lerman et al (1992)	<p>HoN – Cancers</p> <p>Socio-economic, ethnicity</p> <p>Predominantly low-income, black women, referred for colposcopy (cervical examination) at Temple University Hospital, Philadelphia, USA, who had missed an initial follow-up appointment.</p> <p>RCT</p> <p>Study size: A = 42 B = 48</p>	<p>Within one week of a missed colposcopy appointment, all women were contacted by telephone by a health educator who identified reasons for non-attendance and made another appointment.</p> <p>A: During the same telephone call, scripted messages were read in an attempt to reduce educational, psychological and practical barriers to compliance with colposcopy appointment.</p> <p>B: No additional messages.</p>	<p>Attendance for colposcopy.</p> <p>Follow-up: To new appointment time.</p>	<p>The most commonly reported barrier to attendance was a lack of understanding of the purpose of colposcopy.</p> <p>Attendance at new colposcopy appointment: A: 32 (66.7%) B: 18 (42.9%), $p < 0.05$</p> <p>Odds ratio for attendance, A vs B = 2.6</p>	<p>30% of the initial sample of women who did not respond to telephone calls after 10 attempts were excluded from further consideration.</p>	<p>This study provided reasonable evidence that a telephone reminder and tailored messages can improve attendance for colposcopy among low-income black American women who have missed an initial appointment.</p> <p>Telephone reminders and messages could feasibly be used in UK settings with similar results.</p>
Levine &	<p>HoN – CHD/stroke</p>	<p>Community health workers trained in blood pressure screening,</p>	<p>Percentage of people aware of their</p>	<p>Percentage of black males aged 18–49 years aware of their hypertensive status:</p>	<p>This study is unlikely to represent an accurate</p>	<p>This study provides weak evidence that an outreach programme may increase the</p>

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Bone (1990)	<p>Socio-economic, ethnicity</p> <p>Deprived inner-city community with large ethnic minority, Baltimore, USA.</p> <p>Before–after study with no controls</p> <p>Study size: target population 80,000.</p>	<p>counselling, monitoring and follow-up.</p> <p>Aimed to provide targeted blood pressure screening, outreach and improved follow-up, with recruitment mainly from the casualty department, and particular efforts to trace young black males.</p>	<p>hypertensive status, percentage under care and percentage with blood pressure under control.</p> <p>Follow-up: approximately 8 years.</p>	<p>44%</p> <p>65%, $p < 0.05$</p> <p>Percentage of hypertensive black males aged 18–49 years under medical care:</p> <p>30%</p> <p>50%, $p < 0.05$</p> <p>Percentage of black males aged 18–49 years with blood pressure under control:</p> <p>19%</p> <p>40%, $p < 0.05$</p>	<p>assessment of the impact of this type of intervention.</p> <p>The study design could not eliminate confounding factors.</p> <p>Little information was given about the characteristics of the targeted population, or of any other relevant campaigns or secular trends affecting that population.</p>	<p>proportion of young black males who have hypertension recognised, treated or controlled.</p> <p>There are no clear implications for practice in the UK.</p>
Lewis et al (1993)	<p>HoN – General health</p> <p>Ethnicity</p> <p>Low-income Americans living in public housing communities in Birmingham, Alabama, USA</p> <p>Before–after study with non-randomised concurrent controls</p> <p>A: 2 communities received basic intervention</p> <p>B: 2 communities received enhanced intervention</p>	<p>A 3-year project in 3 year-long phases to promote physical activity:</p> <ol style="list-style-type: none"> 1. Exercise needs and preferences within community assessed 2. Intervention programme designed for group A and B, and training of people in community as leaders and trainers 3. Conduct and evaluate interventions <p>A. Walking, aerobic dance, low-impact aerobics, games and sports and weightlifting</p> <p>B: As A, with additional social</p>	<p>Current levels of physical activity and activity patterns.</p> <p>Barriers to knowledge of, determinants of and preferences for activity programmes.</p> <p>Social support and self-efficacy.</p> <p>Baseline defined as survey 2 and follow-up immediate post intervention (survey 3).</p>	<p>Physical Activity Scores pre- and post-intervention in intervention and control communities</p> <p>Survey 2 Survey 3 p*</p> <p>median</p> <p>60 216 0.01</p> <p>Intervent'n 56 104 0.084</p> <p>* Survey 2 vs 3 within group differences</p> <p>Organised intervention communities showed significantly greater post-intervention physical scores than non organised, but this distinction was post hoc.</p>	<p>The study set out to wished to investigate control (C) vs basic (A) vs enhanced (B) intervention but ended with control (C) versus enhanced (A+B).</p>	<p>A complex intervention which presents weak evidence of an effect.</p> <p>Implications – commitment and organisation of community leaders appears to be an important factor in influencing outcome.</p>

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	C: No treatment.	support, individual attention and reduction of barriers to participation via a number of methods including holding inter- and intra-community competitions and soliciting the support of community and church leaders.				
LoSciuto & Ausetts (1988)	<p>HoN – HIV/AIDS</p> <p>Socio-economic</p> <p>Entry level (year 6 or 7) schoolchildren, USA</p> <p>RCT (randomisation later broken down, with results presented according to student attendance at intervention sessions)</p> <p>Study size: total 1084</p>	<p>Project PRIDE</p> <p>Y: Pupils given standardised curriculum over 12 weeks on self-esteem, relationships and decision-making. Curriculum delivered to groups of 12 in informal lectures, group discussion and activities.</p> <p>T: Teacher-training programme on drug abuse prevention, clarifying attitudes to drugs, teaching strategies</p> <p>P: Parents given skills training to enhance relationships with their children, using informal lectures, group discussion, plus information on drugs.</p> <p>Classes exposed to a combination of these: A = Y B = Y+P C = Y+P+T D = Y+T E = Control (no intervention)</p>	<p>Pupils' attitudes to drugs and related issues.</p> <p>Teachers' skills and attitudes and ability to observe students.</p> <p>Parents' perception of family environment.</p> <p>Follow-up: to end of intervention (12 weeks)</p>	<p>Pupils of low socio-economic status and with low attendance showed decline in marijuana use (-0.42). Those with high socio-economic status and with low attendance showed greatest increase in marijuana use (+1.33)</p> <p>Main results not quoted here as these represent a mixed socio-economic group.</p> <p>Self-reported impressions: boys of low socio-economic status seemed to gain most in knowledge, communication and self-respect.</p>	<p>The results were presented according to pupils' level of attendance, rather than according to group allocation. This dilutes the advantages of randomisation.</p>	<p>The quality of evidence presented in this study is weak.</p> <p>There are no clear implications for practice.</p>

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Madeley et al (1986)	<p>General health</p> <p>Socio-economic</p> <p>Infants born to mothers in Nottingham, UK.</p> <p>Before–after study with no controls (community intervention study)</p> <p>Study size: not stated</p>	<p>The Nottingham Birth Scoring system was applied between January 1978 and March 1985. A risk score was calculated on the basis of deprivation of district, birthweight, age of mother, breastfeeding (to 1979 only), short 2nd stage of labour (to 1979 only), legitimacy of birth (from 1980 only), delivery within 18 months of a previous child (from 1980 only).</p> <p>Infants defined as at high risk were followed up intensively by the health visitor, who liaised with the GP.</p>	<p>Infant mortality rates per 100 live births.</p>	<p>Infant mortality rates per 100 live births: 1974–77: 7.4 1978–81: 4.7</p> <p>There was no change in the geographical clusterings of deaths (they continued to occur mainly in less well-off areas of the city).</p> <p>There was no change in age at death.</p> <p>There was no significant change in the rate of decline of infant mortality between 1972 and 1982.</p>	<p>Midwives increasingly questioned the value of the scoring system as infant mortality rates declined.</p> <p>The use of a randomised control design had been considered for this study, but was deemed infeasible because of opposition from large numbers of health visitors, midwives and doctors.</p>	<p>The quality of evidence from this study is very weak.</p> <p>There are no clear implications for practice.</p>
Marcus et al (1992)	<p>HoN – Cancers</p> <p>Socio-economic, ethnicity</p> <p>Women receiving abnormal cervical smear results from 12 clinics serving low-income patients of heterogeneous racial/ethnic backgrounds, Los Angeles, USA.</p> <p>RCT (block allocation according to month of receipt of abnormal smear)</p> <p>Study size: total 2004 women</p>	<p>All women received the usual recall from their clinic to notify them of an abnormal cervical smear result.</p> <p>A: Personalised letter (Spanish or English), signed by clinic medical director, with content varying according to smear results. 10-page pamphlet (Spanish and English) about what smear results mean, with description of follow-up tests and therapies, and recommendation to return for follow-up care.</p> <p>B: Transportation incentives: bus tickets sent to women to help them return for follow-up (free parking</p>	<p>Attendance for follow-up treatment.</p> <p>Follow-up: until attendance for follow-up care, or up to 4 months.</p>	<p>Overall, 29% did not return for follow-up within 4 months of receiving abnormal smear result (across clinic sites, this ranged from 13% to 44%).</p> <p>Adjusted odds ratios for each intervention relative to control (95% CIs) for attendance for any follow-up treatment: A: 0.90 (0.64–1.27) B: 1.48 (1.06–2.06) $p < 0.05$ C: 0.97 (0.63–1.49) D: 2.30 (1.21–4.34) $p < 0.01$ E: 1.09 (0.67–1.76) F: 0.87 (0.47–1.59) G: 0.44 (0.18–1.06)</p> <p>Transportation incentives had most effect among women attending county clinics.</p>	<p>Sample sizes and follow-up rates for individual study groups were not reported.</p> <p>It is not clear to what extent transport incentives ‘worked’ by improving the accessibility of the clinic, and to what extent they ‘worked’ by increasing the perceived relevance of follow-up attendance.</p> <p>The apparent lack of positive synergistic effect in group G may have been due to the different interventions having</p>	<p>This study provides good evidence that prompts and incentives to ensure attendance for follow-up appointments following an abnormal smear is worthwhile in deprived communities.</p> <p>This intervention may also be effective in UK settings.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
		<p>also offered in the clinic where car park charges were made).</p> <p>C: Tape-slide programme showing women of different ethnic backgrounds discussing cervical smears and relating their experiences. Programme shown in clinic waiting rooms as women waited for their original smear to be taken.</p> <p>D: A+C E: A+B F: B+C G: A+B+C H: no intervention</p>		<p>Transportation incentives were not used by many women, but receipt of bus tickets apparently had a positive psychological impact ('This must be important, otherwise they would not send me a bus pass').</p>	<p>an impact on different sub-groups of women.</p> <p>No absolute changes in attendance rates were reported.</p>	
<p>Marsh & Channing (1988)</p>	<p>HoN – Cancers, CHD/stroke</p> <p>Socio-economic</p> <p>Families living in a deprived community, Stockton on Tees, UK.</p> <p>Before–after study with matched concurrent controls</p> <p>Study size: A = 590 deprived families B = 590 families on private housing estate</p>	<p>A: Preventive intervention record card noting details of whether targeted preventive services had been performed attached to front of family's clinical record to prompt discussion on consultation of any family member.</p> <p>Health visitors given copy of preventive intervention record to enable discussions with families during home visits.</p> <p>Standard letter sent to each household, explaining the clinic's attempt to improve preventive care and listing the outstanding services for each family member.</p> <p>Practice nurse and receptionists gave</p>	<p>Attendance for well-person services; status for cervical smear, anti-tetanus, blood pressure measurement, urinalysis, recording of smoking habit.</p> <p>Number of smokers.</p> <p>Follow-up: 15 months into intervention period (30 months after baseline survey)</p>	<p>Percentage of women aged 20–45 up to date for cervical smears: A: Before 78%, after 83% B: Before 78%, after 83%</p> <p>Percentage of women aged 46–69 up to date for cervical smears: A: Before 40%, after 63% B: Before 68%, after 72% (No significant difference, either in deprived patients over time or between A and B at post intervention)</p> <p>Percentage of males over 16 whose blood pressure was taken: A: Before 38%, after 56% B: Before 38%, after 44%, $p < 0.05$</p>		<p>This study provides reasonable evidence that intensive efforts to encourage the use of preventive services among a deprived population can lead to small improvements in uptake.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
		<p>priority to deprived patients. Quarterly monitoring and feedback for GPs, and progress discussions among primary care team. Towards the end of the campaign (after the first year), GPs made home visits specifically to carry out preventive interventions.</p> <p>B: Routine primary care services.</p>		<p>Percentage of females over 16 whose blood pressure was taken: A: Before: 67%, after 80% B: Before: 68%, after 70%, $p < 0.05$</p> <p>Percentage of males whose smoking habits were known: A: Before 36%, after 59% B: Before 45%, after 49% (significant improvement in deprived patients over time, $p < 0.001$; difference between A and B at follow-up not significant)</p> <p>Percentage of females whose smoking habits were known: A: Before: 70%, after 83% B: Before: 67%, after 73% (significant improvement in A over time, and significant difference between A and B at follow-up, $p < 0.001$)</p>		
McAvoy & Raza (1991)	<p>HoN – Cancers</p> <p>Ethnicity</p> <p>Women of New Commonwealth and Pakistani origin or descent, Leicester, UK.</p> <p>RCT</p> <p>Study size: A = 241 B = 201 C = 131</p>	<p>A & B: Sent a bilingual letter explaining purpose of study and offering a home visit so women could view educational materials about cervical smears.</p> <p>A: 5-min video on cervical screening shown in own language at home.</p> <p>B: Leaflet on cervical screening in own language taken to home.</p> <p>C: Leaflet and fact sheet sent by post.</p> <p>D: Controls: no contact.</p>	<p>Attendance for cervical smear; opinions of materials used.</p> <p>Follow-up: until attendance or 4 months</p>	<p>Number (%) of group who attended for cervical smear: A = 80 (30%; 47% of those who watched video) B = 57 (26%; 37% of those who read booklet) C = 14 (11%) D = 6 (5%)</p> <p>95% CI of differences: A v C = 10.8% - 28.7% B v C = 5.5% - 25.1%</p>	<p>69% of the women in group A had a video player at home.</p> <p>57% of the women interviewed (groups A and B) could read their main spoken language only a little or hardly at all.</p>	<p>This study provides good evidence that a home visit with support materials can increase attendance for cervical smears by Asian women. Even so, attendance rates remained low.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	D = 124	(NB, research assistant who conducted home visits had an identifiably Muslim name)				
Morisky et al (1983)	<p>HoN – CHD/stroke</p> <p>Socio-economic, ethnicity</p> <p>Hypertensive patients from deprived population with high proportion of ethnic minorities, USA.</p> <p>RCT</p> <p>Total study size = 4000 (50 allocated to each of 8 groups)</p>	<p>E1: Interview on exit from consultation, 5-min counselling session reinforcing messages given in consultation. Suggestions for taking medication.</p> <p>C1: no exit interview.</p> <p>E2: Family support instruction session given to closest household contact: how to help the patient adhere to medication regimen and follow-up treatment.</p> <p>C2: No family support instruction session.</p> <p>E3: Invitation to attend 3 1-hr group sessions run by a social worker to promote confidence through discussion of management of hypertension and its complications.</p> <p>C3: No invitation to attend group sessions.</p> <p>A = C1, C2, C3 B = E1, C2, C3 C = C1, E2, C3 D = C1, C2, E3 E = E1, E2, C3 F = E1, C2, C3 G = C1, E2, E3</p>	<p>Appointment keeping, weight, blood pressure control, cause of death.</p> <p>Follow-up: 2 years and 5 years</p>	<p>Only groups F and H showed significant improvements in deviation from ideal weight compared to control.</p> <p>Percentage within blood pressure control: Baseline 5 years A = 41% 50% B = 40% 54% C = 37% 75% D = 34% 46% E = 40% 47% F = 41% 83% G = 45% 81% H = 38% 81%</p> <p>(Groups C, F, G and H significantly different from A, $p < 0.01$)</p> <p>All causes mortality, year 5: A = 0.30 For all experimental subjects = 0.13 ($p < 0.02$)</p>	A complex study with inconclusive results about individual interventions.	This study provides good evidence to suggest that blood pressure control among a deprived American population can be improved by a number of different interventions, of which family support or individual counselling sessions may be more important. These interventions may well be successful in UK settings.

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
		H = E1, E2, E3				
Morse et al (1992)	<p>HoN – Mental health</p> <p>Socio-economic, ethnicity</p> <p>Homeless mentally ill people attending shelters, St Louis, USA.</p> <p>RCT</p> <p>Study size: A = 52 B = 62 C = 64</p>	<p>All subjects received baseline interview.</p> <p>A: Continuous treatment. Outreach to shelters by clinical case managers (1:10 staff–client ratio). Flexible individualised approach to address clients' multiple needs: improved links with psychiatric services; encouraged ongoing therapeutic relationship; personal skills training; help with money management, transport and interaction with landlords and other agencies.</p> <p>B: Drop-in centre (one mixed, one for women) for food, clothing, showers, recreation opportunities. Social workers available (1:40 staff–client ratio).</p> <p>C: Outpatient treatment at a mental health clinic. Traditional psychiatric outpatient services, psychotherapy, psychiatric medication and help in obtaining social services.</p>	<p>Psychiatric symptoms, self esteem, alienation, interpersonal adjustment, contact with treatment programme, alcohol abuse, no. of days homeless in last month, income, resource utilisation.</p> <p>Follow-up: 12 months</p>	<p>All groups improved on the number of days homeless. Mean (SD) number of days homeless per month: Baseline: A = 25.2 (9.3) B = 24.0 (8.2) C = 24.8 (7.5) Follow-up: A = 2.9 (8.6) B = 11.0 (14.1) C = 5.8 (11.0)</p> <p>All groups improved on psychiatric symptoms. Mean (SD) psychiatric symptoms (scale 0–4 of increasing symptomatology): Baseline: A = 1.59 (0.84) B = 1.50 (0.66) C = 1.67 (0.90) Follow-up: A = 0.95 (0.76) B = 0.92 (0.84) C = 0.89 (0.65)</p> <p>Group A were more satisfied with their programme.</p>	<p>No group received no treatment.</p> <p>There was probably insufficient account taken of drop-outs (A = 29%, B = 52%, C = 45%)</p>	<p>This study provides evidence of a reasonable quality.</p> <p>It is a very good attempt to examine the impact of services on the homeless mentally ill.</p> <p>This study showed that it is possible to improve the health of mentally ill homeless people across a number of different measures. While all interventions achieved improvements, the most promising was the individual approach exemplified by intervention A. A similar approach may well be successful in UK settings.</p>
Nyamathi et al (1993)	<p>HoN – HIV/AIDS</p> <p>Socio-economic, ethnicity</p> <p>African-American and Latina</p>	<p>Both groups shown an AIDS videotape. Then:</p> <p>A: One-hour culturally sensitive AIDS education programme given,</p>	<p>Concerns about drug-addiction, survival, parenting etc.</p> <p>Appraisal of threats.</p>	<p>Women in both groups reported significant improvements in most cognitive, behavioural and psychological outcomes. The 'traditional' intervention group (A) had better post-test scores on concerns, emotion-focused coping and knowledge of AIDS</p>	<p>No details about the quality of random allocation, nor any long-term follow-up (follow-up was for 2 weeks only).</p>	<p>Presents moderate-quality evidence that interventions that are culturally sensitive may increase knowledge and awareness of AIDS and change behaviour in African-American or Latina women who</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>women aged 18–69 who are homeless or attending a residential drug recovery programme, Los Angeles, USA.</p> <p>RCT</p> <p>A = 483 B = 433</p>	<p>HIV antibody test taken. Condoms, 1oz bottle of bleach (for sterilising needles) and list of available community resources given.</p> <p>B: 2-hour culturally sensitive AIDS education programme and individualised HIV counselling given. Additional teaching and discussion providing to enhance feelings of control, self-esteem etc.</p> <p>Both interventions given by a nurse and outreach worker of the same ethnicity.</p>	<p>Coping.</p> <p>Emotional distress.</p> <p>Knowledge and attitudes about AIDS.</p> <p>Depression.</p> <p>Risk-taking behaviour.</p> <p>Follow-up: 2 weeks post-intervention.</p>	<p>than the 'specialised' group (B).</p>		<p>are homeless or on a drug recovery programme.</p> <p>No evidence that more intensive interventions and teaching to enhance self-esteem are effective.</p>
<p>Olds et al (1994)</p>	<p>HoN – Accidents, Mental health</p> <p>Socio-economic</p> <p>Pregnant women who subsequently had young children living in a poor rural situation, Appalachian New York State, USA.</p> <p>RCT (randomisation was not carried out between all sub-groups)</p> <p>Study size: A+B = 149 C = 78</p>	<p>A: Screening of children for sensory and developmental problems at age 1 and 2 years</p> <p>B: As A plus free transport to usual source of antenatal and child health services</p> <p>C: As B plus nurse home visit (1 hr 25 min) every 2 weeks during pregnancy.</p> <p>D: as C plus regular home visits until child was 2 years of age.</p>	<p>Stimulation of child; reported and observed level of child hazards in the home; child development; use of health services; IQ; avoidance of punishing children.</p> <p>Follow-up: 34, 36, 46 and 48 months of child's age.</p>	<p>Odds of new cases of child abuse and neglect from 25 to 48 months OR (A+B to D) = 0.56 (95% CI: 0.00 - 1.37)</p> <p>Number of injuries and ingestions in physician record from 25 to 50 months (log incidence) or difference (A + B) to D = 0.50 (95% CI: -0.04 – 0.96, p < = 0.05)</p> <p>Adjusted mean number of casualty department visits: or difference (A + B) to D (log incidence) = 0.52 (p < 0.001)</p> <p>At 46 months C + D parents punished their children more frequently than A+B (P = 0.009), particularly older low-income unmarried women. (p = 0.007).</p>	<p>Many different outcome assessments were made.</p> <p>Although drop-outs are discussed, raw numbers are lacking.</p> <p>All non-whites are excluded from the analysis.</p>	<p>This study provides reasonable evidence that home visiting among pregnant women/mothers of young children living in poor rural situations can reduce the risks of childhood accidents and improve parental coping mechanisms.</p> <p>While the study offers evidence to support home visiting, the precise implications for UK settings are unclear.</p>

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	D = 79					
O'Loughlin et al (1990)	<p>HoN – Smoking</p> <p>Socio-economic</p> <p>Women smokers from a low-income, low-education, predominantly French-speaking community in West-central Montreal, Canada.</p> <p>Before–after study with no controls</p> <p>Study size = 28</p>	<p>Women completed a questionnaire and were given an 8-page smoking cessation guide (in the form of a comic strip calendar) and ‘gadgets’ such as stickers, cigarette counters, a piggy bank and a wheel of practical advice to boost motivation and willpower. The pack underwent extensive formative evaluation with low-income, functionally illiterate women.</p>	<p>Smoking habits at one month follow-up.</p> <p>Use of and satisfaction with smoking cessation guide.</p>	<p>None of the subjects stopped smoking during the follow-up period, but 15 said they had reduced the no. of cigarettes smoked per day.</p> <p>17 of 25 respondents said they had used the guide, and 15 found it useful.</p>	<p>This was a pilot study which used a small convenience sample.</p> <p>Over half of the sample were pregnant, which might have made them more motivated than average to quit.</p>	<p>This study provides very weak quality evidence.</p> <p>There are no clear implications for practice.</p>
Orstead et al (1985)	<p>General health</p> <p>Socio-economic, ethnicity</p> <p>Lone-parent, low-income, black, Hispanic and Asian antenatal women, USA.</p> <p>Non randomised study with historic controls.</p> <p>Study size: A (1979-81) = 114 B (1975-77) = 86</p>	<p>A: Women attended 30-min antenatal nutrition class, shown film and posters. Women received 30–45 minutes' counselling based on their food preferences from clinic dietician at each antenatal visit, and phone calls were made to women considered to need extra attention.</p> <p>B: Women attended 20-min antenatal nutrition class.</p>	<p>No. of antenatal visits made, woman's weight, woman's eating preferences and habits, infant birthweight, plans for feeding infants.</p> <p>Follow-up: to birth of child</p>	<p>Mean (standard error) of weight gain (kg) of women between first and last visit: A = 9.5 (0.5) B = 7.0 (0.6) p < 0.01</p> <p>Mean (standard error) infant birthweight (g): A = 3231 (47) B = 3130 (50)</p> <p>No. (%) of infants < 2500g at birth: A = 5 (4%) B = 11 (13%) p < 0.06</p>	<p>This study was retrospective, based on case notes, and excluded women who did not deliver a live child.</p> <p>Weight gain was inversely correlated with parity in group B.</p>	<p>This study provides weak quality of evidence.</p> <p>There are no clear implications for practice.</p>
O'Sullivan	HoN – Sexual health	A: Received 'special care' in addition	Attendance at clinic	Significant effects noted for greater proportion	Drop-out rate high (60% A,	This study presents evidence of a

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
and Jacobsen (1992)	<p>Socio-economic, race/ethnicity, age</p> <p>Pregnant black unmarried adolescent mothers on Medicaid attending antenatal clinic at large urban teaching hospital in eastern US.</p> <p>RCT</p> <p>A = 120 B = 123</p>	<p>to routine antenatal care. Social worker, paediatrician, nurse and volunteers involved in checking mother's understanding of family planning, teaching both in groups and individually.</p> <p>B: Received routine antenatal care.</p>	<p>for antenatal care.</p> <p>Repeat pregnancy.</p> <p>Return to school.</p> <p>Full immunisation.</p> <p>Emergency room visits by mother or infant.</p> <p>Follow-up: to 18 months following birth.</p>	<p>attending clinic (40% (A) vs 18% (B), $p = 0.002$), lower proportion of repeat pregnancies (15% (A) vs 32% (B), $p = 0.018$) after 18 months, and full immunisation (33% (A) vs 18% (B), $p = 0.011$).</p> <p>No significant effect for return to school or at least one casualty department visit, although continued attenders did differ significantly in casualty department use for infant care.</p>	<p>82% B) but 91% located at follow-up. However, it is unclear whether drop-outs received alternative advice elsewhere.</p>	<p>reasonable quality. The additional intervention could assist in preventing repeat pregnancies and increasing immunisation rates among young unmarried black mothers on low incomes, and may be beneficial in the UK.</p>
Palti et al (1982)	<p>General health</p> <p>Socio-economic</p> <p>All infants, Israel</p> <p>Before-after study with non-randomised historic controls</p> <p>Study size: A = 181 B = 174</p>	<p>A and B: Preventive health interventions (physical examination, vaccinations, discussion of feeding practice) given by nurse in 15-min sessions at mother and child clinic.</p> <p>A: Session time increased to 20-25 min Extra time used to discuss topics related to mother-child interaction, appropriate to the child's age.</p>	<p>Developmental Quotient (DQ)</p> <p>Follow-up: At age 2 years</p>	<p>Mean Developmental Quotient: A = 107.5 B = 106.4 (difference not significant)</p> <p>Sub-group of A receiving better quality of intervention = 109.2 ($0.01 < p < 0.05$)</p> <p>Significant increase in DQ in control and whole intervention group with increasing number of years of maternal education. There was no significant increase with increasing maternal education in the sub-group of A receiving better quality of intervention.</p> <p>Significant increase in DQ over different countries of origin in control group but not intervention group (interpretation uncertain).</p>	<p>To see a significant effect, the authors had to focus on a sub-group of A who had received the intervention from those nurses judged to be best at delivering the intervention.</p> <p>Any intervention which is delivered by a variety of health professionals is likely to be delivered to different standards to different women.</p>	<p>This study provides only weak evidence that advice about appropriate development activities can reduce differentials in outcome linked to differences in maternal education. This could usefully be tested in a UK setting using a more vigorous design.</p>
Paris & Player	HoN - Mental health	CAB services provided general and	Actions taken by CAB	Advice was requested for the whole range of problem	The participating general	This study demonstrates the feasibility of

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
(1993)	<p>Socio-economic, ethnicity</p> <p>Patients referred by any member of a primary care team to CAB services provided in the general practice setting, Birmingham, UK.</p> <p>Before–after study with no controls</p> <p>Study size: 150 consecutive referrals</p>	<p>financial advice within a general practice setting on a part-time basis. Members of the primary care team referred people to the CAB services as deemed appropriate.</p>	<p>adviser; social security payments and other benefits obtained for clients.</p> <p>Follow-up: 6–8 months after start of intervention.</p>	<p>categories addressed by CAB services. The most frequent types of problems were: Social Security; health; taxes and duties; consumer and trade; family and personal.</p> <p>Benefit payments were obtained for 39 patients (including 12 income support and 10 mobility allowance).</p> <p>Patients mentioning illness were more likely to be entitled to benefit payments.</p> <p>Mental health problems featured significantly more often in those later found to have a claim.</p>	<p>practices were self-selected.</p> <p>Medical information was obtained by CAB worker direct from patients only.</p> <p>Clients making a benefit claim had a longer interview, and therefore more time in which to mention an illness.</p>	<p>providing CAB services in general practice. While the intervention led to uptake of previously unclaimed benefits, the lack of controls and the outcome measures used make the implications for health unclear.</p>
Parkin et al (1993)	<p>HoN – Accidents</p> <p>Socio-economic</p> <p>Children aged 5-14 from either low- or high-income families, Toronto, Canada.</p> <p>Before–after study, non-randomised concurrent controls.</p> <p>Study size: A = 4 schools (1100 pupils) B = 18 schools</p>	<p>A: Educational 'Be bike smart' week held in each school. Resource packs made available to teachers for classroom use; pupils delivered promotional messages in school assemblies; celebrity cyclist addressed pupils; parents invited to school-based sessions, including helmet fittings and sales sessions in which 20% discounts were offered. In low-income schools, the first 40 parents to buy helmets were given an additional \$5 rebate. Annual school bike rally featured helmets as prizes and had helmets available for loan.</p> <p>B: No intervention</p>	<p>Observations of proportion of 5–14 year olds cycling who wore cycle helmets.</p> <p>Follow-up: period of 5 months, commencing 1–2 months after the intervention week.</p>	<p>There were underlying trends of increasing helmet use among child cyclists. The increase in helmet use in high-income areas was significantly higher among group A.</p> <p>Percentage of child cyclists wearing helmets:</p> <p>All sites: Pre-intervention = 3.4% Post-intervention = 16.0%</p> <p>High-income areas: A: Pre- = 4%, post = 36% B: Pre- = 4%, post = 15% (increase in helmet wearing AvB $p = 0.01$)</p> <p>Low-income area: A: Pre- = 1%, post = 7% B: Pre- = 3%, post = 13%</p> <p>There was a greater increase in helmet wearing in high-income than in low-income areas ($p < 0.001$).</p>	<p>Sporadic media coverage and a national helmet discount coupon offer probably contributed to the underlying trends.</p> <p>Baseline cycle helmet use was quite low in these communities.</p> <p>The relative lack of impact of the intervention in low-income communities may be due to financial barriers (helmet cost), health beliefs, or language (intervention was delivered in English).</p> <p>The programme made use of</p>	<p>This study provides weak evidence that a school-based health education programme can increase helmet wearing. The increase is greater among children from higher- than lower-income families.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
					the enthusiasm of pupils, teachers and parents.	
Parsons & Day (1992)	<p>General health</p> <p>Ethnicity</p> <p>Asian and Turkish, non-English-speaking women, UK.</p> <p>Non-randomised study with historical and concurrent geographical controls</p> <p>Study size: A = 923 B = 992 (geographical controls) C = 866 (historical controls) D = 999 (geographical and historical controls)</p>	<p>A: Multi-ethnic women's health project: advocates employed by the Community Health Council, worked as interpreters and mediators between clinical staff and women during antenatal sessions and the birth.</p> <p>B: No advocacy given to women</p> <p>C, D: Translators employed by the local authority for non-English-speaking pregnant women.</p>	<p>Mode of delivery, birthweight (established from hospital records).</p> <p>Follow-up: retrospective</p>	<p>Percentage of women having vaginal (V), instrumental (I) and caesarean (C) deliveries: V = 84.8%, I = 6.6%, C = 10.6% V = 72.5%, I = 9.4%, C = 11.2% V = 75.0%, I = 14.1%, C = 8.5% V = 75.6%, I = 12.3%, C = 17.4%</p> <p>Changes in mode of delivery were statistically significant.</p> <p>Average birthweight: A = 3.07 kg B = 3.13 kg C = 3.02 kg D = 3.08 kg</p>	<p>Differences in clinical practices over time were largely accounted for in the analysis.</p> <p>The nature of the statistical significance tests was not clear.</p>	<p>This study provides reasonable evidence that health advocacy can alter delivery of obstetric services among ethnic minority women.</p>
Perkin (1983)	<p>General health</p> <p>Socio-economic</p> <p>13–18-year-old mothers or women in the second half of pregnancy attending a high school for pregnant mothers, USA.</p>	<p>One-month programme about nutrition needs during pregnancy and lactation: manual; class hand-outs; study questions; classroom activities; multimedia presentations.</p>	<p>Nutrition knowledge; 3-day dietary intake.</p> <p>Follow-up: not clearly stated.</p>	<p>Mean knowledge scores: pre-intervention = 48.3 post-intervention = 63.9 p = 0.001</p> <p>Among 9 girls completing pre- and post- intervention dietary questionnaires, there were shifts towards Recommended Dietary Allowances in the range of 0–45% for different dietary constituents.</p>	<p>The school environment may have encouraged consumption of potato crisps, soda water and chocolate bars. The school nurse was trying to promote citrus fruit consumption.</p> <p>This sample was very small, with a large drop-out for the dietary questionnaires.</p>	<p>This study provides very weak evidence that a school-based health education programme can improve knowledge of healthy diet among pregnant teenagers.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	Before–after study with no controls Study size: 19 women					
Piane (1990)	HoN – CHD/stroke Socio-economic, ethnicity Hypertensive adults living in a highly populated suburban area, Chicago, USA. Before–after study with no controls Total study size: 529 (375 white, 154 black)	6 free weekly class sessions about hypertension control included education about: medication; salt restriction; cholesterol-reducing diets; stress management; weight control; exercise. Classes held at easily accessible sites. Classes contained different proportions of whites and blacks, largely dependent on where they were held.	Blood pressure; knowledge after class; participants' evaluation of class materials; behavioural changes made by class participants. Follow-up: to the end of the six sessions.	Attendance at more than 3 classes: Whites: 79% out of 368 Blacks: 66% out of 154 Percentage improving knowledge test score at follow-up = 28% (n = 430). There were no significant differences in mean knowledge scores for blacks and whites at either baseline or follow-up. Of 235 subjects who had systolic blood pressure >140 mm Hg at baseline, 115 (49%) had a systolic blood pressure < 140 mm Hg at follow-up. Figures for blood pressure changes in blacks and whites are not stated. However, race was not listed as one of the demographic groups for which an improvement in blood pressure was statistically significant.	The possibility of regression to the mean effects was not discussed. There were many differences other than race in the baseline demographics of the black and white sub-groups, which were not accounted for. The groups were self-selected. The possible roles of behaviour changes in the reported blood pressure changes were not explored.	This study provides poor-quality evidence. There are no clear implications for practice in the UK.
Planos & Glenwick (1986)	HoN – Mental health Socio-economic, ethnicity Children < 18 years of age from low-income ethnic minority families who have	A: Standardised telephone conversation with parent or guardian one day before scheduled assessment of child's mental health. B1 + B2: letter with reminder of appointment to arrive 1 or 2 days	Attendance for child mental health assessment. Follow-up: within 1 or 2 days	Attendance rates: A = 77.4% B1 = 64.9% B2 = 66.1% C1 = 52.7% C2 = 50.9%	There was no baseline measure of attendance, so improvements in attendance could not be readily identified.	This study provides reasonable evidence that prompting parents of children from low-income families can increase attendance at scheduled clinic appointments. This approach may be beneficial in the

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>been referred for mental health assessment, and their parents or guardians, USA.</p> <p>Prospective study non-randomised concurrent controls (part of sample randomised)</p> <p>Study size: A = 53 B1 = 57 B2 = 56 C1 = 55 C2 = 53</p>	<p>before assessment.</p> <p>C1 + C2: control groups – no reminder</p>		<p>Trend across groups with phones (A, B1, C1) $p < 0.05$.</p> <p>Trend across groups without phones (B2, C2) $p < 0.1$</p> <p>Combined trend $p < 0.01$</p> <p>A vs C1, $p < 0.005$ A vs C1+C2, $p < 0.001$ B1+B2 vs C1+C2, $p < 0.05$ A vs B1+B2, $p < 0.1$</p>		UK.
Poland et al (1992)	<p>General health</p> <p>Socio-economic, ethnicity</p> <p>Predominantly black women on low incomes attending for antenatal care at a Detroit hospital, USA.</p> <p>Study with non-randomised concurrent controls.</p> <p>Study size: A = 423 B = 111</p>	<p>A: Home support provided by Maternal Child Health Advocate (trained women who had themselves previously attended public health antenatal clinics) during pregnancy and child's first year. Advocates assessed need for tangible necessities, information and counselling, referred women to appropriate agencies and accompanied them to medical appointments if necessary.</p> <p>B: Control group (no intervention)</p>	<p>Level of antenatal care received, advocate activity logs, length of gestation, birthweight.</p>	<p>107 (25%) of group A refused advocacy (more likely to be white).</p> <p>169 (40%) of group A discontinued advocacy (more likely to be adolescents).</p> <p>Mean number of antenatal visits: A = 8 B = 6.5 ($p < 0.01$)</p> <p>Mean birthweight (g): A = 3,274 B = 3,125 ($p < 0.05$)</p>	<p>65% drop-out rate in group A. Intervention was not accepted by many women.</p> <p>Selection procedure for control group not clear.</p>	<p>This study provides weak evidence that health advocacy can increase birthweight and use of antenatal care among low-income women in the USA.</p> <p>While this study would tend to support the use of health advocacy in the UK, more specific messages cannot be applied.</p>
Price et al	HoN – CHD/stroke	A: Educational video: women	Smoking status and	No. (% of those completing study) who quit smoking:	Drop-out rates in group C were	This study provides evidence of good

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
(1991)	<p>Socio-economic</p> <p>Pregnant inner city women who are on low incomes and who smoke, attending an urban outpatient clinic, USA.</p> <p>RCT</p> <p>Study size: A = 71 B = 52 C = 70</p>	<p>watched 6.5-min video focusing on potential risks of smoking to unborn baby, and benefits to baby of quitting. Given pamphlet about how to stop smoking. Opportunity to ask questions of health educator. 4-min video shown 1 month later focusing on strategies for quitting. Opportunity to ask questions.</p> <p>B: American Lung Association booklet, 'Freedom from smoking for you and your baby', plus verbal overview of contents and opportunity to ask questions of health educator. Woman's progress reviewed 1 month later, with opportunity to ask questions.</p> <p>C: Usual care: doctors usually discuss smoking with pregnant women, but no attempt was made to standardise advice.</p>	<p>health beliefs relevant to smoking.</p> <p>Follow-up: 2-3 weeks before expected date of birth.</p>	<p>A = 4 (8.7%) B = 2 (5.1%) C = 1 (4.2%) Differences not statistically significant.</p> <p>No. (% of those completing study) who reduced cigarette smoking: A = 22 (48%) B = 15 (38%) C = 10 (42%) Differences not statistically significant.</p>	<p>particularly high (46, 66%).</p> <p>The physicians providing 'usual advice' in this study were already used to identifying smoking as a risk factor during pregnancy and discussing it at antenatal visits.</p>	<p>quality.</p> <p>There was no apparent impact of this health education programme on the smoking status of pregnant women living in deprived communities.</p> <p>This form of health education intervention is unlikely to be successful in UK settings.</p>
Quirk et al (1993)	<p>HoN – HIV/AIDS</p> <p>Socio-economic, ethnicity</p> <p>Women aged 14-25 years from poor backgrounds and ethnic minority groups, Worcester County, USA.</p> <p>Before-after study with non-randomised concurrent</p>	<p>A: AIDS-prevention programme given by a trained peer using a professionally produced rap video based on lyrics written and performed by local adolescents, and brochures.</p> <p>B: AIDS-prevention programme given by a doctor or other health provider, using a patient-centred collaborative approach aimed at</p>	<p>Knowledge, attitude and behaviour relevant to HIV/AIDS.</p> <p>Follow-up: immediately after, and one month after the intervention.</p>	<p>Both interventions increased knowledge.</p> <p>Counselling by a health provider (B) appeared slightly more effective in conveying the risk of unprotected sex with an HIV positive person, while peer-delivered information (A) was associated with more improved knowledge of methods of preventing drug-related HIV transmission.</p> <p>Significant behaviour change was only apparent in the sub-group of the most sexually active subjects who</p>	<p>Loss to follow-up was 55%.</p> <p>Absence of control group which received no intervention.</p>	<p>This study provides good evidence to suggest that there is little difference between these modes of delivery of HIV-prevention education for women from deprived ethnic minority backgrounds.</p> <p>There are no clear implications for UK settings.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	comparisons. Study size: A = 116 B = 98	modifying present or future HIV risk behaviour. Sessions < 10 minutes long.		returned for follow-up.		
Rickert et al (1993)	HoN – Alcohol Socio-economic Adolescents (13–18 years old) in low- to middle-income families in central Arkansas, USA RCT A = 30 B = 29 C = 30	A: Physician-delivered anticipatory guidance – involved interactive discussion with a physician re alcohol and marijuana. B: Computer-aided instruction organised for an individual in several separate lessons based around presentation of data and questions concerning marijuana and alcohol. C: No treatment.	A: Knowledge and use of alcohol and marijuana, satisfaction with intervention. B: Not explicitly stated, assumed to be as for group A. C: No follow-up of control group. Follow-up: immediate post-intervention for A, (during?) and post-intervention for B.	Adolescents in both 'A' and 'B' groups had significantly higher knowledge scores than the control group. No difference in mean knowledge scores noted between either of intervention groups A and B. Women, on average, were less knowledgeable than men about the effects of alcohol and marijuana.	No baseline measurement of intervention groups. Authors claim pre-testing the subjects on knowledge would have alerted them to the information needed to answer questions correctly, and so bias results. The sample is taken from adolescents attending a youth clinic, although no reason for their attendance is given. This could affect generalisability. The study concentrates on changing knowledge, not evaluating behavioural changes. No attempt at medium to long-term follow-up.	The study provides some evidence of a change in knowledge, although there is no significant difference between groups A and B. There are no clear implications for UK practice.
Robitaille et al (1990)	HoN – Accidents Socio-economic Infants up to the age of 13 months living in a	A: Education and instruction about child car seats and child passenger safety to mothers attending antenatal classes. Postnatal home visits giving additional information. Infant car seat offered on loan, without charge.	Possession and utilisation of an infant car seat.	Adjusted risk ratio for possession of infant car seat at 3 months 1.48 (0.97, 2.26; 95% CI) and utilisation of infant car seat at 3 months 1.90 (1.19, 3.02; 95% CI). At 13 months, 0.90 (0.54, 1.52) for possession and 0.92 for utilisation of infant car seat.	There were no baseline measurements. Telephone survey used for follow-up to obtain self-reported information.	Provides weak evidence of a longer (after 6 months)- term effect on possession or utilisation of infant car seat.

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>low-income (suburban or urban) area in Montreal, Canada</p> <p>Before–after study with non-randomised concurrent controls.</p> <p>A = 336 parents interviewed; 81 observations of children travelling in cars</p> <p>B = 214 parents interviewed; 75 observations of children travelling in cars.</p>	<p>B: No intervention.</p>		<p>Only significant effect reported is for utilisation after 3 months, after 6 months no significant difference between groups on possession or utilisation.</p>		
<p>Ross (1984)</p>	<p>General health</p> <p>Socio-economic</p> <p>Children of low-income parents, USA</p> <p>Study with non-randomised matched controls drawn from the same neonatal intensive care unit later in the year.</p> <p>Study size: A = 45 B = 40</p>	<p>A: Nurse and paediatric occupational therapist visits (45 min) twice a month for 3 months after discharge, then monthly to age 12 months. Mothers given information about normal development, teaching and caring skills, and appropriate games and exercises to facilitate cognitive, motor and social development.</p> <p>B: Control group – no intervention</p>	<p>Mental and psychomotor development. Mother–child interaction. Child's temperament. Home environment. Maternal attitudes and knowledge of child rearing.</p> <p>Follow-up: to one year of age</p>	<p>Mean Bayley Mental Scale score: A = 99.2 B = 89.4 p < 0.001</p> <p>Mean Bayley Psychomotor Development Index: A = 93.4 B = 89.1 not significant</p> <p>Amiel Tilson neurological examination: normal A: 30 B: 28 suspect A: 3 B: 4 abnormal A: 7 B: 8</p> <p>Mean HOME score: A = 38.4 (SD 3.6) B = 34.9 (SD 4.0)</p>	<p>A larger sample would be needed to show an effect on motor development.</p> <p>Subjects in groups A and B were matched for baseline confounding factors.</p>	<p>This study gives weak evidence to suggest that this home based intervention may encourage the development of premature infants of low-income families.</p> <p>There are no clear implications for UK settings.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
				p < 0.001		
Rotheram-Bo rus et al (1991)	<p>HoN – HIV/AIDS</p> <p>Socio-economic</p> <p>Runaway adolescents attending publicly funded shelters in New York, USA.</p> <p>Before–after study, non-randomised concurrent controls.</p> <p>Study size: A = 118 B = 79</p>	<p>A: Small group sessions of 90–120 min, with male and female leaders, typically 4 days/week. Activities addressed were general knowledge about HIV/AIDS, and coping skills. Private counselling session reviewed individual barriers to safe sex. Access facilitated to health care, counselling etc.</p> <p>B: Control group: usual care and support from shelter staff. Free condoms and HIV/AIDS prevention materials available as usual but no specific intervention introduced to address HIV/AIDS issues.</p>	<p>Sexual activities in previous 3 months; use of condoms.</p> <p>Follow-up: 3 and 6 months.–</p>	<p>Analysis was presented according to number of intervention sessions subjects had attended (0–2, 3–9, 10–14, 15–30)</p> <p>Consistent condom use among those receiving 15–30 intervention sessions: Baseline: 33% 3 months: 57% 6 months: 63%</p> <p>The number of intervention sessions significantly predicted increases in consistent condom use at 3 and 6 months.</p> <p>The number of intervention sessions significantly predicted reductions in high-risk patterns of behaviour at 3 and 6 months.</p> <p>There were no significant differences in several abstinence behaviours due to receiving the intervention.</p>	<p>It is difficult to determine the impact of the programme. The most marked effects were on the self-selected sub-group who attended the most sessions.</p> <p>It is not possible to identify which specific components of this complex intervention were associated with the behaviour change.</p>	<p>This study provides weak evidence to suggest that intensive health education and individual counselling for runaway adolescents can increase condom use among a motivated sub-group.</p> <p>A similar result might be anticipated in a UK setting.</p>
Schinke et al (1986)	<p>HoN – Mental health</p> <p>Socio-economic</p> <p>Adolescent mothers enrolled in state high school, USA.</p> <p>Before–after study, non-randomised concurrent controls.</p>	<p>A: 12 one-hour group sessions led by a trained social worker to provide instruction, demonstration and practice of skills for coping with stressors commonly experienced by adolescent mothers. Maternal and child health and parenting training given by school nurses and counsellors.</p>	<p>Psychological well-being, social support, parenting ability, child care self-efficacy, cognitive performance, conflict management, interpersonal competence.</p>	<p>At end of intervention, group A scored higher than group B on: – social support (p < 0.05) – cognitive performance (p < 0.001) – measures of paraphrasing, delaying, negotiation, and direct requests (p < 0.001) – assertion, persistence, calmness (p < 0.001)</p> <p>At 3 month follow-up, group A scored higher than group B on:</p>	<p>It is not clear how many women completed the study, and the sample sizes were small.</p> <p>The two groups were self-selected (women chose to attend the skills programme for coping with stress or not).</p>	<p>This study provides weak evidence that teaching adolescent mothers to cope with stress is worthwhile.</p> <p>Although it is not possible to draw implications for practice in the UK, further investigation with a more rigorous study would be useful.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study									
	Study size: A = 37 B = 42	B: Regular high school classes. Maternal and child health and parenting training given by school nurses and counsellors.	Follow-up: at end of intervention (12 weeks), 3 months after end of intervention.	<ul style="list-style-type: none"> – psychological well-being ($p < 0.01$) – social support ($p < 0.05$) – cognitive performance ($p < 0.001$) – parenting ability ($p < 0.05$) – child care self-efficacy ($p < 0.01$) 											
Seitz and Apfel (1993)	<p>HoN – Sexual health</p> <p>Socio-economic, ethnicity</p> <p>African-American, low-income, pregnant primiparous adolescents in New Haven, USA.</p> <p>Before–after study with non-randomised concurrent controls.</p> <p>A = 50 B = 52</p>	<p>Attendance at an alternative state school for pregnant pupils.</p> <p>Counselling to help pupils plan for immediate and long-term future, arrange day care facilities for baby, resolve family conflicts, delay subsequent childbearing and to remain at school to complete at least a high school degree.</p> <p>A: intervention delivered for >7 weeks</p> <p>B: intervention delivered for ≤7 weeks</p>	<p>Subsequent pregnancy</p> <p>Contraceptive use, accidents, general health status, school performance.</p> <p>Follow-up: to 6 years after birth of child.</p>	<p>No Second delivery within 5 years:</p> <table border="1"> <thead> <tr> <th>N</th> <th>No intervent'n</th> <th>p second</th> </tr> </thead> <tbody> <tr> <td>≤ 7 wks</td> <td>48</td> <td>11 (23%)</td> </tr> <tr> <td>> 7 wks</td> <td>45</td> <td>21 (47%)</td> </tr> </tbody> </table> <p>< 0.02</p>	N	No intervent'n	p second	≤ 7 wks	48	11 (23%)	> 7 wks	45	21 (47%)	Reasons for the success of the intervention are unclear, and it is not clear what happened to the subjects on leaving school, and whether this could have introduced bias.	<p>The study provides moderate evidence of an effect for those receiving the intervention for > 7 weeks compared to those receiving ≤ 7 weeks' intervention.</p> <p>Further investigation with a more rigorous study design could be warranted to assess the value of intensive postnatal support to adolescent mothers in order to prevent rapid repeated pregnancy.</p>
N	No intervent'n	p second													
≤ 7 wks	48	11 (23%)													
> 7 wks	45	21 (47%)													
Sellers et al (1994)	<p>HoN – HIV/AIDS</p> <p>Socio-economic, ethnicity</p> <p>Adolescents from Latino backgrounds, Boston, USA.</p> <p>Before–after study with non-randomised concurrent controls (community</p>	<p>A: Community-based AIDS-prevention programme targeted at Latino adolescents. Trained peer leaders ran workshops in schools and with community organisations, facilitated discussion groups in homes and organised community events. Door to door canvassing was used to provide condoms and information on their</p>	<p>Knowledge and attitudes relevant to HIV/AIDS; sexual activity and condom use.</p> <p>Follow-up: 18 months (at the end of the intervention activities)</p>	<p>Adjusted odds ratios (95% confidence intervals) for A -B:</p> <p>Males, onset of sexual activity between baseline and follow-up: 0.08 (0.01–0.57), $p < 0.05$</p> <p>Females, onset of sexual activity between baseline and follow-up: 1.24 (0.44–3.46), not significant</p>	The adjusted odds ratios are difficult to interpret.	<p>This study presents confusing evidence about the impact of this community-based AIDS-prevention programme on the sexual behaviour of adolescent Latinos from low-income backgrounds.</p> <p>It is difficult to draw any implications for practice in UK settings.</p>									

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	intervention study) Total study size: 694	use. Multiple channels were used to promote messages and distribute condoms. B: No intervention.		Males, multiple partners at follow-up: 0.90 (0.43–1.91) Females, multiple partners at follow-up: 0.06 (0.01–0.43), $p < 0.01$		
Spiegel & Lindaman (1977)	HoN – Accidents Socio-economic Children living in low-quality high-rise accommodation in the Bronx, New York, USA. Community intervention study with no controls Study size: population of 5 boroughs	Free window guards provided by the city to those at risk of window falls. Outreach workers gave individual advice; local public and private agencies were used to disseminate information; a mass media campaign about window falls.	Falls reported by casualty departments. Falls reported by police. Deaths reported by police and casualty departments. Characteristics of victims of falls. Follow-up: to end of experimental programme (3 years).	Window falls: 1973: 57 total deaths reported on death certificates including: 19 accidental 2 deliberately inflicted 36 uncertain cause 1975: 37 total deaths reported on death certificates including: 10 accidental 1 deliberately inflicted 26 uncertain cause.	Because there was no control group, other confounding factors could have been at work. It is difficult to say whether the programme was successful and whether it was responsible for the reductions in deaths. Other factors, such as differences in reporting rates over time, were not investigated.	This study presents evidence of weak quality. Although this intervention is intuitively appealing, further more rigorous research is required before any recommendations for practice can be made.
Stamler et al (1987)	HoN – CHD/stroke Socio-economic, ethnicity Adults (30–69 years) with hypertension, USA. RCT Study size:	All subjects screened for hypertension. A: Stepped care: free standardised programme of anti-hypertensive therapy offered to patients in whom hypertension was detected. B: Referred care: patients in whom hypertension was detected were	Blood pressure, organ damage leading to failure, deaths, drug treatment for hypertension, medical history. Follow-up: 5 years	All cause mortality: A = 6.4/100 in 5 years B = 7.7/100 in 5 years There was a significant gradient in mortality by educational level in group B which was not present in group A (the intervention group). In group B, those with less than high school education had a 5 year adjusted death rate 2 times greater than	The analysis by educational status is a sub-group analysis, hence the advantages of randomisation are lost.	This study provides reasonable evidence that an intensive programme including free care and initiatives to improve access to hypertensive care and protocols for hypertensive treatment can reduce the differential mortality across groups of different educational experience.

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	A = 5357 B = 5334	advised to consult their personal sources of medical care for treatment.		those with more than high school education.		
Suarez et al (1993)	<p>HoN – Cancers</p> <p>Ethnicity, socio-economic</p> <ol style="list-style-type: none"> 1. Mexican-American women aged 40–70 in Corpus Christi, Texas, USA. 2. Black women aged 40–70 in Galveston, Texas, USA. <p>Community intervention study with no controls (two study populations received the same intervention)</p> <p>Study size:</p> <ol style="list-style-type: none"> 1. 4000 eligible women, 107 and 102 interviewed at baseline and follow-up. 2. 2600 eligible women, 82 and 85 interviewed at baseline and follow-up 	<p>Role models (readily identifiable as members of the target community) recruited from voluntary organisations, health department clients and community made presentations. Role models told their personal stories about cancer screening, detection and treatment through the local media.</p> <p>Volunteers recruited from churches, neighbourhoods, housing projects etc. to hand out newsletters promoting the role models' personal stories and giving information about screening.</p> <p>Health professionals encouraged to give information about cancer screening to their patients.</p>	<p>Uptake of mammograms and cervical smears in past two years; knowledge about and attitudes towards cancer.</p> <p>Follow-up: 2 years</p>	<p>Percentage of women who had had cervical smear in past two years:</p> <p>Baseline = 65.4%</p> <p>Follow-up = 71.6%</p> <p>Prevalence rate ratio (PRR): 1.09 (95% CI = 0.94–1.28)</p> <p>Baseline = 80.5%</p> <p>Follow-up = 85.9%</p> <p>PRR = 1.07 (95% CI = 0.95–1.20)</p> <p>Percentage of women who had had mammogram in past two years:</p> <p>Baseline = 31.8%</p> <p>Follow-up = 50.0%</p> <p>PRR = 1.57 (95% CI = 1.19–2.08)</p> <p>p < 0.05 one-sided</p> <p>Baseline = 48.8%</p> <p>Follow-up = 63.5%</p> <p>PRR = 1.30 (95% CI = 1.04–1.63)</p> <p>p < 0.05 one-sided</p>	<p>Absence of control group which received no intervention. The results could reflect an underlying trend of increased screening uptake.</p> <p>The two communities had different patterns of media provision, and different patterns of social organisation, yet increase in uptake was observed in both communities.</p>	<p>This study provides weak evidence suggesting that the use of local media and role models with whom a target community identifies to promote cervical screening and mammography may increase uptake of these screening services by older members of different minority ethnic groups.</p> <p>Such interventions may be useful in UK settings, but more rigorous research would be needed to assess their effectiveness.</p>
Tableman et al (1985)	<p>HoN – Mental health</p> <p>Socio-economic</p> <p>White women with young children receiving Aid for Dependent Children, USA</p>	<p>A: Stress Management Training Curriculum:- teaching in small groups, 10 3-hour sessions, of stress management, life planning, values clarification and information on women's issues and child abuse. Free transportation, child care and</p>	<p>Outcome: Measures of mental well-being</p> <p>Follow-up: 3 months after last session.</p>	<p>Mean (SD) change in Cornell neuropsychiatric and psychosomatic index:</p> <p>A: -8.74 (12.80)</p> <p>B: +0.06 (7.53)</p> <p>Negative change denotes improvement p < 0.001</p> <p>Mean (SD) change in State-Trait Anxiety Inventory:</p>	<p>There were significant differences in the baseline scores of the two groups (it is not stated which group had the better average mental health status).</p>	<p>This study provides reasonable evidence that a stress management training curriculum delivered in small groups outside the home environment may improve the mental well-being of disadvantaged women with young children.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	RCT (alternate allocation) Study size: A: 65 B: 51	refreshments provided. B: No intervention		A: -9.15 (10.84) B: +0.83 (7.66) Negative change denotes improvement. $p < 0.001$ Informally, professionals reported fewer crisis calls by members of group A. Group A felt more assertive and became more productively involved in issues of concern. Informal reports noted that several women valued the opportunity for social contact provided by the intervention.	The programme provided opportunities for social interaction, which may have been beneficial in their own right. Drop-out was 40% in group A and 34% in group B.	The findings of this study may well be generalisable to a UK setting.
Tudor Hart et al (1991)	HoN – CHD/stroke Those from a working-class population registered with a general practitioner, deprived Welsh valley, UK. Before–after study with no controls (community intervention study) Study size: all 1800 registered patients	Screening for high blood pressure and other risk factors, first opportunistically, then using active call-up and home visits.	Blood pressure, smoking status, body mass index, serum cholesterol level, peak expiratory flow rate, recognised alcohol problems, glycosylated haemoglobin in diabetes. Follow-up: approx. 20 years.	Between 1968 and 1981, the proportion of the practice population with a mean untreated diastolic blood pressure >105 mm Hg fell. Between 1968 and 1985, the percentage of male smokers fell from 61% to 42% in men and not at all in women. In 116 screened hypertensive patients, 1989 audit measurements showed improvements compared to pre-treatment measurements: Mean blood pressure before = 186/110; after = 146/84. Percentage of smokers before = 56%; after = 20%. Body mass index before = 28.5; after = 28.0. Serum total cholesterol before = 6.2; after = 6.1. SMR for electoral ward of study practice = 97.6. SMR for two other electoral wards in same valley = 135.6	We do not know what secular trends were operating. There is a possibility of a regression to the mean effect for some variables.	This study provides weak evidence in a potentially important area. An active GP-based screening programme for individual risk factors can improve health outcomes at the community level.
Veitch D	HoN – Mental health (General	A: Citizens' Advice Bureau (CAB)	Demographic details,	Mean differences in total score and selected	The Nottingham Health	This study provides weak evidence that

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
(1994a)	<p>health)</p> <p>Socio-economic</p> <p>People on low incomes experiencing mental health difficulties, UK</p> <p>Before–after study, non-randomised concurrent controls</p> <p>Study size: A = 40 B = 15</p>	<p>services were provided in centres which housed community mental health services. Health professionals and social workers were able to refer people to CAB services in their outlets.</p> <p>B: Control group - no CAB services in mental health outlets.</p>	<p>including employment status and current relationships; Nottingham Health Profile score; clients' perceptions of help provided by CAB service.</p> <p>CAB casework analysis.</p> <p>Follow-up: 5 months</p>	<p>categories of the NHP before and after CAB advice (presented so that a positive mean difference indicates improvement):</p> <p>Mean differences in total NHP score: A = 47.98 (p = 0.11) B = 9.71 (p = 0.57) No significant difference</p> <p>Mean difference in NHP energy score: A = 6.13 (p = 0.34) B = 14.47 (p = 0.03)*</p> <p>Mean difference in NHP pain score: A = 15.93 (p = 0.01)* B = -1.81 (p = 0.5)</p> <p>Mean difference in NHP emotional reactions score: A = 12.72 (p = 0.03)* B = -5.88 (p = 0.68)</p> <p>Mean difference in NHP social isolation score: A = -0.90 (p = 0.89) B = 4.26 (p = 0.47)</p> <p>* = significant difference</p> <p>Additional money for unclaimed benefits was raised for 21 clients. Payments made totalled over £16,000 in one-off lump sums and £490 per week (ie average per person £762 lump sum and £23 per week).</p> <p>Comments quoted from recipients of CAB advice indicated their belief that they had less worry and</p>	<p>Profile may not have been the most appropriate outcome measure to have used in this context.</p> <p>The sample sizes for whom complete data were available were quite small.</p> <p>Factors other than CAB advice and support will inevitably influence NHP scores.</p> <p>Only the differences in NHP scores were presented – not the scores themselves.</p> <p>It is very difficult to attribute health gain to the intervention, although it seems plausible that the intervention is useful.</p>	<p>CAB services housed in community mental health service centres may lead to improvements in subjective health status.</p> <p>Further more rigorous research is needed to test the effectiveness of this intervention, which seems potentially valuable.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
				fewer practical difficulties as a result.		
Veitch (1994b)	<p>HoN – Mental health (General health)</p> <p>Socio-economic, age</p> <p>Vulnerable and socially deprived people in Birmingham, UK.</p> <p>Before–after study, non-randomised concurrent controls</p> <p>Study size: A = 131 B = 13</p>	<p>A: Citizens Advice Bureau (CAB) services were provided within general practice surgeries. The CAB accepted self-referrals and referrals from GPs and social workers.</p> <p>B: No intervention</p>	<p>Nottingham Health Profile (NHP) score; casework analysis; clients' perceptions of help received.</p> <p>Follow-up: 5–6 months</p>	<p>Group A showed greater improvement in NHP scores at follow-up than group B, but differences were not significant.</p> <p>Baseline and follow-up NHP scores were not statistically different within group A, although half of the clients showed improvement.</p> <p>37 of group A had money raised for them by CAB: total lump sum payments £28,783.69, total weekly benefit £1,423.57.</p> <p>Compared with the client profile of high street CABs, a greater proportion of clients accessing the GP based services were over 60, disabled, or in ill health.</p> <p>51 out of 70 CAB recipients responding claimed the CAB service had positively made a difference to their lives.</p>	<p>The NHP may not have been the most appropriate outcome measure to have used in this context.</p> <p>The NHP could only be used with English-speaking clients.</p> <p>NHP scores were not presented in this report, and the control group was too small to be useful.</p> <p>The drop out was quite high (47% for group A).</p> <p>This intervention seems to have great potential to make a difference to vulnerable people, but this evaluation was not particularly well designed to show this.</p>	<p>This study provides weak evidence that provision of CAB services within general practice may improve the mental well-being of disadvantaged people.</p> <p>Implications are that information and help is being given to people who would not normally attend CABs in other places</p> <p>The implications for health of the study's suggestion that a greater proportion of clients accessing the GP-based services are over 60, disabled or in ill health, would require more rigorous investigation.</p>
Walter & Vaughan (1993)	<p>HoN – HIV/AIDS</p> <p>Ethnicity</p> <p>Predominantly black and Hispanic 9th and 11th year pupils attending high schools, New York City, USA.</p> <p>RCT</p>	<p>A: Curriculum developed on basis of needs assessment survey. Teachers given 8-hour training session to enable them to implement curriculum, and importance of adhering to curriculum was stressed. Pupils received curriculum in 6 classroom lessons on consecutive days. Covered: HIV transmission and prevention; appraisal of personal</p>	<p>AIDS-related knowledge and beliefs; self-efficacy of preventive actions; sexual behaviour.</p> <p>Follow-up: 3 months</p>	<p>Significantly different improvements over time were seen between the two groups for 5 of the 8 variables reported.</p> <p>Mean knowledge scores: A:baseline 75.6, follow-up 85.5 B:baseline 78.8, follow-up 81.2 p = 0.0001</p> <p>Mean score for beliefs of benefits of preventive</p>	<p>This study was apparently well designed, with appropriately large sample sizes. The large drop-out was mainly due to absenteeism from school.</p> <p>There was a possibility of contamination: classes within the same school were assigned to different groups.</p>	<p>This study provided good evidence of changes in AIDS-related knowledge and beliefs in ethnic minority students as a result of a school-based education programme developed in response to a needs assessment exercise.</p> <p>Improvements were also seen in self-reported sexual behaviour.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>Study size: A = 739 (667 completed baseline assessment) B = 577 (534 completed baseline assessment)</p>	<p>risk; perceptions of frequency of risk behaviour among peers; clarification of personal values; how to obtain and use condoms.</p> <p>B: Control group – no intervention</p>		<p>actions: A:baseline 3.5, follow-up 3.8 B:baseline 3.7, follow-up 3.8 p = 0.0001</p> <p>Mean self-efficacy score: A:baseline 3.7, follow-up 3.9 B:baseline 3.7, follow-up 3.8 p = 0.03</p> <p>Mean behaviour risk index (based on self-reports of recent behaviour): A: baseline 1.5, follow-up 1.4 B: baseline 1.0, follow-up 1.4 p = 0.006</p> <p>Differences in changes between baseline and follow-up between the two groups were significant for beliefs about peer norms of risk behaviour, but not for perceived susceptibility to HIV/AIDS, barriers to preventive action and the acceptability of preventive actions.</p>		<p>The implications for UK practice are unclear.</p>
<p>Wasylenki et al (1993)</p>	<p>HoN – Mental health</p> <p>Socio-economic</p> <p>Homeless mentally ill people attending hostels, Toronto, Canada.</p> <p>Before–after study with no controls</p>	<p>Assertive case management: case managers with training in psychiatric rehabilitation worked with clients to create a trusting relationship. They met at the convenience of clients, intervened in crises and served as advocates and facilitators of contact with other agencies. Case managers were responsible for 8–15 clients. Managers met monthly with the resident psychiatrist.</p>	<p>Housing status; psychiatric status; level of functioning; number of social contacts.</p> <p>Follow-up: 9 months</p>	<p>Mean (standard deviation) number of weeks spent in permanent residence in last 9 months: Baseline: 6.1 (8.1) Follow-up: 22.3 (12.5), p < 0.001</p> <p>Mean (SD) Brief Psychiatric Rating Score (lower score denotes lower pathology): Baseline: 40.1 (14.0) Follow-up: 25.2 (7.8), p < 0.001</p> <p>Mean (SD) Level of Functioning score (lower score denotes better functioning):</p>	<p>The study does not allow simple attribution of cause and effect, although the results seem quite striking.</p> <p>The possibility of a regression to the mean effect might need to be explored.</p> <p>The loss to follow-up in this study was 36%.</p>	<p>This study provides reasonable evidence that assertive case management for homeless people with mental health problems (in which the case loads of case managers are small) may help improve their mental health status.</p> <p>These results may well be generalisable to the UK setting.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	Study size: 92			Baseline: 153.9 (27.7) Follow-up: 124.0 (26.3), $p < 0.001$		
Wiist & Flack (1990)	<p>HoN – CHD/stroke</p> <p>Ethnicity</p> <p>Black church members, USA</p> <p>Before–after study non-randomised concurrent controls</p> <p>Study size: A = 174 B = 174</p>	<p>A + B: Voluntary serum cholesterol screening promoted by, and conducted from, a church. Participants given screening results and brief counselling session.</p> <p>A: Invitation to attend 6 1hr weekly classes at church, with options on time and day of classes. Education delivered by trained church members – focused on dietary change, with other lifestyle factors considered. 64–page booklet and 3-day food rating diary.</p> <p>B: Information on screening test sent to usual physician.</p>	<p>Serum cholesterol level.</p> <p>Follow-up: 6 months</p>	<p>Mean reduction in serum cholesterol: A: 23.4 mg/dl (10%) B: 38.7 mg/dl (16%) Difference between groups significant ($p < 0.003$)</p>	<p>The sample was self-selected, and it was unclear why people were allocated to the different groups.</p> <p>B had significantly lower blood pressure at baseline.</p> <p>There may be a regression to the mean effect operating.</p>	<p>This study provides weak evidence.</p> <p>There are no clear implications for practice in the UK.</p>
Windsor et al (1985)	<p>HoN – Smoking</p> <p>Socio-economic</p> <p>Pregnant women who smoke attending public health maternity clinics before the 32nd week of pregnancy, USA</p> <p>RCT</p>	<p>All women given screening interview and questionnaire about smoking practices, health beliefs and motivation to quit. Salival thiocyanate (SCN) was measured for those who said they smoked.</p> <p>A: Control group – routine antenatal care and advice from clinic staff</p> <p>B: Routine antenatal care plus</p>	<p>Smoking practice, health beliefs, strength of commitment to quit, SCN.</p> <p>Follow-up: 4–8 weeks, and during last month of pregnancy.</p>	<p>Percentage quit (95% CI) A = 2 (0–5) B = 6 (1–11) C = 14 (7–21)</p> <p>Percentage quit, and/or reduced by 30% from the number of cigarettes smoked at baseline (95% CI): A = 9 (3–15) B = 20 (12–28) C = 31 (22–40)</p>	<p>This study was conducted on a selected group of women who had not already given up smoking of their own accord when they knew they were pregnant. One would intuitively expect this group to be one of the hardest to change.</p>	<p>This study provides good evidence that a brief individual health education/skills counselling intervention can reduce smoking by disadvantaged pregnant women.</p> <p>A similar intervention may well also be useful in UK settings.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	<p>Number of women completing study: A = 104 B = 103 C = 102</p>	<p>10-min health education skills training session, American Lung Association (ALA) 'Freedom from smoking' manual, and ALA booklet 'Because you love your baby'.</p> <p>C: Routine antenatal care plus 10-min health education skills counselling session, a self-directed 7-day quit plan 'A pregnant woman's self help guide to quit smoking', and ALA booklet 'Because you love your baby'.</p>				
Yanochik et al (1976)	<p>General health</p> <p>Socio-economic, ethnicity</p> <p>Adults and children from low socio-economic or ethnic minority groups in urban and rural settings which lacked nutrition services. Participants were considered to be at risk of poor nutrition by either themselves, their parents, or health professionals. Atlanta, Georgia, USA.</p> <p>Before-after study with no controls</p> <p>Study size:</p>	<p>A community-based nutritional screening, monitoring and referral system delivered through well-baby clinics. Of those screened, those found to be at risk of poor nutrition by at least one index were followed up. The intervention included: home visit and family assessment and a preparation of a nutritional care plan. The programme was designed to be culturally and linguistically appropriate, respecting the values of the target population.</p>	<p>Haemoglobin/haematocrit; protein/albumin; height and weight; food intake; serum vitamin A and beta carotene.</p> <p>Follow-up: 2 years</p>	<p>25% of the original population were anaemic at baseline. 7% of those measured at follow-up were anaemic.</p> <p>Out of 731 families counselled about adult diet, 76% reported improvement in diet at follow-up.</p> <p>Out of 146 families counselled about infant/child feeding, 68% reported improvement at follow-up.</p> <p>Percentage of under-5s below 3rd centile for height: Baseline: 11% Follow-up: 4%</p> <p>Percentage of under 5s below 3rd centile for weight: Baseline: 4% Follow-up: 1.5%</p> <p>Percentage of children with one or more</p>	<p>Some of the children in the study may have been given daily vitamin/ mineral supplementation through a Head Start programme coincidentally with the intervention reported here.</p> <p>573 people were followed up.</p>	<p>This study provides weak evidence that community-based nutritional screening followed by targeted and individualised culturally sensitive nutritional advice may be effective in improving the nutrition of disadvantaged and ethnic minority families.</p>

Study	Review categories, study population, country, study design, study size	Intervention	Outcomes measured, follow-up	Results	Commentary	Implications of study
	4,899 screened, 1,311 found to be at risk and included in study			<p>haematological or biochemical markers below normal values: Baseline: 49% Follow-up: 10%</p> <p>Inter-agency co-operation was reported to be very good.</p>		
Zavertnik et al (1994)	<p>HoN – cancers</p> <p>Socio-economic, ethnicity</p> <p>Predominantly black women on low incomes, aged over 40 years, Florida, USA.</p> <p>Before–after study with no controls (community intervention study)</p> <p>Study size: local community</p>	<p>Late 1986: coalition of community agencies established the Miami Early Detection Program to reduce the problem of late detection of breast cancer in black women.</p> <p>Succinct, culturally sensitive messages placed in local media, and education programmes presented at local churches, nurses' groups, tenants' meetings etc.</p> <p>November 1987: mammography van started to make regular scheduled visits to local primary health care centres (van used for both diagnostic and screening mammograms until January 1992, then for screening mammograms only).</p> <p>January 1992: one-stop Breast Health Center established.</p> <p>Performance and interpretation of both mammogram and biopsy can be done in one visit. Multi- disciplinary care offered.</p>	<p>Percentage of women diagnosed with breast cancer at various stages.</p> <p>Follow-up: not clearly stated</p>	<p>In the first 14 months of operation of the mammography van, 15,280 women received initial mammograms. Almost 3/4 of these said it was their first mammogram.</p> <p>Before programme, % of women diagnosed at local hospital with breast cancer at various stages:</p> <p>2.3% 30.3% 45.9% 21.5%</p> <p>Since programme, % of women diagnosed with breast cancer at following stages:</p> <p>26.1% 47.8% 17.4% 8.7%</p>	<p>This paper is an early report, but the tentative results seem impressive.</p> <p>It is not clear which women made use of the programme.</p> <p>Secular trends due to factors outside the intervention could not have been controlled for by this study.</p>	<p>This study presents reasonable evidence that an intensive community intervention can improve uptake of breast screening and reduce the proportion of breast cancers diagnosed at late stages.</p> <p>The results of transferring the intervention to UK settings are not particularly clear given the differences in culture and organisation of screening services.</p>

Abbreviations

AIDS	Acquired immunodeficiency syndrome
ALA	American Lung Association
BBC	British Broadcasting Corporation
CAB	Citizens' Advice Bureau
CDC	Centers for Disease Control and Prevention
CHD	Coronary heart disease
CI	Confidence interval
CO	Carbon monoxide
GP	General practitioner
HDL	High-density lipoprotein
HIV	Human immunodeficiency virus
HoN	Health of the Nation (indicates a Health of the Nation health target)
max.	Maximum
mm Hg	Millimetres mercury
NHP	Nottingham Health Profile
ppm	Parts per million
RCT	Randomised controlled trial
SCN	Salival thiocyanate
SD	Standard deviation
SES	Socio-economic status
SMR	Standardised mortality ratio
STD	Sexually transmitted disease
UK	United Kingdom
USA	United States of America
WIC	Women, Infants, and Children Program (USA)

Note: All results, *p* values and confidence intervals cited in the table are quoted as given in the original papers. The authors of this review have not checked any of the original calculations.

APPENDIX I

Consultants to the review

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APPENDIX II

Researchers/experts working in the area contacted for information

Requests for information were made to members and observers of the Health of the Nation Variations in Health Sub-group.

Information was provided by or sought from the following people in the UK:

Aanchewan, Ms Tahera, SHARE database, King's Fund Institute, London
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Information was provided by or sought from the following people who are based outside the UK:

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Abbreviations:

SSRU	Social Sciences Research Unit
MRC	Medical Research Council
NAHAT	National Association of Health Authorities and Trusts
HELMIS	Health Management Information Service
HEA	Health Education Authority

APPENDIX III

Non-statutory bodies contacted for information

Requests for information were made to the following bodies:

American Public Health Association
European Public Health Alliance
Health For All UK Alliance
Local Authorities Health Network
Medical Research Council
National Institute for Social Work

and also from these bodies

Age Concern
AIDS/HIV Housing Project
Alcohol Concern
Association for Improvement in Maternity Services
Association of Community Health Councils (England and Wales)
Barnardo's
British Society of Gerontology
British Paediatric Society
British Medical Association
British Geriatrics Society
British Association of Social Work
British Dental Association
British Association for Service to the Elderly
British Association of Occupational Therapists
British Psychological Society
Centre for Policy on Ageing
Child Poverty Action Group
Conservative Medical Association
District Nursing Association UK
Equal Opportunities Commission
Family Planning Association
Local Authorities Health Network
London Lighthouse
Low Pay Unit
Marie Curie Cancer Care
Medical Practitioners Union
Medical Society for the Study of Venereal Disease
Medical Officers of Schools Association

MENCAP
Mental After Care Association
MIND
National Food Alliance
National Association for Maternity and Child Welfare
National Children's Bureau
National Schizophrenia Association
National Forum for Coronary Prevention
National Birthday Trust Fund
National Council for Voluntary Organisations
Neighbourhood Energy Action
RADA (Royal Association of Disability and Rehabilitation)
Royal Society of Health
Royal Society for the Prevention of Accidents
Shelter.

APPENDIX IV

Meetings, conferences and newsletters through which information was requested

Requests for information were circulated by means of the following conferences, meetings or newsletters:

Society for Social Medicine Annual Meeting, Leeds, September 1994

Cochrane International Conference, McMaster University, Canada, October 1994

NAHAT Conference, October 1994

Association of General Practitioners in Urban Deprived Areas, AGM, Liverpool, September 1994

European Meeting on Inequalities in Health, Bonn, organised by the Institut des Sciences de la Santé, Paris, October 1994

Socialist Health Association Newsletter, October 1994

13th International Conference of Social Science and Medicine, Balatonfured, Hungary, 1994

4th National Managing Health Promotion Conference, Penrith, UK, October 1994

HELMIS Newsletter, Nuffield Institute for Health, October 1994

International Centre for Health and Society, inaugural meeting, London, December 1994

Society for Public Health Newsletter, Autumn 1994.

APPENDIX V

Search terms

The following search terms were used in the preliminary search of the databases.

Search terms may be used either singly, for example 'intervention(s)', or in combination for example 'effectiveness or goals or achievement or increase or decrease'.

access	racial difference
accessibility of health services	reductions
age factors	regional variations
black/white difference	rural/urban differences
campaigns	sex
cause of death	single parent
decrease	social justice
delivery of health care	social class
deprived/depriv*	socio-economic
differences	uncompensated care
economically disadvantaged	underinsured
effectiveness	underprivileged
endowed	unemployment
equity	unendowed
ethnic groups	unequal
factors	uninsured
gender	variations
goals	
health priorities	
health status	
health services accessibility	
health insurance	
health policy	
health services/utilisation	
health inequalities	
health planning guidelines	
increase	
inequities	
inequity	
intervention studies	
poverty	
program effectiveness	
program-evaluation	
programs/programmes	
quality health care/race	

APPENDIX VI

Databases searched

A preliminary search was carried out on the following databases:

- Medline, 1966 to September 1994
- Applied Social Sciences Index and Abstracts, 1987 to 1994
- Sociological Abstracts, 1963 to 1994
- National Technical Information Service, 1970 to 1994
- Dissertation Abstracts, 1861 to 1994
- Project Register System, 1993 to 1994
- SHARE Database (Race and Ethnicity), King's Fund Institute
- Primary Health Care Database, 1985 to 1994, HEA
- CAREDATA (Social and Community Care) 1986 to 1994
- DHSS DATA, including DoH Nursing Research Database, 1985 to 1994
- HELMIS
- Cinahl (Nursing Research), 1982 to 1994
- World Research Database, 1994
- Centre for Health Economics/Centre for Reviews and Dissemination Information Service Catalogue, 1983 to 1994

More detailed searches were then carried out as follows:

- Medline, 1990 to September 1994
- Applied Social Sciences Index and Abstracts, 1987 to 1994
- System for Information on Grey Literature in Europe, 1984 to 1994

APPENDIX VII

Search strategy

Medline

Key to abbreviations and symbols used for searching:

- / All sub-headings were searched
- /pc Sub-heading preventive care searched only
- \$, # Truncation symbols
- adj4 within 4 words
- exp Explode the search term (ie include all narrower terms in the search)
- .tw. Textwords (the words are searched for in the record text)

Search 1

Using CD Plus Ovid software, searching only from 1990 to December 1994 with no language limitations and no publication type limitations.

Group 1: Describing method of study

- 001 exp clinical trials/
- 002 comparative study/
- 003 follow-up studies/
- 004 prospective studies/
- 005 evaluation studies/
- 006 program evaluation/
- 007 exp health services research/
- 008 (field adj stud\$).tw.
- 009 ((campaign# or program# or intervention#) adj4 (effectiveness or evaluation or impact or effect#)).tw.
- 010 trial#.tw.

Group 2: Describing possible strategies to reduce variation in health

- 011 consumer advocacy/
- 012 health promotion/
- 013 exp health planning/
- 014 insurance, health/
- 015 exp preventive health services/
- 016 exp health policy/
- 017 marketing of health services/
- 018 mass media/

- 019 parenting/
- 020 primary health care/
- 021 exp public health/
- 022 exp self-help groups/
- 023 smoking cessation/
- 024 social support/
- 025 urban renewal/
- 026 exp public assistance/
- 027 health services accessibility/
- 028 delivery of health care/
- 029 environmental health/
- 030 exp patient acceptance of health care/
- 031 quality assurance, healthcare/
- 032 social change/
- 033 social justice/
- 034 public health/
- 035 accident prevention/
- 036 accidental falls/pc
- 037 accidents, home/pc
- 038 accidents, occupational/pc
- 039 accidents, traffic/pc
- 040 drowning/pc
- 041 consumer product safety/
- 042 disease outbreaks/pc
- 043 disease reservoirs/pc
- 044 disease transmission, patient-to-Professional/pc
- 045 disease transmission, Professional-to-patient/pc
- 046 environmental pollution/pc
- 047 health education/
- 048 hygiene/
- 049 sanitation/
- 050 insurance, medigap/
- 051 exp medicare/
- 052 medicare assignment/
- 053 medicaid/
- 054 ((free adj care) or ((nursery or preschool) adj education))).tw.
- 055 (after adj school adj care).tw.
- 056 (social adj support).tw.

Group 3: Describing possible associations of variations in health

- 057 housing/
- 058 public housing/
- 059 nutritional status/
- 060 age factors/
- 061 uncompensated care/
- 062 socioeconomic factors/

- 063 social class/
- 064 single parent/
- 065 exp ethnic groups/
- 066 poverty/
- 067 poverty areas/
- 068 unemployment/
- 069 rural health/
- 070 rural population/
- 071 urban health/
- 072 educational status/
- 073 urban population/
- 074 urbanization/
- 075 exp homeless persons/
- 076 medically uninsured/
- 077 medically underserved area/
- 078 (underinsured or uninsured or uncompensated or indigen\$ or (ethnic adj difference#)).tw.
- 079 (unemployed or unemployment or (low adj income#) or blacks or deprived or deprivation).tw.
- 080 (disadvantaged or endowed or unendowed or education\$ or equity or equitable).tw.
- 081 (inequity or inequities or inequitable or unequal or homelessness or illiterate).tw.
- 082 (inequality or inequalities or variation# or poverty or underprivileged).tw.
- 083 (family adj income) or (inner adj cit\$) or (minority adj group#) or (vulnerable adj group#)).tw. nutritional status/ or nutrition.tw.
- 084 minority groups/
- 085 [(((low or lower or less or poor or poorer or level) adj2(socioeconomic or education\$)).tw.)]
- 086 (workplace or ((manual adj worker#) or occupation#) or (blue adj collar)).tw.

Group 4: Describing the characteristics potentially responsive to the intervention

- 087 exp health services/ec,og,st,sd,td,ut
- 088 exp vital statistics/
- 089 (health adj effects).tw.
- 090 health services accessibility/
- 091 ((campaign# or program# or intervention#) adj4 (access or accessibility or utili#ation
- 092 uptake or effect#).tw.

Group 5: terms to generate exclusions

- 093 animal/
- 094 human/
- 095 case report/
- 096 exp case-control studies/
- 097 cohort studies/

Group 6: combination of sets

- 098 or/1-10 – any of the factors in group 1
- 099 or/11-56 – any of the factors in group 2
- 100 or/57-87 – any of the factors in group 3
- 101 or/88-92 – any of the factors in group 4
- 102 98 and 99 and 100 and 101
- 103 93 not (93 and 94) – animal not (human and animal)
- 104 102 not (103 or 95 or 96 or 97) – exclude documents reporting animal, case reports, case-control and cohort studies.

Search 2

Using CD Plus Ovid software, searching only from 1990 to December 1994 with no language limitations and no publication type limitations.

Group 1: Describing method of study

- 001 exp clinical trials/
- 002 comparative study/
- 003 follow-up studies/
- 004 prospective studies/
- 005 evaluation studies/
- 006 program evaluation/
- 007 exp health services research/
- 008 (field adj stud\$).tw.
- 009 ((campaign# or program# or intervention#) adj4 (effectiveness or evaluation or impact or effect)).tw.
- 010 trial#.tw.

Group 2: Describing possible interventions to reduce variations in health

- 011 consumer advocacy/
- 012 health promotion/
- 013 insurance, health/
- 014 exp preventive health services/
- 015 marketing of health services/
- 016 primary health care/
- 017 exp public health/
- 018 exp self-help groups/
- 019 social support/
- 020 urban renewal/
- 021 exp public assistance/
- 022 health services accessibility/
- 023 delivery of health care/
- 024 environmental health/
- 025 quality assurance, health care/
- 026 accident prevention/
- 027 drowning/pc

- 028 consumer product safety/
- 029 disease outbreaks/pc
- 030 environmental pollution/pc
- 031 health education/
- 032 hygiene/
- 033 sanitation/
- 034 (social adj support).tw.
- 035 campaign#.tw.
- 036 program\$.tw.
- 037 intervention#.tw.
- 038 nursery education.tw.
- 039 preschool education.tw.

Group 3: Describing possible associations of variations in health

- 040 housing/
- 041 public housing/
- 042 nutritional status/
- 043 age factors/
- 044 socioeconomic factors/
- 045 social class/
- 046 single parent/
- 047 exp ethnic groups/
- 048 poverty/
- 049 poverty areas/
- 050 unemployment/
- 051 rural health/
- 052 rural population/
- 053 urban health/
- 054 educational status/
- 055 urban population/
- 056 urbanization/
- 057 exp homeless persons/
- 058 medically underserved area/
- 059 (indigen\$ or (ethnic adj difference#)).tw.
- 060 (unemployed or unemployment or (low adj income#) or blacks or deprived or deprivation).tw.
- 061 (disadvantaged or endowed or unendowed or education\$ or equity or equitable).tw.
- 062 (inequity or inequities or inequitable or unequal or homeless or illiterate).tw.
- 063 (inequality or inequalities or variation# or poverty or underprivileged).tw.
- 064 ((family adj income) or (inner adj cit\$) or (minority adj group#) or (vulnerable adj group#)
- 065 nutritional status/ or nutrition.tw.
- 066 minority groups/
- 067 ((low or lower or less or poor or poorer or level) adj2 (socioeconomic or education\$)).tw.
- 068 (workplace or ((manual adj worker#) or occupation#) or (blue adj collar)).tw.

Group 4:

- 069 (health adj effects).tw.
- 070 health services accessibility/
- 071 (access or accessibility or utilization or uptake or effect#
- 072 (impact# or outcome# or improvement# or change# or reduction# or increase# or benefit# or evaluate#).tw.

Group 5: Combination of sets

- 073 or/1–10
- 074 or/11–42
- 075 or/43–68
- 076 or/69–72
- 077 73 and 74 and 75 and 76

The results of set 77 were then combined with the results of search 1 using the ‘not’ operator.

Sigle (System for Information on Grey Literature in Europe) search strategy

Period 1984 to 1994

Search symbols:

? Truncation

WAdjacency

- 001 Uptake
- 002 Effective?
- 003 Improve?
- 004 Reduc?
- 005 Increas?
- 006 Decreas?
- 007 Access?
- 008 Variation?
- 009 Inequalit?
- 010 Difference?
- 011 Inequit?
- 012 Equit?
- 013 Ethnicity
- 014 Socioeconomic?

015 Low
 016 Income
 017 Low(W)income
 018 Elderly
 019 Inner
 020 City
 021 Inner(W)City
 022 Older
 023 Heart
 024 Disease
 025 Heart(W)Disease
 026 Stroke
 027 HIV
 028 Cancer?
 029 Mental
 030 Accident?
 031 Health
 032 or/1-7
 033 or/8-22
 034 or/23-31
 035 32 and 33 and 34

ASSIA (Applied Social Science Index and Abstracts) search strategy

Period 1987 to 1994

001 Intervention\$ or program\$ or campaign\$ or project\$ or session\$
 002 Uptake\$ or effective\$ or improve\$ or reduc\$ or increas\$ or decreas\$
 003 Access\$
 004 1 or 2 or 3
 005 Variation\$ or inequal\$ or difference\$ or inequit\$ or equit\$
 006 Ethnicity or socioeconomic or (low adj income) or elderly
 007 Inner adj city or older
 008 5 or 6 or 7
 009 (Inner adj city) or older
 010 (Heart adj disease) or stroke or HIV or aids or cancer\$
 011 Mental or accident\$ or health\$
 012 10 or 11
 013 4 and 8 and 12
 014 1 and 8 and 12

APPENDIX VIII

Pro forma for extracting data from primary studies

Reference Number Reviewer

Title

Author

Source

Date Vol Part Pages

Research question

Review factors: Socio-economic Race/ethnicity Gender Age Region

Health area: HoN General Health non-HoN : specify health area

Key words: eg. smoking, tobacco, CHD

Source of initiative for intervention:

Source of funding for intervention:

a. private b. charity c. public sector – national

d. public sector – local e. other

specify..

Source of funding for evaluation

Description of intervention

Study design

a. RCT

b. before–after study with non-randomised matched concurrent controls

c. before–after study with non-randomised concurrent controls

d. before–after study with non-randomised historic controls

e. before–after study with no controls

f. other – specify

g. unclear

Study population – as stated by authors

Sampling method (intervention and control groups)

Entry and exclusion criteria (intervention and control groups)

Is the sample representative of the study population? Yes No

(Include reviewer's description of sample studied)

Size of intervention and control groups (give numbers allocated to each group, or, if these are not clear, specify what the stated numbers refer to).

Was an *a priori* estimate made for the sample size?

If yes, what was the power of the study?

Unit of randomisation/allocation

Method of allocation to intervention or control group

What was measured at baseline?

What was measured after the intervention?

What instruments were used?

Were these validated? yes / no

What was the duration of the follow-up?

Was there blinding of assessment?

Number and % of subjects who dropped out

Were intervention and control groups comparable? yes/ no / not specified

What adjustments were made for confounding?

Was analysis on the basis of intention to treat?

What statistical techniques were used?

Results:

Quantitative

If possible give estimate of size of effect (relative and absolute – include CIs and p values)

Qualitative

Were any cost-effectiveness data reported?

Costs of intervention

Cost-effectiveness

Authors' conclusions

Reviewer's commentary:

Internal validity:

role of chance

confounding

bias

Generalisability of findings

Implications for reducing variations in health

Comments

REFERENCES

(° Paper reporting a study included in Table 8)

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