

NICE RAPID REVIEW

The effectiveness of smoking cessation interventions to reduce the rates of premature death in disadvantaged areas through proactive case finding, retention and access to services

September 2007

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1. Executive Summary

This report outlines findings from a systematic review of the evidence concerning the effectiveness of smoking cessation interventions that reduce the rates of premature death in disadvantaged areas through proactive case finding, retention and access to services. This includes: assessing the evidence on interventions aimed at *finding* and then *supporting* adults living in disadvantaged areas who are at higher than average risk of premature death; and assessing the evidence on interventions aimed at *providing* – and *improving access* to – services for adults living in disadvantaged areas, with a higher than average risk of premature death. The review focuses not just on smokers living in disadvantaged areas but also disadvantaged and manual groups more broadly, including pregnant women.

Methodology: The review was conducted in four stages: search, screening, critical appraisal and synthesis. UK evidence was examined first, followed by international studies. A total of 7,842 titles and abstracts were screened. Full paper copies of 46 UK studies and 44 international studies were obtained. 24 UK studies and 24 international studies were data extracted and quality assessed in the final review.

Results: Limited evidence was identified to address the main research questions posed by the review. The quality of evidence was mixed and studies often included poorly specified outcomes.

Finding and supporting adults

Evidence was identified that suggests a number of interventions may be effective in identifying smokers. Some of these may also be effective in supporting smokers to quit once they have been reached, although this evidence is more limited. Effective methods for identifying and/or supporting adults include: the Quality Outcomes Framework (QOF) element of the 2004 GP contract in the UK, the use of primary care records to contact smokers and provide access to cessation services, the use of health equity audit methods to determine whether NHS stop smoking services are reaching disadvantaged smokers, social marketing approaches, tailoring interventions to fit the needs of disadvantaged groups, and combining advice or treatment to stop smoking with other interventions such as cervical screening. However, a weakness of some of the studies identified was that although they identified promising approaches to finding and then supporting smokers, not all of them focussed specifically on disadvantaged groups.

Providing and improving access to services

Disadvantaged smokers face a number of barriers to accessing services including fear of failure, fear of being judged and lack of knowledge. Pregnant women, particularly disadvantaged pregnant smokers, also experience a number of barriers to seeking support to quit. Evidence suggests that there are a number of effective ways of improving the accessibility of cessation interventions. Training pharmacists and dental professionals to deliver cessation can make effective treatment available to larger numbers of smokers. Workplace interventions can also be successful with manual groups. Some limited evidence also exists that including a drop in or rolling group element to smoking treatment may improve access and outcomes for some smokers. Finally, evidence exists that a number of different forms of incentive schemes, including access to free NRT, can encourage smokers to make a quit attempt.

Review findings point to the need for further research in a number of areas, in particular the need to test promising approaches with disadvantaged groups rather than the wider population.

2. Evidence Statements

No	Statements on strength and applicability of evidence	Evidence
	Identifying and Reaching Smokers	
1	<p>Evidence from one UK observational study [++]¹ suggests that the Quality and Outcomes Framework component of the 2004 GP contract may have continued, rather than reversed, differences in the quality of care delivered between primary care practices in deprived and less deprived areas.</p> <p>Evidence from another UK observational study [++]² suggests that the new GP contract has resulted in an improvement in the recording of smoking status and the recording of the delivery of brief cessation advice in primary care, but not the prescribing of smoking cessation medication.</p> <p>As these studies took place within UK primary care, they are directly relevant to the review.</p>	<p>¹McLean et al. 2006 (++) ²Coleman et al. 2007 (++)</p> <p>(Pp. 18-19 text)</p>
2	<p>One cluster RCT in the UK [++]¹ found that proactively identifying smokers through primary care records was feasible, and providing these smokers with brief advice and referral to NHS stop smoking services increased contact with services and quit attempts but did not increase rates of cessation.</p> <p>One observational study [-]², one descriptive study [-]³, one cluster controlled trial [+]⁴ and one RCT [+]⁵ conducted in the USA demonstrate that proactively identifying smokers in a number of ways, for example, through primary care, using a screening tool, or through cold calling, is possible and that these provide an effective way of recruiting smokers to cessation interventions.</p> <p>One observational study in Sweden [+]⁶ demonstrates that direct mailing to smoking mothers can be successful in increasing both participation in smoking cessation programmes and quit rates.</p> <p>One study took place within English primary care and it is directly applicable to the review. The remainder took place in the USA and may have limited applicability. Only one (American) study</p>	<p>¹Murray et al. 2007 (++) ²Bentz et al. 2006 (-) ³Perry et al. 2005 (-) ⁴Milch et al. 2004 (+) ⁵Prochaska et al. 2001 (+) ⁶Tillgren et al. 2000 (+)</p> <p>(Pp. 20-22 text)</p>

	focused upon disadvantaged groups and therefore the applicability of this evidence to target populations for this review may be limited.	
3	<p>Two observational studies [++]^{1,2} demonstrate that the NHS stop smoking services have been effective in reaching smokers living in disadvantaged areas of England.</p> <p>As both took place in England and are focused on disadvantaged groups, they are directly applicable to the review.</p>	<p>¹Lowey et al. 2003 (++) ²Chesterman et al. 2005 (++)</p> <p>(Pp. 22-23 text)</p>
	Client Centred Approaches	
4	<p>Two studies provide evidence to suggest that barriers such as fear of being judged, fear of failure and lack of knowledge need to be tackled in order to motivate smokers from lower socio-economic groups to access cessation services. Interventions need to be multidimensional in order to tackle social and psychological barriers to quitting as well as dealing with the physiological addiction. (Two UK based studies, one involving focus groups [++]¹ and one involving interviews [++]²).</p> <p>As both these studies took place with disadvantaged smokers in the UK, they are directly relevant to this review.</p>	<p>¹Roddy et al. 2006 (++) ²Wiltshire et al. 2003 (++)</p> <p>(Pp. 23-24 text)</p>
5	<p>Evidence from four studies suggest that social marketing has a role to play in delivering client centred approaches to smoking cessation in disadvantaged groups. (One UK based observational study [-]¹, one international RCT [+]², one international population based study [+]³ and one international controlled before and after study [-]⁴).</p> <p>One of these studies took place with disadvantaged smokers in the UK and is directly relevant to the review. Three took place in the USA and may have limited applicability to this review.</p>	<p>¹Stevens et al. 2002 (-) ²Boyd et al. 1998 (+) ³Schorling et al. 1997 (+) ⁴Turner et al. 2001 (-)</p> <p>(Pp. 25-26 text)</p>
6	<p>One UK based study suggests that including lay people or community members as advisers may form an important part of a successful smoking cessation intervention targeted at a specific group, in particular if the service is tailored to their specific needs and allows them to explore smoking in the context of relevant issues in their lives. (One UK based observational study [+]¹).</p>	<p>¹Harding et al. 2004 (+)</p> <p>(p. 26-27 text)</p>

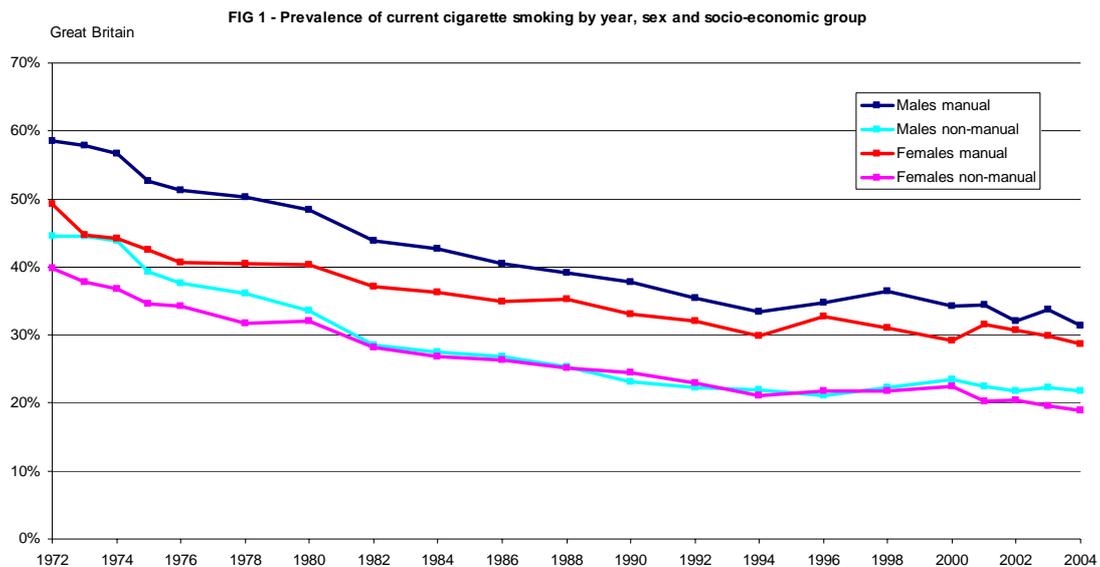
	This study took place with smokers in the UK and is relevant to this review.	
7	<p>Two American studies suggest the need to test existing cessation interventions to determine their suitability for the specific group, to receive feedback from that group and to make amendments to any aspects that are unsuitable. In order for the client group to benefit, the intervention must fit their level of need and understanding, and be suitably accessible. (One USA based RCT [++]¹, and one USA based cohort study [-]²).</p> <p>Both studies took place in the USA and may have limited applicability to this study.</p>	<p>¹ Okuyemi et al. 2007 ² McDaniel et al. 2005</p> <p>(Pp. 27 text)</p>
	Improving Access	
8	<p>There is evidence from a number of studies that training pharmacists to deliver smoking cessation interventions is important and preliminary evidence that pharmacies may be a valuable means of reaching and increasing smoking cessation rates in disadvantaged groups (one UK systematic review comprising 2 RCTs and 3 non-randomised experimental studies [++]¹, one UK observational study with interviews [++]² and one international pilot study [+]³)</p> <p>Two studies took place within the UK and are directly applicable to the review. One took place in the USA and so may have limited applicability to this review</p>	<p>¹ Blenkinsopp et al. 2003 (++) ² Bauld et al. 2006 (++) ³ Doescher et al. 2002 (+)</p> <p>(Pp. 28-29 text)</p>
9	<p>There is evidence from three reviews that training dental professionals to deliver smoking cessation interventions is important, and this setting has the potential to reach large numbers of smokers and increase cessation rates (one international systematic review comprising 6 RCTs [-]¹, one UK review of mixed study designs [-]² and one international review of 7 RCTs [+]³)</p> <p>One study took place within the UK and is directly applicable to the review. Two studies took place in the USA and so may have limited applicability to this review. There is limited reference to disadvantaged groups in any review and therefore the applicability of this evidence to target populations for this review may be limited.</p>	<p>¹ Carr & Ebbert 2007 (-) ² Needleman et al. 2006 (-) ³ Gordon et al. 2006 (+)</p> <p>(Pp. 29-30 text)</p>

10	<p>Three studies provide some evidence of the potential benefit of drop in or rolling community based sessions for smoking cessation to reach smokers and increase cessation rates (two UK based studies involving face to face interviews [-]1,2 and one UK based observational study [-]3).</p> <p>All studies took place within the UK and are directly applicable to the review.</p>	<p>¹ Ritchie et al. 2007 (-) ² Springett et al. 2007 (-) ³ Owens & Springett 2007 (-)</p> <p>(Pp. 30-31 text)</p>
11	<p>One cohort study [+]¹ provides evidence of the potential benefit of basing smoking cessation services in the workplace of manual groups to increase cessation rates.</p> <p>This study took place in the USA and so may have limited applicability to this review but does have potential implications for the UK population.</p>	<p>¹Barbeau et al. 2006 (+)</p> <p>(Pp. 31 text)</p>
Incentive Schemes		
12	<p>An international review [+]¹ of 17 studies of population based smoking cessation interventions that used a range of incentives found that larger incentives were more effective both in improving recruitment and cessation. The review included studies of mixed designs, and did not discuss the socio-economic characteristics of participants. A UK cohort study [+]² found some evidence for proactive targeting of patients by GPs in a deprived area for prescriptions of NRT on quit rates and reduction in cigarette consumption. Two US cohort studies [+]^{3,4} of free NRT for helpline callers provided evidence for an impact on calls, and some evidence in one study of greater quit rates. One US RCT [+]⁵ of workplace smoking cessation programmes and incentives found that the latter increased participation but not cessation.</p> <p>One study took place within the UK and is directly applicable to the review. Three studies took place in the USA and one review was based on studies conducted worldwide and so may have limited applicability to this review.</p>	<p>¹Bains et al, 1998 (+) ²Copeland et al, 2005 (+) ³An et al, 2006 (+) ⁴Bauer et al, 2006 (+) ⁵Hennrikus et al, 2002 (+)</p> <p>(Pp. 32-33 text)</p>
Combined Approaches		
13	<p>One RCT in the UK [++]¹ with CHD patients randomised to nurse run clinics or controls found little evidence for a change in smoking behaviour. Two RCTs in the UK [+]² and [-]³ exploring smoking</p>	<p>¹Campbell et al, 1998 (++) ²Hall et al, 2007 (+) ³Hall et al, 2003 (-) ⁴Vidrine et al, 2006 (+) ⁵Curry et al, 2003 (+)</p>

	<p>cessation interventions at routine cervical screening appointments found some evidence for brief interventions to change the motivation or intentions to quit smoking. One international RCT [+]⁴ examined the recruitment of women smokers attending a child's paediatric appointment, into a smoking cessation intervention and found some evidence for an impact on quitting smoking. One international RCT [+]⁵ and one observational study using face to face interviews [+]⁶ investigated the use of cellular phones for smoking cessation in HIV+ patients and showed a potential benefit for using this method of support. One US cohort study [+]⁷ provided preliminary evidence that offering a reduction programme could reach and influence more smokers than a programme just offering cessation.</p> <p>Three studies were carried out in the UK and are directly applicable to the target population, but they did not examine disadvantaged groups separately. Four studies were carried out in the US and so may have limited applicability to this review</p>	<p>⁶Lazev et al, 2004 (+) ⁷Glasgow et al, 2006 (+)</p> <p>(Pp. 33-35 text)</p>
	<p>Pregnancy</p>	
<p>14</p>	<p>Two UK surveys (one telephone [+]¹ and one internet [+]²) and one descriptive and audit survey [-]³ carried out in the UK provide evidence of pregnant smokers' perceptions of barriers to using smoking cessation support. Barriers include, among others: unsatisfactory information, lack of integration of cessation into routine antenatal care, lack of enthusiasm or empathy from health professionals and short-term support. One RCT in the UK [+]⁴ of motivational interviewing with pregnant smokers and two international RCTs, one of a brief versus more intensive intervention [++]⁵ and one of proactive telephone support [-]⁶ provide little evidence of the effectiveness of these interventions. One US descriptive study [-]⁷ described the reach of a multifaceted pregnancy campaign but reported no outcomes.</p> <p>The UK studies are directly applicable to the target population, although only one of these focused on pregnant smokers in disadvantaged areas.</p>	<p>¹Ussher et al, 2004 (+) ²Ussher et al, 2006 (+) ³Lowry et al, 2004 (-) ⁴Tappin et al, 2000 (+) ⁵Dornelas et al, 2006 (++) ⁶Solomon 2000 (-) ⁷Haviland et al, 2004 (-)</p> <p>(Pp. 36-38 text)</p>

3. Background

In common with most industrialised countries, smoking rates in the UK are not evenly distributed across the population but are considerably higher amongst less affluent groups. Smoking rates are currently 32% for men and 30% for women in routine and manual occupations, compared with 20% for men and 17% for women in managerial and professional groups (ONS, 2006a). As Figure 1 illustrates, although smoking rates have dropped considerably since the 1970s for all groups, the difference between manual and non-manual rates has remained stubbornly persistent through time for both men and women, with no significant narrowing of the gap.



Source: Davy, 2007 (General Household Survey data, 1972 to 2004/05)

These differences in smoking rates have serious implications for inequalities in health. Amongst men, smoking is responsible for over half of the excess risk of premature death between the highest and lowest socio-economic groups (Jha et al, 2006). The most recent analysis by ONS of causes of death in England and Wales argues that smoking plays a key role in the relationship between deprivation and mortality (Romeri et al, 2006). It is for these reasons that addressing smoking-related inequalities in health has become a policy priority in the UK.

Targets have been established in all parts of the UK to reduce smoking rates and address inequalities in health. In England, the key targets are, by 2010 to:(Department of Health 1998, 2000)

- Reduce by at least 10% the gap in infant mortality between routine and manual groups and the population as a whole
- Reduce by at least 10% the gap in life expectancy between the fifth of areas with the lowest life expectancy and the population as a whole
- Reduce adult smoking prevalence in routine and manual groups to 26% or less
- Reduce in the fifth of areas with the worst health and deprivation indicators and the population as a whole the gap in CVD and cancer by 40% and 6% respectively.

A key mechanism for reaching these targets is smoking cessation. Achieving reductions in the proportion of current smokers is likely to achieve significant health gains, and if more of these smokers are drawn from disadvantaged groups then cessation could make a significant contribution to reducing inequalities in health (Bauld et al, 2008).

However, there are a number of barriers to reaching and supporting target groups of smokers to quit. Some research has found that less affluent smokers are less likely to report that they want to give up (Lader and Goddard, 2005), although recent national surveys have found little difference in levels of motivation to quit between different socioeconomic groups (ONS, 2006b). Those living in disadvantaged communities may be less willing to seek help from statutory health services (Wiltshire et al, 2003). Perhaps more importantly, less affluent smokers that do attempt to quit are less likely to succeed in their quit attempt than more affluent groups (Judge et al, 2005, Ferguson et al, 2005).

Smoking in Pregnancy

Smoking in pregnancy rates remain high in the UK. In 2005, a third of mothers (32%) in England smoked in the 12 months before or during their pregnancy. Of mothers who smoked before or during their pregnancy, about half (49%) gave up at some point before the birth. One in six mothers (17%) continued to smoke (Information Centre, 2007).

Table 1: Smoking during pregnancy in England by mother's socio-economic group (NS-SEC) 2000 and 2005

	Percentage who smoked before or during pregnancy		Percentage who smoked throughout pregnancy		Percentage who gave up before or during pregnancy	
	2000 %	2005 %	2000 %	2005 %	2000 %	2005 %
Managerial and professional	22	19	7	7	66	64
Intermediate occupations	29	30	13	12	56	61
Routine and manual	46	48	28	29	38	40
Never worked	48	33	34	23	30	32
Unclassified	38	31	21	17	45	45
All Mothers	35	32	19	17	45	49

Source: Information Centre, 2007.

Table 1 illustrates results from the most recent survey of smoking in pregnancy, conducted in 2005. Mothers in managerial and professional occupations were the least likely to have smoked before or during pregnancy (19%), while those in routine and manual occupations were the most likely to have smoked (48%). In addition,

those in managerial and professional occupations were more likely than those in routine and manual occupations to have given up at some point before or during pregnancy (64% and 40% respectively). Mothers in routine and manual occupations were more than four times as likely as those in managerial and professional occupations to have smoked throughout pregnancy (Information Centre, 2007).

Table 1 also shows that between 2000 and 2005 the gap in smoking levels between mothers in different groups increased in England as a whole. While the proportion of mothers in managerial and professional occupations who smoked before or during pregnancy decreased from 22% in 2000 to 19% in 2005, the proportion of mothers in routine and manual occupations who smoked before or during pregnancy increased from 46% to 48% (Information Centre, 2007).

In addition to these differences in smoking rates between groups of women, studies have consistently shown that smoking in pregnancy is under-reported in surveys and in the collection of routine data during ante-natal appointments (Walsh et al, 1996, Owen and McNeill, 2001). Although previous research has found that under-reporting can occur amongst women regardless of socio-economic status (Graham and Owen, 2003), recent research in Scotland has suggested underreporting may be higher amongst more disadvantaged women, either because of reluctance by a woman to divulge her smoking status or reluctance by midwives to ask (Bauld et al, 2007). Some smoking cessation services in the UK are attempting to deal with this problem by introducing routine validation tests (CO monitoring or urine tests for cotinine) at booking. Results from a pilot study of routine urine testing for cotinine amongst pregnant women in Buckinghamshire identified active smoking in 47% of mothers tested, compared with the national self-reported rate of 17% (Giles et al, 2007).

Smoking Cessation Services

Following the publication of the 1998 White Paper, *Smoking Kills* (Department of Health, 1998), smoking cessation services, now known as NHS stop smoking services, were established in the UK. They were initially set up in more deprived areas of England (Health Action Zones) in 1999 and rolled out to the rest of the country from 2000 (Adams et al, 2000). NHS stop smoking services now exist in all parts of the UK and provide free at the point of use access to behavioural support from a trained adviser in a range of settings (one to one or group) plus access to appropriate pharmacotherapies which are free on prescription.

NHS stop smoking services in England were the subject of a Department of Health funded evaluation which was concluded in 2005 (McNeill et al, 2005). The efficacy of these services has also been examined in a recent rapid review for NICE (Bell et al, 2007). For this reason, their development is not described in detail here. It is, however, worth noting that the services were intended to target particular groups (pregnant women, young people and disadvantaged groups) from their inception (Pound et al, 2005). A range of studies, some of which are reviewed in this report, have found that they have been successful in reaching smokers living in disadvantaged areas in particular (Chesterman et al, 2005, NEPHO, 2005, Lowey et al, 2002).

However, one of the challenges for these services and for other interventions that can help smokers to quit is access. The most recent research in England suggests that, at the national level, less than 10% of smokers who make a quit attempt do so with the support of NHS stop smoking services¹ (West, 2007; ONS, 2006b). Given

¹ The smoking toolkit study is a monthly survey of smokers that includes questions on use of aids to cessation such as pharmacotherapies (OTC and prescription) and use of NHS cessation services. This

the efficacy of the treatment offered by these services when compared with other interventions or willpower alone, this limited reach is a considerable cause for concern. It is therefore important that NHS stop smoking services, and other services that can support smokers to stop, develop appropriate strategies to identify, contact and support smokers. This review examines existing evidence about how reach and access can be improved, particularly for disadvantaged groups and pregnant women.

Scope of the Review

This report outlines findings from a systematic review of the evidence concerning the effectiveness of smoking cessation interventions that reduce the rates of premature death in disadvantaged areas through proactive case finding, retention and access to services. This includes:

- Assessing the evidence on interventions aimed at *finding* and then *supporting* adults living in disadvantaged areas who are at higher than average risk of premature death.
- Assessing the evidence on interventions aimed at *providing* – and *improving access to* – services for adults living in disadvantaged areas, with a higher than average risk of premature death.

The review focuses not just on smokers living in disadvantaged areas but also disadvantaged and manual groups more broadly, including pregnant women.

In conducting the review we have benefited from access to the emerging findings of a mapping study of smoking cessation interventions to reach disadvantaged groups in England that was commissioned earlier this year (Marks et al, 2007). The mapping study identified a number of different types of interventions that were being developed, or have been implemented, to try and improve efforts to identify smokers, improve access to services and effectively support disadvantaged groups and pregnant women to quit. These types of interventions can be grouped into a number of categories. In discussing these categories with the mapping team and colleagues at NICE, it became apparent that the literature identified as part of this review could also be grouped into similar, but slightly adapted, categories. By organising the review under similar headings we have tried to indicate where there is evidence to support what the NHS and its partners are already trying to do or, where there is little or no evidence to support current action, a need for further research. The categories we have used in this review are:

- Identifying and reaching target populations
- Client-centred approaches
- Improving access
- Incentive schemes
- Combining cessation interventions with other approaches
- Studies with pregnant smokers

Limitations of the Review

Before describing the methods used in the review and the results, it is worth outlining some of the limitations of the work conducted. These limitations arise primarily from the nature and timing of the commissioning process and to a lesser extent the scope of the review. These limitations should be considered when reading this report.

information can be broken down by socio-economic group. The review team could make further enquiries with Professor Robert West to explore the availability of these data for further analysis.

The first limitation relates to the fact that this review focuses solely on smoking cessation rather than on both of the topics (smoking cessation and statins) set out in the study specification. This means the available resource for the review was limited due to the need to fund the statins work separately. The second limitation is that the effectiveness review took place at the same time as the mapping study, when ideally the mapping study, if conducted earlier, could have informed the review.

A third, and perhaps more important, limitation is that the time available for this review has been very short. From commissioning to draft report submission, the time available has been less than 4 months. This has posed particular challenge in terms of the extent to which the review could include two important elements: 1) the contextual literature and 2) expert consultation. In relation to the first point, it may have been desirable to have made reference to a wider range of grey literature that would not necessarily be used to answer the research questions for the review but would have allowed our findings to be put into context. We have made every effort to do this in the report, but because of time constraints there may be some gaps. In addition, although we contacted several tobacco control experts to identify any emerging or unpublished studies relevant to the review, there may have been others we could have contacted.

A final limitation faced by the review is that the nature of the evidence in relation to proactive case finding, retention and improving access to services in smoking cessation is mixed. As the report describes, the quality of the evidence is often weak or not presented in a way that allows clear statements to be made about its applicability to the UK context and the NHS in particular. Studies employ a range of research designs that often include poorly specified outcomes. As a result some of the evidence is perhaps best seen as examples of promising practice, rather than proof of the effectiveness of an intervention. We explore this issue in more detail later in the report.

4. Methodology

The review was conducted in four stages; search, screening, critical appraisal and synthesis.

Search

Ruth Turley from the SURE Unit at the University of Cardiff carried out searches for this review in May 2007. A search strategy was developed by colleagues at NICE with input from Ruth and the review team. An initial Medline search was conducted, followed by a number of other databases, including systematic review databases. Details of the Medline search strategy are included in Appendix B along with a full list of the other databases that were searched.

Because of the nature of the review, the research team were aware that some evidence to address the research questions may exist in the grey literature. A web-based search of this literature was conducted by Ruth Turley using a simplified search strategy. Appendix B outlines the search terms used and the websites that were accessed to try and obtain any relevant reports or articles.

The review team also requested that an extract from the National Research Register be obtained to determine if there were any recently completed or ongoing studies relevant to the review. This search was conducted by Daniel Turvey at NICE and included all studies funded in the past 5 years with smoking cessation as a key word. This produced 423 results.

Finally, the research team contacted a small number (4) of tobacco control research colleagues with a particular interest in smoking cessation and/or case finding and retention strategies for disadvantaged groups. Colleagues were asked if they were aware of any recently completed or ongoing work relevant to the research questions for the review. In some cases colleagues referred to articles already identified by the review. In other cases they referred to studies already included in the National Research Register extract. Although no additional articles for full appraisal were identified from these colleagues, three additional articles were provided that were added to the contextual material for the review.

The initial search produced 7,842 articles. As a result of the volume of the material and the short time frame for the review, a decision was taken to divide the search and subsequent screening into two stages. First, the search was run again with UK and England terms added to restrict the returns to UK studies. This resulted in 988 identified studies. It was hoped that screening of these UK articles might allow the search terms to be refined. However, this proved not to be possible and the research team were sent the remaining international articles from the original search. 6854 international studies were identified.

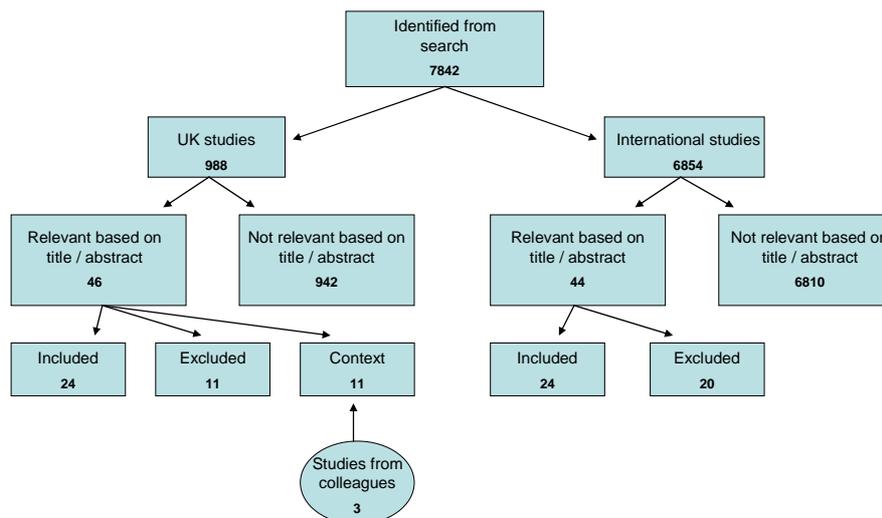
Screening

The research team were sent the search results in two reference manager databases which were then screened on the basis of title and abstract following the criteria described in section 4.1 of the *Public Health Guidance Methods Manual* and commencing with the UK search results. Two members of the research team were involved in screening the abstracts. Where disagreement occurred regarding the relevance of any particular abstract, a third team member was consulted to reach a final agreement on inclusion/exclusion.

From the 988 UK articles identified by the original search, 46 were directly relevant to the terms of the review on the basis of title and abstract. Copies of each of these articles were then obtained (including via interlibrary loan) and placed on a Learning Materials Filestore at the University of Bath which allowed both the Nottingham and Bath teams to view and download the full articles. Two members of the research team then read each article and discussed whether it should be included in the review. On the basis of this screening, 24 UK articles were identified for review. Eleven were excluded and an additional 11 were retained to inform the context of the review (these articles were not graded and do not appear in the evidence tables). In addition, 3 papers received from tobacco control research colleagues contacted at the search stage of the review were also included as contextual material. The 11 UK articles were excluded for the following reasons; 5 had no relevant outcomes (APHO, 2006; ECLN, 2005; Crosier, 2001; Crosier, 2004; Ritchie et al, 2004), 5 were not directly relevant to the review (Coleman et al, 2004; Croucher et al, 2003; McVey, Oliver et al, 2001; Ritchie, 2001), and 1 was a local evaluation report superseded by a subsequent external evaluation included in the review (Grant, 2006).

From the 6854 international articles identified, 44 were selected as directly relevant to the review on the basis of title and abstract. The same process as outlined above for the UK studies was then followed for the international articles. The result was that 24 international articles were identified for full review. No contextual material was included from the international literature due to its limited applicability to the UK. The 20 international articles were excluded for the following reasons; 10 were not directly relevant to the review (Anderson et al, 2006; Barbero Gonzalez, 2000; Kadowaki et al, 2000; Lang et al, 2000; Lichtenstein et al, 1996; McClure et al, 2006; Reid et al, 2006; Robinson et al, 1995; Stead et al, 2006; Thomas et al, 2006), 6 did not describe an intervention (DiClemente et al, 2000; Hastings and McLean, 2006; McDonald and McDonald, 1999; McEwen et al, 2003; Pollak et al, 2006; Strecher, 1999), 2 had no relevant outcomes (Nafziger et al, 2001; Ruggiero et al, 2003), 1 was an unavailable magazine article (Andrews, 2004) and 1 was included in a review already included (Andrews et al, 1999). Figure 2 illustrates the outcomes of the screening process.

Figure 2: Screening Process



The 423 smoking cessation studies identified from the National Research Register (NRR) were reviewed by one member of the research team on the basis of title and study outline. From this list, 18 potentially relevant studies were identified. These were then sent to all members of the research team who excluded seven of these on the basis of existing knowledge of the study or concern about its relevance to the review. Eleven studies remained on the list. Two members of the research team then attempted to make contact with the principal investigators listed in the extract, either by telephone or email. In one case the telephone and email details in the extract were no longer valid. In the remainder of cases contact was successfully made. Two studies were complete but had not resulted in any published reports or papers due to difficulties with client recruitment or staffing problems. The remaining eight studies, are ongoing or recently completed but have not yet resulted in reports or publications. They are listed in Appendix C as their future outputs may have relevance to the terms of this review.

Critical Appraisal

All of the studies that met the inclusion criteria were rated by two independent reviewers in order to determine the strength of the evidence. This rating took place first for the UK studies and then for the international studies. Studies were assessed for their methodological rigour and quality based on the critical appraisal checklists provided in Appendix B of the *Public Health Guidance Methods Manual*. Each study was graded using a code ‘++’, ‘+’ or ‘-’, based on the extent to which the potential sources of bias had been minimised. These criteria for grading, as set out in the methods manual, are included in Table 1. In a small number of cases, the two reviewers could not agree on the rating and in those cases the article was given to a third reviewer for final evaluation.

Table 1: Evidence Grading

Grading the evidence	
++	All or most of the quality criteria have been fulfilled Where they have been fulfilled the conclusions of the study or review are thought <i>very unlikely</i> to alter
+	Some of the criteria have been fulfilled Where they have been fulfilled the conclusions of the study or review are thought <i>unlikely</i> to alter
-	Few or no criteria fulfilled The conclusions of the study are thought <i>likely or very likely</i> to alter

Evidence tables (see Section 6) were then developed for each graded study, commencing with the UK studies and followed by the international studies. Each article was also allocated a study type based on its research design. In most cases the reviewers were easily able to agree on study type but in some cases there was disagreement, particularly for studies that employed mixed methods. In these instances the reviewers referred to the public health methods manual and to the draft *Glossary of Technical Terms* currently being compiled as part of the patient and public involvement programme at NICE.

Synthesis

Once evidence tables had been completed for all 48 included studies, the research team had a detailed discussion about the extent to which these papers could be organised around the thematic headings identified by the mapping study conducted by colleagues at the University of Durham as part of this body of work on proactive case finding, retention and improving access.

It was agreed that there was a reasonable fit between most of the studies and five of the themes identified by the mapping study, although we adapted one of the headings to reflect the studies we identified here. We also created a 'pregnancy' theme for the studies we identified focusing on pregnant smokers. Studies were then allocated to a particular theme and the findings of the review were structured around these themes. It is worth pointing out that the studies were rarely a 'perfect fit' with the categories and a number of studies span more than one category. This thematic analysis was followed by a summary that aimed to identify how the evidence reviewed related back to the original research questions for the review.

The 48 studies included in the review were heterogeneous in their research designs and outcomes were highly variable. Some studies did not include quantifiable outcomes. As a result, it was not possible to conduct data synthesis in the traditional way by, for example, pooling intervention effects between studies and generating forest plots to illustrate effects. Instead a narrative synthesis is presented.

5. Summary of Findings

5.1 Identifying and Reaching Smokers

One of the challenges facing any intervention designed to reduce smoking rates is identifying and then reaching the smoking population. Although research has consistently shown that the majority of smokers want to quit, and just under half do make a quit attempt per year, in most cases this is without coming into contact with any formal services (West, 2006). The result is low cessation rates that could be improved if the quit attempt was supported by effective treatment.

This review has identified a number of UK and American studies that illustrate how smokers, in particular disadvantaged smokers, can be identified and then recruited (reached) by services. These studies fall into three broad categories. The first relates to how incentives in primary care in the UK (specifically the Quality and Outcomes Framework introduced as part of the April 2004 contract for General Practitioners) can affect the quality of care and the ascertainment and management of smoking. The second relates to the proactive identification of smokers and recruitment into treatment, primarily in primary care but including two American studies that examined other settings. Finally, we examine the extent to which NHS stop smoking services in the UK have been effective in identifying and reaching disadvantaged groups.

5.1.1 *The UK Quality and Outcomes Framework, Smoking and Deprivation*

The Quality and Outcomes Framework (QOF) was introduced across the UK in April 2004 as one element of a new contract for General Practitioners (GP's). Its introduction means that up to a quarter of GP's income is dependent upon practice performance which is measured against 146 indicators. Just over half of these indicators relate to the management of ten chronic diseases, many of which are smoking-related. Two specific targets were established for smoking cessation management: (Department of Health, 2004)

- Determining smoking status for all patients aged 15-75 years
- Recording the delivery of brief smoking cessation advice for patients with one of the following illnesses; CHD (coronary heart disease), hypertension, asthma, diabetes, COPD (chronic obstructive pulmonary disease) and stroke/TIA (transient ischaemic attack)

GPs can now earn a proportion of the new quality payments by complying with these targets. This provides a direct incentive for GPs to routinely ask about smoking status and also provide cessation advice to specific groups of patients. As yet, the QOF does not include any specific incentive for GPs to then refer smokers on to specialist services, although some do this as part of routine clinical practice.

Two important questions apply to the QOF that are directly relevant to this review. The first is has the overall introduction of this framework improved the delivery of primary care services in general to disadvantaged communities, where smoking rates are highest. Although the QOF was not intended to be a tool to address inequalities in care, it is still worth asking whether it has contributed to improvements in areas where need is greatest. The second is whether the new contract has improved the ascertainment of smoking and the frequency of delivery of brief advice in primary care. Two articles [++] were identified that address each of these points.

First, McLean and colleagues (2006) (rating ++) examined QOF data from 1024 GP practices in Scotland and asked whether the quality of care differed by the level of socio-economic deprivation in communities served by these practices. They found

continuing inequalities in the provision of care and concluded that the new contract offered little incentive to deliver better care in disadvantaged areas. They found few differences in the ascertainment of smoking status between practices in more or less deprived communities, but did find lower delivered quality of care in practices in deprived areas for other diagnostic and treatment indicators such as diabetes screening and influenza immunization (although they did not specifically examine the delivery of brief advice). They argue that the exclusions system in the new contract offer no clear incentive for the additional work required to deliver primary care to deprived populations.

Coleman and colleagues (2007) (rating ++) examined the impact of QOF on the identification of smokers in primary care and the delivery of brief advice, as well as smoking cessation medication prescribing patterns. Using The Health Improvement Network (THIN) database² which includes patient records from a large number of primary care practices in England, they were able to track changes between 1990 and 2005. They found that recording of smoking status and recording of advice delivery increased around the time of the 2004 contract, building on an increasing trend since 2000, but did not find any change in prescribing patterns over and above existing trends. The authors conclude that the new GP contract has improved the recording of smoking status and the recording of advice to stop smoking but argue that further changes are required to improve prescribing rates for cessation medications. Unfortunately, the study did not examine the issue of disadvantage in any form. However, the nature of the THIN database means that a future analysis of the extent to which the new GP contract has improved smoking ascertainment and management rates for more disadvantaged smokers may be possible, and this is an important issue for future research.

No. 1

Strength and applicability of evidence

Evidence from one UK observational study [++]¹ suggests that the Quality and Outcomes Framework component of the 2004 GP contract may have continued, rather than reversed, differences in the quality of care delivered between primary care practices in deprived and less deprived areas.

Evidence from another UK observational study [++]² suggests that the new GP contract has resulted in an improvement in the recording of smoking status and the recording of the delivery of brief cessation advice in primary care, but not the prescribing of smoking cessation medication.

As these studies took place within UK primary care, they are directly relevant to the review.

¹ McLean et al. 2006

² Coleman et al. 2007

² Professor Richard Hubbard at the University of Nottingham is the main contact for THIN. He is happy to be contacted to explore further how the database could form part of future analyses to inform the terms of this review.

5.1.2 Proactive Identification and Recruitment

In addition to examining how financial incentives in primary care can affect whether GPs ask about smoking status and provide brief advice, this review has identified a number of studies that describe how smokers can be proactively identified in primary care and then recruited into structured treatment programmes. Most smoking cessation services rely on smokers to contact them, but primary care and some other settings provide an ideal environment for services themselves to proactively identify smokers and then target them for intervention. Prochaska and colleagues describe the difference between proactive and reactive attempts (Prochaska et al, 2001, pp. 584):

Interventions can be classified by their recruitment of subjects to the intervention as either reactive or proactive approaches. The most common approach has been a reactive approach, ie. subjects are informed about the availability of an intervention programme and must contact the programme to participate. In contrast, a proactive recruitment approach contacts the subjects directly and offers the services to them. Reactive approaches typically result in low participation rates of 1-5% [and] samples will also be qualitatively different than the general population, with more smokers in the preparation stage (planning to quit in the next 30 days), more highly educated, and predominantly female.

Proactive recruitment approaches have the capacity to reach a much larger number of smokers than reactive alternatives, and, equally importantly, may be particularly helpful for targeting disadvantaged groups who may be reluctant to access treatment.

Only one UK study was identified that describes proactive recruitment of smokers. Murray et al (2007, unpublished) (rating ++) conducted a trial to determine whether identifying all smokers registered at a sample of GP practices, followed by the provision of advice and information, would promote the uptake of services and result in smoking cessation. Practices in the Nottingham area (n=24) were randomised into intervention and control groups. Smokers registered at all practices were then identified from records and sent a postal questionnaire to confirm smoking status and ask if they would like further information on quitting. Response rates were 30% in the intervention group and 32% in the control group. The intervention group were followed up by phone and given brief advice and information about NHS stop smoking services and if desired, an appointment was made with the services. If no appointment was desired then the smoker was sent information about the local service. At 6 month follow-up, the intervention group was more likely to have attended NHS stop smoking services and more likely to have made a quit attempt but there was no significant differences in quit rates (as a % of the number of smokers) or cigarette consumption. The study suggests that proactive identification of smokers through primary care records is possible and increases contact with cessation services and quit attempts, but not cessation. This study may provide a useful example of how NHS stop smoking services can work with their primary care to proactively identify a larger group of smokers than those currently using services. However, the impact of this approach on quit rates remains unknown, and the value of this approach with disadvantaged groups of smokers is also not clear.

There is a larger body of American evidence about the proactive identification of smokers. Several articles have focused on testing the efficacy of different identification and recruitment methods while others have reported both recruitment and cessation outcomes following treatment.

Two (rating -) studies have described how smokers in two US states: Oregon (Bentz et al., 2006) and Wisconsin (Perry et al., 2005) were identified by primary care staff as part of a routine appointment. In both studies, smokers were provided with brief advice to quit and asked whether they would consent to their details being either faxed to the State telephone quit line who then contacted the smoker at home and provided follow-up telephone support (Perry et al., 2005) or given a brochure advertising the quit line number so that the client could contact the quit line for support themselves (Bentz et al., 2006). Fax referral resulted in greater uptake (59% successfully contacted from fax referral compared with 19% of those receiving the brochure who then contacted the quit line) although the cost of the two approaches was not compared. Both studies reported that the intervention was well-received by primary care staff and patients and resulted in an increased number of referrals from primary care (and in the Perry et al. study, other settings) to the state quit line. Both articles argued that this proactive approach was more cost-effective than relying on costly media campaigns to trigger reactive calls to the quit lines, although in making this statement they do not appear to take into account the wider benefits of mass media campaigns (prevention and awareness-raising, for instance) when making this comparison. However, neither study examined the socio-economic status of study participants, and the referral mechanism they describe may not differ significantly from how some UK GPs refer motivated patients to NHS stop smoking services.

Milch and colleagues (2004) (rating +) conducted a trial examining how two different screening tools could affect the proactive identification of smokers and the delivery of cessation advice to patients attending a primary care practice in Massachusetts. Smokers were identified by filling in a short questionnaire when attending the practice for an un-related appointment. They were then randomised into one of three groups control, minimal (a 'vital sign stamp' note on their files that identified their smoking status) or 'enhanced' (completion of a 6 part smoking questionnaire attached to their files). Smoking status was documented more often (86%, 91% and 49% ($p < 0.001$)) and cessation advice was delivered more often (38%, 47% and 30% ($p < 0.014$)) in the minimal and enhanced groups compared with the control group. Self-reported quit rates were higher at 9 months for the enhanced group (12% compared with 4% for minimal and 2% for control ($p < 0.001$)). The study demonstrates how a short questionnaire that assesses readiness to quit and documents whether cessation advice was given can improve rates of advice giving and smoking cessation. Although the study reported some patient characteristics at baseline it did not describe any differences at follow-up and therefore it has limited applicability to the review. It is worth noting, however, that one of the ongoing studies identified in the National Research Register search (record 7, Carole Langley, see Appendix C) is a trial of a screening questionnaire in UK General Practice which has some similarities to the Milch et al. study.

Prochaska and colleagues (2001) (rating +) conducted a randomized controlled trial of two forms of smoking cessation support with just over 4,000 smokers who had been identified by a random digit dialling procedure in Rhode Island, US. This involved 'cold calling' all households in three parts of Rhode Island to identify smokers. A large number (32,456) of calls were made and 4296 eligible smokers were eventually identified, of which 80% agreed to participate in the study. These smokers were then randomised to an 'expert system' intervention (who received intervention materials by post tailored to their 'stage of change' at baseline, 3 and 6 months) and an 'assessment only' intervention, the control group. The study found higher quit rates in the intervention group at each stage of follow-up (culminating in 25.6% point prevalence and 12% prolonged abstinence at 24 months which were 30% and 56% greater than in the control group). The authors concluded that proactively identifying smokers in this way was effective both in encouraging them to participate in the study and in achieving cessation. However, the applicability of this

study to the UK may be limited, the costs of the intervention were not provided, and the study did not focus on disadvantaged groups.

Finally, Tillgren and colleagues (2000) carried out an observational study in Sweden (rating +) to examine the impact of direct mail as a method to recruit smoking mothers into a 'Quit and win' contest. Although the study did not specifically discuss disadvantage, the district sampled was reported to have more socio-economically deprived individuals. Direct mail resulted in the most participation (compared with local newspapers and personal communication) and higher quit rates, but very small numbers overall were abstinent. Direct mail would therefore appear to be a useful way of targeting smokers.

No. 2

Strength and applicability of evidence

One cluster RCT in the UK [++]¹ found that proactively identifying smokers through primary care records was feasible, and providing these smokers with brief advice and referral to NHS stop smoking services increased contact with services and quit attempts but did not increase rates of cessation.

One observational study [-]², one descriptive study [-]³, one cluster controlled trial [+]⁴ and one RCT [+]⁵ conducted in the USA demonstrate that proactively identifying smokers in a number of ways for example through primary care, using a screening tool, or cold calling, is possible and that these provide an effective way of recruiting smokers to cessation interventions. One observational study in Sweden [+]⁶ demonstrates that direct mailing to smoking mothers can be successful in increasing both participation in smoking cessation programmes and quit rates.

One study took place within English primary care and it is directly applicable to the review. The remainder took place in the USA and may have limited applicability. Only one (American) study focused upon disadvantaged groups and therefore the applicability of this evidence to target populations for this review may be limited.

¹ Murray et al. 2007

² Bentz et al. 2006

³ Perry et al. 2005

⁴ Milch et al. 2004

⁵ Prochaska et al. 2001

⁶ Tillgren et al. 2000

5.1.3 Effectiveness of NHS stop smoking services in reaching disadvantaged groups

This review also identified studies that examine the extent to which NHS stop smoking services have been successful in reaching disadvantaged groups. This issue, and the same studies, have already been addressed in another recent NICE review (Bell et al, 2007) and are therefore only dealt with briefly here.

Two UK studies, Lowey et al. (2003) (rating ++) and Chesterman et al. (2005) (rating ++) report that the services are available in areas of deprivation and have been successful in reaching smokers living in these communities. Lowey and colleagues examined data from clients in 7 former Health Authority areas in the North West of England. They found that smokers who set a quit date with the services were more likely to reside in deprived areas compared with the distribution of the North West region's population.

Chesterman and colleagues, as part of the national evaluation of cessation services in England, collected data from 19 former health authority areas and also found that a higher percentage of smokers from deprived areas were setting quit dates. Subsequent, in press, analysis by members of the same research team has confirmed this finding at national level (comparing Spearhead and non-Spearhead PCTs) and also concludes that the extent of positive discrimination means that NHS stop smoking services are contributing to reducing smoking-related inequalities in health (Bauld et al, forthcoming 2008).

These studies are relevant to this review for two main reasons. The first is that they provide published examples of methods that are already being used by some services– but not resulting in publication - in the form of a local ‘health equity’ audit. These methods determine to what extent services are reaching the areas where smoking prevalence is highest. In brief, these methods match the postcodes of service recipients to deprivation categories and smoking prevalence rates and outline to what extent services provide evidence of ‘positive discrimination’ by delivering treatment to those most in need³. As such the published studies provide robust examples of techniques that services are already using ‘on the ground’ (and that could be employed more widely) to see if they are reaching target groups. The second reason why this evidence is relevant is because it demonstrates that an existing intervention – NHS stop smoking services- can make an important contribution to reducing death rates from smoking in disadvantaged areas.

No. 3

Strength and applicability of evidence

Two observational studies [++]^{1,2} demonstrate that the NHS stop smoking services have been effective in reaching smokers living in disadvantaged areas of England.

As both took place in England and are focused on disadvantaged groups, they are directly applicable to the review.

¹ Lowey et al. 2003

² Chesterman et al. 2005

5.2 Client Centred Approaches

The evidence-base for smoking cessation interventions is dependent upon the assumption that treatments that have been proven to be effective in research trials will work for all or most smokers (Raw et al., 1998; West et al., 2000). However, smokers are not all alike and some may respond better to interventions that appeal to their circumstances, rather than those that are uniform. Targeting or tailoring services to appeal to particular subgroups is something that is increasingly happening in practice, within the NHS and partner organisations, although studies that support this kind of tailoring are relatively few in number. This review included a number of published articles that either describe the needs of disadvantaged groups in relation to smoking cessation, or report how interventions designed to appeal to particular

³ Health equity audit approaches can involve a similar process of analysis in reverse – in that areas of highest deprivation and smoking prevalence are identified first to allow service provision to be targeted towards those areas.

subgroups were designed and implemented. We have applied the broad title of 'client centred approaches' to this diverse group of studies.

5.2.1 Qualitative research to determine the client's needs

Cigarette smoking is strongly associated with social disadvantage. Higher levels of prevalence and tobacco addiction are often found in the most disadvantaged areas (Jarvis and Wardle, 1999), however disadvantaged smokers are just as likely to wish to quit as affluent smokers (ONS, 2002). The lack of a significant decline in prevalence in this disadvantaged group may be partially due to the barriers which affect whether this group accesses services. A number of qualitative studies have been undertaken with smokers to identify these types of barriers and explore how they can be overcome. A small number of these studies have taken place in the UK with disadvantaged groups. Some of those we identified related specifically to women, and were about smoking more broadly rather than cessation and did not directly relate to the terms of this review (Amos et al., 1999; Barlow et al., 1999; McKie et al., 1999; Graham et al., 2006). However, two UK studies were included as they include valuable material about the kinds of issues facing disadvantaged smokers when they attempt to stop smoking. Some of the findings of these studies are supported by a useful report produced by the HDA, NICE's predecessor, in 2002 (Jackson and Prebble, 2002).

Roddy and colleagues (2006) (rating ++) conducted focus groups with 39 socio-economically deprived smokers in Nottingham, UK, to explore how they viewed cessation services and to identify specific barriers and motivations to improve access to cessation services. It was concluded that this client group displayed a fear of being judged, fear of failure and demonstrated a lack of correct knowledge about cessation services and the medication available. It was recommended that services be promoted in a personalised, non-judgemental and flexible manner.

Wiltshire and colleagues (2003) (rating ++) conducted interviews with 100 disadvantaged smokers in Edinburgh, UK, to investigate their perceptions of smoking and past experiences of quit attempts. It was concluded that smokers lack the motivation to access cessation services unless they feel they will not only get help with their nicotine addiction, but also help dealing with the wider life circumstances, routines and stressors that are linked to their smoking habits.

No. 4

Strength and applicability of evidence

Two studies provide evidence to suggest that barriers such as fear of being judged, fear of failure and lack of knowledge, need to be tackled in order to motivate lower socio-economic status smokers to access cessation services. Interventions need to be multidimensional in order to tackle social and psychological barriers to quitting as well as dealing with the physiological addiction. (Two UK based studies, one involving focus groups [++]¹ and one involving interviews [++]²).

As both these studies took place with disadvantaged smokers in the UK, they are directly relevant to this review.

¹ Roddy et al. 2006

² Wiltshire et al. 2003

5.2.2 Social marketing

Social marketing is the “application of commercial marketing technologies to the analysis, planning, execution and evaluation of programs designed to influence the voluntary behaviour of target audiences in order to improve their personal welfare and that of society” (Andreasen, 1995, p7). There has been some debate as to what constitutes a social marketing intervention, but a recent systematic review of social marketing effectiveness provides a framework for identifying such interventions (Stead et al, 2006). They employ Andreasen’s (2002) six essential ‘benchmarks’ of a social marketing intervention which are; behaviour change, consumer research, segmentation and targeting, marketing mix, exchange and competition (in Stead et al., 2006). The current review highlighted five studies that share these characteristics and can be defined as social marketing interventions for smoking cessation. One of these related specifically to pregnant women and thus is described in the section below on pregnancy.

Stevens and colleagues (2002) (rating -) explored the cost effectiveness of a campaign to promote non-smoking in Turkish communities in Camden and Islington, London, UK. The intervention included a play, poster campaign, media campaign and purpose designed leaflets. The authors reported that the intervention was a moderate success. At follow-up, 51% of respondents recognized at least one of the Turkish language interventions and a majority of those (61%) who reported that they had quit smoking had a relatively high awareness of the intervention material. The study was limited in a number of respects, not least that the research design made it impossible to determine the extent to which the intervention contributed to local reductions in smoking prevalence, or whether this was due to other factors.

Boyd and colleagues (1998) (rating +) conducted a cluster randomised control trial to investigate whether a social marketing campaign of strategically placed radio and television advertisements, combined with a community outreach program lead to more African-American smokers calling the ‘Cancer Information Service’ for more information on cessation. The intervention, conducted in North Carolina, Pennsylvania, Texas and Alabama, USA, included intervention communities where the programme was offered compared with control communities where no targeted/tailored campaign was in place. The study concluded that the campaign was successful in increasing the number of smoking-related calls from African Americans; with radio advertisements being the most cited trigger to call in the intervention communities.

Schorling and colleagues (1997) (rating +) measured the ability of social marketing to influence prevalence of smoking by delivering a smoking cessation program through the ‘Alliance of Black Church Health Project’ in Virginia, USA. Lay members of the church were trained to deliver the program, alongside the distribution of cessation booklets and promotional quiz nights. Quit rates were higher in the communities where social marketing was employed, in comparison with the communities where it was not (6.7% and 4.3% respectively).

Turner and colleagues (2001) (rating -) used social marketing to measure the effectiveness of a reading manual and a series of televised programs in increasing women’s readiness to stop smoking. Positive relationships were recorded, especially for women in the earlier stages of the Transtheoretical model.

No. 5

Strength and applicability of evidence

Evidence from four studies suggest that social marketing has a role to play in delivering client centred approaches to smoking cessation in disadvantaged groups. (One UK based observational study [-]¹, one international cluster RCT [+]², one international population based study [+]³ and one international comparative study [-]⁴).

One of these studies took place with disadvantaged smokers in the UK and is directly relevant to the review. Three took place in the USA and may have limited applicability to this review.

¹ Stevens et al. 2002

² Boyd et al. 1998

³ Schorling et al. 1997

⁴ Turner et al. 2001

5.2.3 Lay people or community members as cessation advisors

One recommendation of the NHS Cancer Plan is that Primary Care Trusts form local alliances with community groups to harness community efforts to help disseminate effective interventions (NHS, 2004); this can include, for example, using lay members of the community to deliver smoking cessation advice.

Harding and colleagues (2004) (rating +) investigated an intervention for gay men in the UK, which was delivered by members of the gay community who were not health professionals. The intervention was delivered in a non-judgemental environment, where gay social issues, recreational drug use, sexuality, HIV, motivations and ability could be addressed in relation to smoking. Recruitment to the cessation program was via adverts in the gay press. It is not clear from the information provided in the article whether the fact that gay men would be delivering the intervention was included in the adverts. Ninety eight men were recruited to attend and 69 of these attended the first session and filled in an assessment form. Four week cessation outcomes were reported to be slightly higher than the national average from mainstream NHS stop smoking services. The cost of the intervention was not explored.

Our search only identified one study where the key intervention was using lay people to deliver cessation advice. However two other studies were identified in which lay people were advisors but as part of wider interventions – see Schorling et al, 1997 described in the previous section and Springett et al, 2007 (in press) in Section 4.3.3. We are also aware of other studies where community lay members have successfully acted as advisors although this was not the main focus of the study (Judge et al, 2005).

No. 6

Strength and applicability of evidence

One UK based study suggests that including lay people or community members as advisers may form an important part of a successful smoking cessation intervention targeted at a specific group, in particular if the service is tailored to their specific needs and allows them to explore smoking in the context of relevant issues in their lives. (One UK based observational study [+]¹).

This study took place with smokers in the UK and is relevant to this review.

¹ Harding et al. 2004

5.2.4 Testing existing interventions to determine suitability for a specific group

Once a target group for a smoking cessation intervention has been identified and an intervention has been selected, it is important to test the suitability of the intervention for the group in question. The review identified two American studies that had tested whether particular approaches to smoking cessation suit the needs of specific groups.

Okuyemi and colleagues (2007) (rating ++) evaluated the effectiveness of KIS-11, a smoking cessation program offering nicotine gum and counselling to African-American light smokers in Kansas City, USA. The randomised control trial concluded that the culturally specific radio advertisements, word of mouth referral, clinic referral and television advertisements proved to be effective in recruiting African-American light smokers to the cessation program.

McDaniel and colleagues (2005) (rating -) tested the usability of a computer mediated smoking cessation program for inner-city women aimed at motivating readiness to quit in the USA. The program was initially found to be inappropriate for the client group, however following adjustment, provided high patient satisfaction and usability scores amongst inner-city disadvantaged women. After adjustment it was concluded that information technology has the potential for improving the delivery of brief smoking cessation interventions for low income women in primary care.

No. 7

Strength and applicability of evidence

Two American studies suggest the need to test existing cessation interventions to determine their suitability for the specific group, to receive feedback from that group and to make amendments to any aspects that are unsuitable. In order for the client group to benefit, the intervention must fit their level of need and understanding, and be suitably accessible. (One USA based RCT [++]¹, and one USA based cohort study [-]²).

Both studies took place in the USA and may have limited applicability to this study.

¹ Okuyemi et al. 2007

² McDaniel et al. 2005

5.3 Improving Access

This review has identified a number of UK and American studies that illustrate how access to stop smoking services may potentially be improved, particularly for disadvantaged smokers. For the purposes of this review, these studies have been divided into four sections. The first investigates smoking cessation services based in a pharmacy setting, the second in a dental setting, the third using drop in sessions or rolling groups and finally using work-based cessation initiatives.

5.3.1 Pharmacy settings

The pharmacy setting is an excellent means to reach a wide variety of smokers as it provides access to trained health professionals without the need to book appointments. There has been limited research on pharmacy based smoking cessation interventions for disadvantaged smokers, either in the UK or internationally.

A recent systematic review was critically appraised (Blenkinsopp et al. 2003) (rating ++), it focused on 2 randomised controlled trials and 3 non-randomised experimental studies, demonstrated the importance of training pharmacists in smoking cessation counselling. Both RCTs recruited participants from customers asking for smoking cessation advice or NRT in the UK during a 12 month period but only one of the trials showed a statistically significant effect. The review makes no reference to the socio-economic status of participants in either study. The review also examined lipid management studies in pharmacies and one US study assessed recruited participants from pharmacy patient medication records which might therefore be a useful tool for targeting patients.

A recent study by Bauld and colleagues (2006) (rating ++) investigated a number of components of stop smoking services in Glasgow, including pharmacy-based treatments and provided evidence that pharmacy-based interventions may be a valuable means of reaching and improving smoking cessation rates in disadvantaged smokers. The study examined pharmacy services that provided behavioural support and NRT and reported 4 week CO-validated cessation rates of 20% (28% including self reported cases) in a study population where 60% of all participants lived in the most disadvantaged fifth of neighbourhoods in Scotland; although clients from more deprived areas were less likely to quit than those from more affluent areas. The study suggests that basing services in pharmacies on the "high street" is effective in reaching disadvantaged smokers and improving their access to services.

A pilot study in the USA by Doescher and colleagues (2002) (rating +) reported that pharmacist-delivered treatment is feasible, although participation in the study was low and there was a significant drop out rate. This study has limited applicability to the target population as it included the distribution of free NRT, which is already available to low income smokers and all those of pensionable age in the UK. However, it further supports the findings of the UK studies that pharmacy-based interventions have a potential role in targeting low income smokers.

In summary, as pharmacies may be located in disadvantaged areas and smokers are found to be disproportionately in the most disadvantaged neighbourhoods, pharmacy-delivered interventions are potentially a useful means of reaching and treating large numbers of smokers. Further research is needed into their effectiveness.

No. 8

Strength and applicability of evidence

There is evidence from a number of studies that training pharmacists to deliver smoking cessation interventions is important and preliminary evidence that pharmacies may be a valuable means of reaching and increasing smoking cessation rates in disadvantaged groups (one international systematic review comprising 2 RCTs and 3 non-randomised experimental studies [++]¹, one UK observational study with interviews [++]² and one international pilot study [+]³)

Two studies took place within the UK and are directly applicable to the review. One took place in the USA and so may have limited applicability to this review.

¹ Bleckinsopp et al. 2003

² Bauld et al. 2006

³ Doescher et al. 2002

5.3.2 Dental settings

Dental healthcare providers may see patients on a regular basis and so have a unique opportunity to identify smokers and provide smoking cessation advice. There have been 3 recent reviews of smoking cessation in the dental setting, all of which conclude that there is a potential for cessation interventions in the dental office to be effective.

A recent review in the UK (Needleman et al. 2006) (rating -) focused on a variety of study types examining smoking cessation in dentistry and barriers to providing smoking cessation advice in this setting. The review concluded that behavioural and pharmacological interventions are effective, although the magnitude of the effect is unclear and there is no indication of the socioeconomic status of the study participants. The review also included studies which investigated barriers to implementing smoking cessation support in the dental setting. It reported a large number of barriers including a lack of training for dental professionals and a need for cultural and policy changes to facilitate the provision of cessation support. The authors suggest that further research is needed in this area, and should include qualitative or mixed methods designs to explore the issue further and studies that evaluate the impact of changing these barriers on the provision of smoking cessation support.

A systematic review of 6 RCTs conducted in the US (Carr and Ebbert, 2007) (rating -) reported a statistically significant increase in the odds of tobacco abstinence at 12 months when results of all 6 studies were pooled (OR 1.44, 95% CI 1.16-1.78), a 3% difference in cessation rates was reported between intervention and control groups. Three of these studies were conducted in a dental office setting and three involving oral health professionals providing interventions within high schools or community college settings. Five studies targeted smokeless tobacco users and only 1 targeted cigarette smokers and so there was insufficient evidence to draw any conclusions as to the effectiveness of the intervention in cigarette smokers. There was significant heterogeneity evident between the studies ($I^2=72.4\%$), there was limited detail on randomisation procedures, not all participants were aged over 16 and there is no mention of the socioeconomic status of the participants.

A further review in the US (Gordon et al. 2006) (rating +) reviewed 7 RCTs in dental settings utilizing a range of interventions including self-help materials, NRT provision and behavioural support. Duration of follow-up varied between trials, but all showed a positive effect for interventions in the dental setting on quit attempts or cessation. One trial involved low income patients and found a significant difference in self-reported quit rates at 6 months (OR 5.25, 95% CI 1.35-20.36) (Gordon et al, 2005). The reviewers conclude that cessation interventions in the dental setting are effective, include a proactive case finding element, and should be part of routine care.

No. 9

Strength and applicability of evidence

There is evidence from three reviews that training dental professionals to deliver smoking cessation interventions is important, and this setting has the potential to reach large numbers of smokers and increase cessation rates. (one international systematic review comprising 6 RCTs [-]¹, one UK review of mixed study designs [-]² and one international review of 7 RCTs [+]³)

One study took place within the UK and is directly applicable to the review. Two studies took place in the USA and so may have limited applicability to this review. There is limited reference to disadvantaged groups in any review and therefore the applicability of this evidence to target populations for this review may be limited.

¹ Carr & Ebbert 2007

² Needleman et al. 2006

³ Gordon et al. 2006

5.3.3 Drop-in / rolling

Fag Ends is a smoking cessation service in Liverpool, a city in the UK with high levels of deprivation. The service is community-based, staffed by lay advisors and clients are able to drop in to their nearest meeting without pre-booking an appointment. Smokers are also able to return to the service immediately following relapse, differing from the 'traditional' model of NHS stop smoking services. An observational study based around this service (Owens and Springett 2007, in press) (rating -) reports CO-validated quit rates at 4 weeks between 2001 and 2005 from 34%-45%, rising to 57% overall when self-report cases were included. At 52 weeks self-reported quit rates ranged from 16%-22% between 2001 and 2004. The authors claim that these rates are higher than existing published evidence although limitations of the study design mean these conclusions should be regarded as preliminary in nature. The proportion of 'walk in' clients has increased from 19% in 2001 to 41% in 2004, indicating that the service may be reaching more smokers. Although Liverpool is a relatively deprived area, the study fails to provide details on the socio-economic status of clients, although this data may be collected by the Fag Ends service. An unpublished qualitative study (face to face interviews) (Springett et al. 2007, in press) (rating -) aimed to explore the main characteristics of the service and factors which contributed to its effectiveness. The main findings were that using lay advisors rather than health professionals can be successful and that the nature of the service (where patients could drop-in rather than making an appointment in advance) was valued by clients. This study provided limited information on methods and no outcome data so the results are inconclusive.

A qualitative study (face to face interviews) (Ritchie et al. 2007) (rating -) reported on 'Smokey Joe', a group-based NHS smoking cessation intervention in a low income area of Scotland. This service encourages 'drop in' clients at any stage of the quitting process. 11 interviewees who had used the service at least 3 times in 6 months were selected and suggested that flexible services available to smokers at all stages of quitting are beneficial and valuable and interventions should be shaped to the local community and culture. The service reported 52 week quit rates of 16% but this was not a robust evaluation.

No. 10

Strength and applicability of evidence

Three studies provide some evidence of the potential benefit of drop in or rolling community based sessions for smoking cessation to reach smokers and increase cessation rates (two UK based studies involving face to face interviews [-]1,2 and one UK based observational study [-]3).

All studies took place within the UK and are directly applicable to the review.

- 1 Ritchie et al. 2007
- 2 Springett et al. 2007
- 3 Owens & Springett 2007

5.3.4 Work based initiatives

One cohort study based in the US (Barbeau et al. 2006) (rating +) investigated the feasibility of a smoking cessation intervention with a specific manual group (unionised apprentice iron workers) based in the workplace. This was a multi-faceted intervention involving 139 smokers and resulted in a 7-day point prevalence smoking abstinence rate of 19.4% and statistically significant positive changes in intention and self efficacy to quit within 6 months and 30 days. Participants in the intervention were 3 times more likely to quit than those who did not participate. Although there was no formal control group in this study and cessation outcomes were short, the results suggest that providing a smoking cessation programme within the workplace may have the potential to reach a number of smokers and increase quit rates in blue collar workers.

No. 11

Strength and applicability of evidence

One cohort study [+]¹ provides evidence of the potential benefit of basing smoking cessation services in the workplace of manual groups to increase cessation rates.

This study took place in the USA and so may have limited applicability to this review but does have potential implications for the UK population.

- ¹ Barbeau et al. 2006

5.4 Incentive schemes

Incentive schemes are intended to motivate smokers to either make a quit attempt or engage with some sort of smoking cessation support, and are usually used alongside other interventions such as GP advice or quitlines.

Five international studies and one UK study examined the use of incentive schemes alongside other initiatives. Bains and colleagues, 1998 carried out a review (rating +) of 17 studies of population based smoking cessation interventions worldwide that used incentives, ranging from holiday competitions to cars and cash, published between 1975 and 1997. Most of the included studies were carried out in the USA and only 5 had a control element. The review compared different incentive programmes rather than comparing the presence or absence of an incentive. Overall, no specific type of recruitment strategy⁴ was shown to be more effective than others, but larger incentives were more effective both in improving recruitment and cessation. The incentive that resulted in the highest proportion of eligible smokers produced the greatest impact even though the sustained quit rate of participants was low. The review did not discuss the socio-economic characteristics of participants so whether incentives are as effective with disadvantaged groups was not explored in this study.

One cohort study carried out in Edinburgh (Copeland et al. 2005) (rating +) followed up 120 smokers recruited opportunistically by GPs following a discussion on smoking initiated by the GP, although the majority of the consultations concerned other matters, and were given a prescription for NRT as an incentive to quit. The smokers attended one general practice in an area of high deprivation so this study is directly applicable to the review. The smokers were followed up 3 months later when around a fifth had stopped smoking with over twice as many having cut down their cigarette consumption. Although no details were provided on how GPs recruited smokers into the trial, and self-report was used for outcomes, the findings suggest that proactive targeting of patients by GPs in a deprived area for prescriptions of NRT and cessation advice may be effective.

Two studies examined the offer of free NRT to callers to a quitline but neither explored disadvantage. An and colleagues, 2006, carried out a cohort study (rating +) of callers to the Minnesota quitline before and after the introduction of access to free NRT. Although not a causal analysis, the offer of free NRT was associated with greatly increased calls to the quitline and greater quit rates. Bauer and colleagues, 2006, carried out two cohort studies (rating +) in New York. These examined the impact of different press advertisements which in one study, urged smokers to call the quitline to get vouchers for free NRT, and in the second study, urged smokers to call the quitline to get a free stop smoking guide or guide plus a stop smoking aide (called Better Quit – a plastic cigarette substitute). Calls to the quitline increased after announcements of the initiatives. However, the intervention comprising the advertisement plus the offer of free NRT was more cost effective than the intervention comprising the advertisement for the guide or the guide plus stop smoking aide, at generating calls. The cost of providing these items was included in the analyses..

Hennrikus et al. 2002, carried out a RCT (rating +) among smokers employed in 24 different workplaces in the US, to examine the effect of different programmes and incentives on participation and cessation in workplace smoking cessation

⁴ Recruitment strategies included: radio, TV and newspaper announcements, posters, brochures and flyers in key settings, letters, Quit and Win schemes, face to face recruitment and a telephone survey of households.

programmes. They found that incentives increased participation but not cessation rates when comparisons were made between workplaces using different approaches. The study involved a mixture of blue and white collar workplaces but didn't examine the effects separately and therefore didn't examine how best to reach and support more disadvantaged workers.

In summary, as most of the above studies did not have adequate controls or validation of self-report, the results are not conclusive and more research is needed. Incentive schemes do however appear to aid recruitment and cessation either through the offer of free NRT by a GP or via quitlines, or through the offer of other incentives via workplace cessation programmes. Although some of these studies were carried out in disadvantaged areas, none of them specifically compared the impact of the incentives across different socioeconomic groups.

No. 12

Strength and applicability of evidence

An international review [+]¹ of 17 studies of population based smoking cessation interventions that used a range of incentives found that larger incentives were more effective both in improving recruitment and cessation. The review included studies of mixed designs, and did not discuss the socioeconomic characteristics of participants. A UK cohort study [+]² found some evidence for proactive targeting of patients by GPs in a deprived area for prescriptions of NRT on quit rates and reduction in cigarette consumption. Two US cohort studies [+]^{3,4} of free NRT for helpline callers provided evidence for an impact on calls, and some evidence in one study of greater quit rates. One US RCT [+]⁵ of workplace smoking cessation programmes and incentives found that the latter increased participation but not cessation.

One study took place within the UK and is directly applicable to the review. Three studies took place in the USA and one review was based on studies conducted worldwide and so may have limited applicability to this review.

¹Bains et al, 1998

²Copeland et al, 2005

³An et al, 2006

⁴Bauer et al, 2006

⁵Hennrikus et al, 2002

5.5 Combining cessation interventions with other approaches

This section explores approaches that combine interventions to tackle smoking with screening for other health issues, or among certain categories of patients, or by offering reduction as well as cessation programmes. Three UK studies were identified exploring cervical screening and Coronary Heart Disease (CHD) patients, and four in the US, two involving HIV+ patients, one involving women attending a paediatric appointment for a child and one study involving outpatients and a smoking reduction programme.

Campbell and colleagues (1998) carried out a RCT (rating ++) among 1173 patients with CHD from a random sample of 19 general practices in Scotland. They were randomised individually to routine care or the intervention arm, which consisted of nurse-run clinics over a period of one year. At the initial clinic session, the patients were assessed, and symptoms, drug treatment, blood pressure and lipid

management and behavioural factors were assessed and an action plan negotiated which was reviewed at follow up sessions. The clinics increased secondary prevention such that within a year of the study most patients reported adopting at least one change, most likely to be a medical change such as aspirin taking, rather than lifestyle changes. No changes were reported in smoking. This is in line with other similar studies indicating that nurse led smoking cessation interventions are not effective for smoking cessation when part of broader health check interventions (ICRF OXCHECK study group, 1995). The current study however focused on secondary prevention compared with primary prevention. The method of identifying patients through GP notes to identify patients with coronary heart disease was however a potentially useful method of recruitment. There was no discussion of recruitment or impact across different socio-economic groups.

Hall and colleagues carried out two studies to explore whether cervical screening offered a good opportunity to encourage women to stop smoking. The first study (Hall et al. 2003) carried out a RCT (rating -) among 172 women aged 20-64 attending two general practices in the UK who were randomized to a brief or extended leaflet emphasising the links between smoking and cervical cancer and the importance of stopping smoking. Women who were sent the brief leaflet were more likely to report that they were ready to stop smoking. The second study (Hall and colleagues, 2007) involved a cluster RCT (rating +) in which 242 smokers, invited for cervical screening from 8 general practices in SE England, were randomized to experimental or control arms by the week they attended screening. In the intervention arm women were given brief advice to stop smoking, compared to no advice in the control arm. In support of the earlier study those in the intervention group had higher intentions to stop smoking. The study did not report the socio-economic status of the women who agreed to participate but as cervical screening involves the vast majority of women across all socio-economic groups within a certain age range on regular occasions, this may be a useful way to draw young disadvantaged smokers into considering quitting. Further research with disadvantaged women is required to confirm this.

Lazev et al. 2004 (rating +) investigated barriers to participating in smoking cessation programmes in the US and ran a pilot study using cell (mobile) phone support for cessation in a group of HIV+ smokers. The study identified a number of barriers to participation in cessation programmes with 49 smokers, including lack of access to a working telephone, a high number of household moves and a lack of transportation. Providing cell phones to interested smokers (n=20) to receive 6 telephone support calls within 2 weeks resulted in 2 week point prevalence quit rates of 75%. This study had a small number of participants and a very short duration of follow up, after which point relapse was likely. However, the study explores a novel way of reaching disadvantaged smokers.

The same group (Vidrine et al. 2006, rating +) then conducted a RCT to evaluate the efficacy of an innovative smoking cessation intervention combining tailored cognitive behavioural therapy via cellular phones in a multiethnic disadvantaged HIV+ population in Texas, USA. The intervention led to sustained abstinence as the use of phone contact overcame barriers to accessing support often facing this client group.

Curry et al. (2003) (rating +) report the results of a randomized controlled trial of a smoking cessation intervention for low income women in Washington state, US. Women were recruited while attending paediatric care visits with their children. Women in the intervention group received a brief motivational message from the child's clinician, a self help guide to quitting smoking, an in person motivational interview with the clinic nurse and 3 outreach counselling telephone calls from the nurse who conducted the motivational interview. At 3 months, quit rates were 8% and 3% in the intervention and control group respectively (adjusted OR 2.40, 95% CI

0.85-7.80). At 12 months, quit rates were 14% and 7% respectively (adjusted OR 2.77, 95% CI 1.24-6.60). The authors conclude that female smokers, including low income women, can be identified and recruited into a smoking cessation programme while attending a health care appointment for their child.

Given that only a minority of smokers is attracted to cessation interventions, another approach is to try to offer something to the remaining smokers, and also to smokers who are unsuccessful at quitting. Glasgow and colleagues (2006) (rating +) carried out a cohort study in the US to examine the impact of smoking reduction programmes (self-help materials plus telephone support and offering the option of cessation) for smokers scheduled for outpatient surgery. Both studies indicated that offering a reduction programme could increase reach by drawing smokers into trying to cut down as well as quitting. There was a limited discussion of the impact of socio-economic status.

In summary, these studies identified promising new routes of reaching and recruiting smokers into thinking about and changing their smoking behaviour, but further research is needed to explore their utility among disadvantaged smokers. In addition, further research is needed into the potential utility of providing smoking cessation interventions alongside non-health related appointments (such as appointments in Citizens' Advice Bureau), as these may be happening in some parts of the UK but the review did not identify any evidence to demonstrate their effectiveness.

No. 13

Strength and applicability of evidence

One RCT in the UK [++]¹ with CHD patients randomised to nurse run clinics or controls found little evidence for a change in smoking behaviour. Two RCTs in the UK [+]² and [-]³ exploring smoking cessation interventions at routine cervical screening appointments found some evidence for brief interventions to change the motivation or intentions to quit smoking. One international RCT [+]⁴ examined the recruitment of women smokers attending a child's paediatric appointment, into a smoking cessation intervention and found some evidence for an impact on quitting smoking. One international RCT [+]⁵ and one observational study using face to face interviews [+]⁶ investigated the use of cellular phones for smoking cessation in HIV+ patients and showed a potential benefit for using this method of support. One US cohort study [+]⁷ provided preliminary evidence that offering a reduction programme could reach and influence more smokers than a programme just offering cessation.

Three studies were carried out in the UK and are directly applicable to the target population, but they did not examine disadvantaged groups separately. Four studies were carried out in the US and so may have limited applicability to this review

¹Campbell et al, 1998

²Hall et al, 2007

³Hall et al, 2003

⁴Curry et al, 2003

⁵Vidrine et al, 2006

⁶Lazev et al, 2004

⁷Glasgow et al, 2006

5.6 Studies with pregnant smokers

The review identified a small number of studies that described proactive case finding, retention or improving access to cessation services for pregnant women. One of these studies focused on women in disadvantaged areas, while others included some lower-income women as part of a larger sample. The studies were varied in their focus and research designs and are discussed here in two groups, focusing first on four UK studies and subsequently on three international articles identified by the review.

5.6.1 UK Studies

Three studies explored, using different means, pregnant women's attitudes to smoking cessation support, perceived barriers to accessing support and the types of support they would prefer. Ussher and colleagues (2004) carried out a telephone survey (rating +) of over 200 pregnant women after their booking visit in London to explore their interest in different types of cessation support. The sample was demographically similar to national samples of pregnant women from across the UK. Face to face individual behavioural support and self-help materials attracted the most interest, with those from more deprived groups reporting more interest in buddying. Patients were identified using the Patient Administration System⁵ which appeared to be a useful way of identifying pregnant smokers, although only two-thirds responded to contacts. A second study by Ussher and colleagues (2006) involved an international internet survey (rating +) exploring barriers to and benefits of attending smoking cessation services among pregnant women. There were 443 eligible questionnaires, with respondents largely coming from the UK and US. This self-selected sample may have been biased towards higher income groups because of the use of the internet. Respondents reported that interventions need to be more routinely integrated into care and needed greater publicity about their success rates.

Lowry and colleagues (2004) carried out a qualitative and audit study (rating -), over a period of 10 years from 1992, utilising focus groups with pregnant smokers from deprived areas within Sunderland to discuss barriers and needs in relation to smoking cessation. A number of barriers were identified including unsatisfactory information, lack of enthusiasm or empathy from health professionals and short-term support. Based on the focus group findings, the authors then developed an intervention to support pregnant women when stopping smoking and utilised a social marketing technique employing actors to conduct role plays with professionals, and a dedicated professional to provide support through home visits. Efforts were concentrated on the antenatal clinic at first booking and all aspects of support (from posters to leaflets to the health professionals involved) were designed to be consumer friendly. Although recruitment to the intervention increased tenfold, the design and methodology utilised preclude conclusions drawn about causality.

Tappin and colleagues (2000) carried out a pilot RCT (rating +) with 100 self-reported pregnant smokers in Glasgow to determine if proactive motivational interviewing (MI) by a specially trained midwife in the patient's home helped them to stop. Three-quarters of the smokers approached at their booking appointment were prepared to take part and the intervention did not appear to interrupt antenatal contact. Although quit rates were very low, the authors went on to carry out a full RCT with 762 smokers enrolled at booking clinics but less than half of those eligible agreed to take

⁵ This is an administrative system used within the NHS to aid booking appointments and to cross-check where else the patient may be having treatment at any one time. Administrative systems such as PAS offer the opportunity for further analyses and this is something the review team are pursuing.

part. This study (Tappin et al, 2005), which was not picked up by the search and so is not presented in the evidence tables, concluded that good quality MI did not significantly increase cessation among pregnant smokers.

5.6.2 International studies

Haviland and colleagues (2004) carried out a descriptive study (rating -) of the development of the 'Great Start' intervention in the US. Focus groups were held with health professionals and pregnant women (who had recently smoked in pregnancy and were primarily of low socioeconomic status) to assist in the development of the intervention which consisted of a media campaign, a telephone cessation protocol and self-help materials. The reach of the evaluation was discussed, with the quitline receiving 12K calls with three quarters of callers indicating they were calling in response to the media campaign. The authors concluded that 2.5% of current pregnant smokers had called the quitline. No outcome measures were given.

Dornelas and colleagues (2006) carried out an RCT (rating ++) of brief advice versus a more intensive intervention among 105 low income pregnant women attending a prenatal clinic in Connecticut, US. The intervention consisted of an initial 90 minute cessation counselling session immediately following a prenatal clinic appointment, followed by regular telephone calls, all carried out by a trained mental health counsellor. Recruitment methods were not discussed. The more intensive intervention was cost-effective and associated with higher rates of abstinence at the end of pregnancy but not 6 months post-partum.

Solomon (2000) carried out an RCT (rating -) with 151 pregnant smokers attending a large obstetric practice in Vermont, US, to test the impact of proactive telephone support in addition to healthcare professional advice to quit. The study attempted to access low income and educated women but many were lost in follow up. No significant differences were found between groups.

Overall these studies identified a number of barriers to seeking support for stopping smoking in pregnancy, particularly among low income smokers. Much greater information and publicity for available services appears to be needed. Overall, there were disappointing results from the RCTs, but further research is required. Tying in interventions to routine antenatal appointments and using Patient Administrative Systems appear to be useful ways of identifying and recruiting pregnant smokers to interventions.

No. 14

Strength and applicability of evidence

Two UK surveys (one telephone [+]¹ and one internet [+]²) and one descriptive and audit survey [-]³ carried out in the UK provide evidence of pregnant smokers' perceptions of barriers to using smoking cessation support. Barriers include, among others: unsatisfactory information, lack of integration of cessation into routine antenatal care, lack of enthusiasm or empathy from health professionals and short-term support. One RCT in the UK [+]⁴ of motivational interviewing with pregnant smokers and two international RCTs, one of a brief versus more intensive intervention [++]⁵ and one of proactive telephone support [-]⁶ provide little evidence of the effectiveness of these interventions. One US descriptive study [-]⁷ described the reach of a multifaceted pregnancy campaign but reported no outcomes.

The UK studies are directly applicable to the target population, although only one of these focused on pregnant smokers in disadvantaged areas.

¹Ussher et al, 2004

²Ussher et al, 2006

³Lowry et al, 2004

⁴Tappin et al, 2000

⁵Dornelas et al, 2006

6. Overview and Discussion

This section draws together the findings presented in the thematic analysis in the previous sections. It re-examines the evidence with reference to the original questions posed by the review, which were to:

- Assess the evidence on interventions aimed at *finding* and then *supporting* adults living in disadvantaged areas who are at a higher than average risk of premature death.
- Assess the evidence on interventions aimed at *providing* – and *improving access* to – services for adults living in disadvantaged areas, with a higher than average risk of premature death.

As the review focuses not just on smokers living in disadvantaged areas but also disadvantaged and manual groups more broadly, and pregnant smokers, these groups are also examined under each question.

Interventions aimed at finding and supporting adults

As most smoking cessation programmes reach only a tiny proportion of smokers, increasing reach is essential, particularly in disadvantaged communities where smoking rates are highest. Equally important, however, is to improve reach while also managing to retain smokers in programmes and support them to quit successfully. Prochaska and colleagues (2001, p 584-5) describe the importance of reach and success thus: “*In the past, programs were usually evaluated by their abstinence rates. A program resulting in a 30% abstinence rate was judged twice as effective as one producing 15% abstinence. But a program producing 30% abstinence and 3% participation has only a 0.9% impact. A program producing 15% abstinence with 60% participation has 9.0% impact, which is 1000% greater. What the field needs are interventions that can maximise participation without sacrificing abstinence rates.*”

This section describes attempts both to recruit smokers and to support them to quit. A number of studies were identified that demonstrate how smokers, in particular disadvantaged smokers, can be identified and then recruited by services. Some studies were found which also described effective ways to retain and support smokers, but the evidence for this was more limited.

Role of incentives in primary care: Two articles, McLean et al. (2006) and Coleman et al. (2007), rating ++, from the UK examined the impact of the ‘GP contract’ (in particular, the Quality and Outcomes Framework, QOF) which included specific income-related targets for determining smoking status and recording brief smoking cessation advice for patients with some illnesses. Only one study, rating ++ (McLean et al, 2006) examined socioeconomic differences and found few differences in the ascertainment of smoking status between practices in more or less deprived communities, but significant differences in the delivered quality of care for other diagnostic and treatment indicators (brief advice was not specifically examined). The second study (Coleman et al, 2007) did not look at socioeconomic differences but found that the recording of smoking status and advice increased around the time of the new contract but that there was no change in prescribing patterns. The GP contract is therefore likely to help with identifying smokers from all socioeconomic backgrounds but it is unclear whether any subsequent interventions are delivered equitably across different groups.

Proactive identification of smokers and recruitment into treatment: Aside from incentives, primary care offers an opportunity for smokers to be proactively identified and targeted for smoking cessation interventions. One study, rating ++, from the UK (Murray et al, 2007, unpublished) proactively recruited smokers registered with GP practices (randomised to intervention or control) and telephoned smokers in the intervention arm to give brief advice and information about NHS stop smoking services. The study found that the intervention increased quit attempts and attendance at the services but not quit rates or cigarette consumption. This study did not investigate socioeconomic factors. Five studies from outside the UK (4 from the US: observational [-], descriptive [-], cluster controlled trial [+] and 1 RCT [+] and one observational study from Sweden, rating +) demonstrate the feasibility of proactively recruiting smokers in a number of ways, for example through primary care (Bentz et al, 2006, Perry et al, 2005), using a specific screening tool (Milch et al, 2003), or through cold calling (Prochaska et al, 2001), is possible and that these provide an effective way of drawing smokers into cessation interventions. The evidence for these methods affecting quit rates was, however, mixed and only one of the studies examined disadvantaged smokers.

Role of NHS stop smoking services: Two observational studies, rating ++, in the UK (Lowey et al., 2002 and Chesterman et al., 2005) demonstrate that the services are reaching smokers in disadvantaged areas. Many services are now using similar techniques as those employed in these studies, such as 'health equity audits', to ensure that they are reaching these important target groups.

Utilisation of social marketing techniques: Four studies were identified (one UK observational [-], one US RCT [+], one population based [+] and one international comparative study [-]) which demonstrated that social marketing techniques have a role to play in delivering client centred approaches to smoking cessation in disadvantaged groups. A variety of approaches were employed including media campaigns, community outreach, cessation materials, quiz nights and the outcomes varied from calls to quitlines, changes in readiness to stop smoking or quit rates. One UK study, rating + (Harding et al., 2004) which examined an intervention delivered by members of the gay community to reduce risky behaviours in gay men, found some support for the role of lay people or community members in delivering effective smoking cessation interventions, although the role of lay people in improving recruitment remains unclear.

Tailoring interventions to populations: Two US studies tested smoking cessation interventions with specific population groups and the importance of feedback and adjustment to increase receptivity. One study, rating ++ (Okuyemi et al., 2007) found some evidence for the effectiveness of a tailored campaign to recruit African-American light smokers to a nicotine gum and counselling intervention. Another study, rating – (McDaniel et al., 2005) found that a computer mediated smoking cessation programme was acceptable to inner-city women who smoked following a period of testing and feedback. Three US studies were identified that attempted to develop or test interventions specifically tailored to pregnant women. Haviland et al., 2004, in a descriptive study [-] developed a media campaign, a telephone cessation protocol and self-help materials, based on focus groups with health professionals and pregnant women. Although the intervention resulted in over 11,000 calls to a specially set up quit line, no outcome measures were recorded. Dornelas et al., 2006, carried out an RCT [++] of brief advice versus a more intensive intervention among 105 low income pregnant women attending a prenatal clinic in Connecticut, US. The intervention consisted of an initial 90 minute cessation counselling session immediately following a routine prenatal clinic appointment, which was then followed by regular telephone calls, all carried out by a trained mental health counsellor. The intervention was associated with higher rates of success at the end of pregnancy but

not 6 months post-partum. Solomon (2000) carried out an RCT, rating -, with 151 pregnant smokers attending a large obstetric practice in Vermont, US, to test the impact of proactive telephone support in addition to healthcare professional advice to quit. The study attempted to access low income and educated women but many were lost to follow up. No significant differences were found.

Combining cessation interventions with other approaches: Seven studies were identified which combine cessation interventions with other approaches. These studies illustrate the value of recruiting smokers who are attending non-smoking related appointments in a variety of different settings, into cessation interventions. All these studies included other health care interventions (such as screening appointments) – the review did not identify any studies that explored the effectiveness of combining smoking cessation interventions with other services in non-health care settings.

One UK RCT, rating ++, was identified exploring patients with Coronary Heart Disease randomised to nurse clinics (Campbell et al., 1998). No changes were observed in smoking but identifying patients through GP notes was a useful method of recruitment, although socioeconomic differences were not explored. Hall and colleagues carried out two studies in the UK to explore whether cervical screening offered a good opportunity to encourage women to stop smoking. One RCT, rating -, found that women attending screening and randomised to receive a brief leaflet emphasising the links between smoking and cervical cancer and the importance of stopping smoking, were more likely to report being ready to quit (Hall et al., 2003). Similarly, in a subsequent cluster RCT, rating +, smokers randomised to receive brief advice had higher intentions to stop smoking (Hall et al., 2007). The socioeconomic status of study participants was not reported and so whether cervical screening appointments are a useful way to draw disadvantaged women into smoking cessation interventions requires further research.

Two further studies from the US recruited smokers attending appointments at a primary care clinic located within an HIV/AIDS care centre. These studies provided mobile telephones to those in the intervention groups allowing the implementation of a proactive telephone smoking cessation intervention. The first, a feasibility study (Lazev et al, 2004, rating +) had a small number of participants but the second, an RCT (Vidrine et al, 2006, rating +) found that the intervention was effective in increasing smoking cessation. Both these studies targeted a multiethnic economically disadvantaged HIV positive population. A further US study (Curry et al, 2003, rating +) carried out a RCT with women identifying as smokers attending paediatric clinics with their children. Although a self-selected sample the quit rates were significantly higher among those randomised to motivational interviewing and telephone counselling. The clinics served an ethnically diverse population of low income families. Finally, Glasgow and colleagues (2006) (rating +) carried out two cohort studies in the US to examine the impact of offering smoking reduction programmes (self-help materials plus telephone support and offering the option of cessation) for smokers scheduled for outpatient surgery. Both studies indicated that offering a reduction programme could increase reach by drawing smokers into trying to cut down as well as quitting. There was a limited discussion of the impact of socio-economic status.

An additional pilot RCT (Tappin et al., 2000, rating [+]) was identified which enrolled pregnant smokers attending booking clinic appointments to a motivational interviewing cessation intervention. This and a full RCT not identified in the search (Tappin et al., 2005) indicated that although booking clinic appointments provide a useful opportunity to identify and recruit pregnant smokers into interventions, good

quality motivational interviewing did not significantly increase cessation among pregnant smokers.

Summary

Several methods have been identified above, for example proactively targeting patients on GP registers, or through routine screening or other hospital appointments, to recruit smokers into smoking cessation interventions. Many methods have not been tested directly with disadvantaged smokers and so more research is needed in these areas. There is less evidence of such methods resulting in successful quit attempts.

Overall, there were disappointing results from the RCTs with pregnant smokers. Routine antenatal appointments and using Patient Administrative Systems are however useful ways of identifying and recruiting pregnant smokers to interventions.

Interventions aimed at providing and improving access to services

Whilst increasing the reach of services is important, it is also necessary to ensure that smoking cessation services are attractive to smokers and easily accessible.

Exploring barriers to services: The review identified a number of studies that explored smokers' views about accessing support to quit. Two qualitative studies (Roddy et al., 2006 and Wiltshire et al., 2003, both rated ++) with disadvantaged smokers in the UK explored barriers to accessing services. Concerns were raised such as fear of being judged, fear of failure and lack of knowledge and the need for services to help with wider life circumstances as well as nicotine addiction. Three UK based studies explored, using different means, pregnant women's attitudes to smoking cessation support, perceived barriers to accessing support and the types of support they would prefer. Ussher and colleagues (2004) [+], carried out a telephone survey following identification of patients from the Patient Administration System which appeared to be a useful way of identifying pregnant smokers. The same group (Ussher and colleagues, 2006 [+]) also carried out an international internet survey. Lowry and colleagues (2004) carried out a qualitative and audit study [-], utilising focus groups with pregnant smokers from deprived areas. Overall these studies identified a number of barriers to seeking support for stopping smoking in pregnancy, particularly among low income smokers. More widely available information and publicity about existing services appears to be needed.

Four types of studies were identified which explored improving access to stop smoking services through pharmacy, dental and workplace settings, and drop-in sessions or rolling groups.

Basing smoking cessation services in pharmacies: Pharmacies are potentially a useful way to reach a wide variety of smokers as they provide access to trained health professionals without the need to book appointments in advance. A number of studies provided evidence that training pharmacists to deliver smoking cessation interventions is important. There is also preliminary evidence that pharmacies may be a valuable means of reaching and improving smoking cessation rates in disadvantaged groups (one UK systematic review (Blenkinsopp et al., 2003) comprising 2 RCTs and 3 non-randomised experimental studies [++], one UK observational study with interviews (Bauld et al., 2006, [++]) and one international pilot study (Doescher et al., 2002 [+]). The Blenkinsopp review also examined pharmacy interventions to alter risk factors for CHD and one US study examined found that pharmacy medication records were a valuable tool for targeting patients.

This may also be useful in the UK setting in the future as pharmacists gain access to more information about their patient's medical conditions and circumstances.

Basing smoking cessation services in dental settings: The dental setting also provides an opportunity for smokers to easily access advice and support to quit and three reviews were identified in this area. One UK review, rating -, (Needleman et al., 2006) concluded that training was needed for dentists to intervene effectively and that dentists had the potential to provide effective support for smokers to stop. Two further studies, a systematic review of 6 RCTs (Carr and Ebbert 2007, rating -) found a significant difference in cessation rates between patients receiving advice from dentists and controls, but the studies were heterogeneous, most targeted smokeless tobacco users, and none examined socioeconomic differences. A further US review (Gordon et al., 2006, rating +) identified 7 RCTs which all found a positive effect of interventions in dental settings on quit attempts or cessation.

Work-based cessation activities: One cohort study in the US (Barbeau et al., 2006, rating +) investigated the feasibility of a multi-faceted smoking cessation intervention among unionised apprentice iron workers based in the workplace. Although there was no formal control, the results indicated that the workplace setting could have the potential to reach blue collar workers and increase quit rates.

Adapting interventions to facilitate access: Three UK studies provided evidence of the potential benefits of adapting smoking cessation interventions to increase access. Two studies assessed the Fag Ends service in Liverpool which uses lay advisors and a drop-in system so that clients do not need to pre-book appointments. One, an observational study, rating - (Owens and Springett, 2007 in press) reported positive outcomes for recruitment and self-reported quit rates and an unpublished qualitative study using face to face interviews, rating -, (Springett et al 2007, in press) found that this flexible service was valued by clients. However, although Liverpool contains many deprived neighbourhoods, neither study explored the socioeconomic status of clients. A further qualitative study (Ritchie et al., 2007 [-]) utilising face to face interviews reported positive findings in terms of acceptability to clients and quit rates from another NHS smoking cessation service in a low income area of Scotland which also utilised drop-in sessions.

Other incentive schemes: Incentive schemes are designed to motivate smokers to make a quit attempt or engage with smoking cessation support. Five international studies and one UK study were identified in this section. One review (Bains et al., 1998, rated [+]) of 17 studies of population based smoking cessation interventions worldwide that used a range of incentives suggested that larger incentives (although no specific discussion of the ideal size of incentive was included) were more effective both in improving recruitment and cessation. Three studies examined the offer of free NRT alongside other interventions. One UK cohort study assessed the prescription of NRT given through routine GP consultations in a deprived area (Copeland et al., 2005, rated +) and the results suggested that such an approach might be effective in drawing smokers into changing their smoking behaviour. Cohort studies in the US examined the offer of free NRT to callers to a quitline but neither explored disadvantage. An and Colleagues, 2006, rated [+]) and Bauer et al, 2006, rated [+]) both found that calls to the quitline increased with the former study also finding greater quit rates, although not a causal analysis. Finally, Hennrikus et al., 2003 rated [+], found that offering incentives in the workplace increased participation although both blue and white collar workplaces were involved.

Summary

Directly relevant studies from the UK were identified which summarise the barriers to access to services in disadvantaged groups and among pregnant smokers. Providing smoking cessation services in different settings seems to improve access for disadvantaged smokers and studies also provided preliminary evidence of the effectiveness of some interventions at increasing quitting behaviour.

Conclusion

Overall, this review has found that there is a limited body of evidence on effective smoking cessation interventions to reduce the rates of premature death in disadvantaged areas through proactive case finding, retention and access to services. As a result, a large number of papers were included that did not directly address the research questions with disadvantaged smokers but rather with smokers in general, in order to try to identify strategies which can be tested with disadvantaged smokers in the future. What is particularly disappointing is that many studies clearly collected data on the socio-economic profile of participants, and some report it at baseline, but very few analyse its role in influencing results. This type of omission makes it extremely difficult to say with confidence how potentially promising interventions affect different groups. It's an important priority for future research that there should be greater attention to disaggregated data collection, reporting and analysis. This is essential if we are to learn more in the future about how smoking cessation interventions can help to reduce death rates in those communities where tobacco has taken its highest toll.

7. Evidence Tables: UK Studies

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
<p>Bauld et al, 2006</p> <p>Face to face interviews and observational study</p> <p>++</p>	<p>The study was an evaluation of stop smoking services in Glasgow which involved a number of different components.</p> <p>For this review, relevant element is pharmacy-based treatment: Pharmacists participating in the Starting Fresh service.</p> <p>Qualitative interviews with 26 pharmacists providing cessation services: 10 from corporate chains, 14 from independent pharmacies and 2 based in health centres.</p> <p>Secondary analysis of routine pharmacy client data from 2004. 11,126 clients.</p>	<p>For pharmacy element:</p> <p>To explore the delivery of pharmacy based treatments, outcomes at 4 weeks and examine the relationship between client characteristics and outcomes.</p>	<p>Behavioural support from a trained pharmacist or pharmacy assistant, up to 20 minutes during the initial visit and between 5-10 minutes on subsequent visits. Provision of weekly supply of NRT. 12 week intervention.</p>	<p>Pharmacists are generally positive about their capacity to deliver the service and viewed smoking treatment as an appropriate extension of their professional role.</p> <p>Reach: 60 percent of all clients lived in the most disadvantaged fifth of neighbourhoods in Scotland, suggesting that the service is effectively targeting more deprived smokers.</p> <p>CO-validated outcomes at 4 weeks of 20% rising to 28% when self-report cases included. Clients from more deprived areas were less likely to quit than those from more affluent areas.</p>	<p>This study is directly applicable to the UK population.</p> <p><u>Applicability to our study</u></p> <p>The research is directly applicable to our review.</p>	<p>Analysis limited by reliance on routine service data. Findings limited to 4 week outcomes, CO validation not done in all cases.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
<p>Blenkinsopp et al, 2003</p> <p>Systematic review</p> <p>++</p>	<p>Electronic databases from 1990 to 2001 plus hand-searching of some journals for same time period.</p>	<p>To review the effectiveness of community pharmacy interventions in reduction of risk factors and risk behaviours for CHD</p>	<p>Systematic review of relevant identified trials</p>	<p>For smoking cessation, 2 RCTs and 3 non-randomised experimental studies were included. For lipid management, 2 RCTs and 2 observational studies were included. Smoking cessation RCTs found evidence of effectiveness of community pharmacist interventions.</p>	<p>The RCTs were carried out in the UK, Canada and US, but smoking cessation RCTs were carried out in the UK and therefore the findings are directly applicable.</p> <p><u>Applicability to our study</u></p> <p>In the UK studies, customers were recruited from those asking for smoking cessation advice or NRT during a 12 month period. Both RCTs and the 3 experimental studies demonstrated the importance of training pharmacists.</p> <p>The North American lipid RCT participants were recruited from pharmacy patient medication records which appeared to be a useful tool for targeting patients.</p> <p>More research on this method of case finding in the UK was recommended.</p>	<p>Methodology could be clearer in terms of selection of participants and the particular findings reported</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Campbell et al, 1998 RCT ++	Patients with CHD attending nurse run clinics in a random sample of 19 general practices in Scotland. 1173 patients were randomized to intervention or control arms. Patients were identified from GP patient notes and excluded if they were terminally ill, had dementia, were housebound or at the request of their GP	Can nurse run clinics in general practice improve secondary prevention in patients with CHD	Nurse run clinics for one year offering an initial session and further follow ups at intervals of 2-6 months depending on clinical circumstances. At initial session, symptoms, drug treatment, blood pressure and lipid management and behavioural factors were assessed and an action plan negotiated which was reviewed at follow up sessions.	Nurse led clinics increased secondary prevention such that within the 1 year of the study, most patients adopted at least 1 change, most often lipid, aspirin or blood pressure treatment. Medical changes easier than lifestyle changes. No change reported in smoking	This study is directly applicable to the UK population. <u>Applicability to our study</u> Method of identifying patients through GP notes worked and would be applicable to this study. In this case target was CHD patients. No targeting of socio-economic status. Most improvement in practices/interventions starting with lowest level of intervention.	No methodological concerns. Some possible contamination as randomization was by individual not by practice. Non-blinded. Self-report used by given no change in smoking, likely impact of false reports small.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
<p>Chesterman et al, 2005</p> <p>Observational study ++</p>	<p>Recipients of smoking cessation services who set a quit date in 2001</p> <p>38778 records from services in 19 former health authority areas</p>	<p>To determine the effectiveness of smoking cessation services in enabling smokers living in disadvantaged areas to access treatment services, and to assess the extent of variations between areas.</p>	<p>NHS stop smoking services, one to one and group-based support. Details of intervention not discussed in the article.</p>	<p>NHS services were seeing smokers from the most disadvantaged areas where smoking prevalence rates were highest. 32.3% of all smokers in receipt of treatment services lived in the most disadvantaged quintile of areas compared with 9.6% resident in the most advantaged quintile. An indicator of 'positive discrimination' was calculated for each health authority area to quantify the extent to which the proportion of disadvantaged smokers being treated was greater than the proportion in the local population. This figure ranged from just under 0% to 18%.</p> <p>NHS services have been successful in reaching smokers from disadvantaged communities, in contrast to many other health service interventions.</p>	<p>This study is directly applicable to the UK population.</p> <p><u>Applicability to our study</u></p> <p>This study is directly applicable to the review.</p>	<p>If the Health Survey of England underestimates smoking prevalence rates among people living in the most disadvantaged areas, then indicators of positive discrimination may be exaggerated.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Coleman et al, 2007 Observational study ++	GP THIN database records from 1990 to 2005 for recording of smoking status, smoking cessation advice & prescription of smoking medications	Has the 2004 GP contract (with QOF targets) impacted on GPs behaviour in terms of recording smoking status, advice and smoking cessation medication prescribing patterns?	Analysis of THIN database for records of smoking status, advice, relevant prescriptions	Recording of smoking status and advice increased around the time of the 2004 contract (building on an increasing trend since 2000) No change in prescribing patterns observed over and above the increasing trend.	This study is directly applicable to the UK population. <u>Applicability to our study</u> No discussion of SEG data	No methodological concerns. Alternative explanations include increased recording rather than asking/advising and the impact of other policies implemented around the same time as the 2004 contract

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Copeland et al, 2005 Cohort study +	General practice in NW Edinburgh in an area of high deprivation – 120 smokers recruited opportunistically at GP consultations (majority for other issues) on prescription of NRT	Following up the prescription of NRT by GPs in a deprived areas	3 month follow up of smokers prescribed NRT – assessment of baseline measures against outcome	20 of 101 who used prescription and completed follow up stopped smoking, 46 cut down, 35 smoked same as before. Age, depression and length of time patient used NRT affected outcome.	This study is directly applicable to the UK population. <u>Applicability to our study</u> Proactive targeting of patients by GPs in a deprived area seems a promising approach to drawing smokers in to use of NRT, cutting down and stopping	Potential for selection bias. No specific information provided on how the GPs recruited smokers into the trial. Large proportion had symptoms of smoking related diseases. Self-reports used for outcomes.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Hall et al, 2003 RCT -	172 women aged 20 -64 attending 2 general practices in UK (some exclusions) accepting an invitation to take part, sending a self-completed questionnaire and, for those in experimental arms, had read the leaflet sent to them	The effectiveness of 2 leaflets emphasizing the links between smoking and cervical cancer and the importance of stopping	Randomised to a brief leaflet or an extended leaflet (which includes detailed information about how smoking affects cervix) or control. Both leaflets contained 2 threat and 2 efficacy messages	<p>Providing women with brief written information about the link between smoking and cervical cancer increases their readiness to stop smoking.</p> <p>Women sent the brief leaflet were more likely to report that they were ready to stop smoking in the next 6 months compared to those sent the extended leaflet (75% vs. 46%, 95% CI = 11%-48%) and those not sent the leaflet (75% vs. 40%, 95% CI= 19%-52%).</p>	<p>This study is directly applicable to the UK population.</p> <p><u>Applicability to our study</u></p> <p>It would appear that cervical screening which involves the vast majority of women within a certain age range every few years may be a way of drawing women who smoke into thinking about smoking cessation</p>	<p>Low response rate (36% of those contacted returned completed questionnaires); some measures used were low in reliability; smoking cessation not measured and needs further research.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Hall et al, 2007 Cluster RCT +	242 smokers invited for cervical screening in 2004 from 8 general practices in SE England randomized to experimental or control arms by week of attending screening	To investigate the feasibility, acceptability and potential effectiveness of brief advice for smoking cessation as part of screening for cervical cancer	Women were asked if they smoked before a cervical smear test. In intervention weeks, women who consented to take part in the study were then given brief advice (3 minutes based on the 5 As) compared to no advice in the control weeks.	Brief smoking cessation advice given by practice nurses as part of cervical screening seems acceptable, feasible and potentially effective. Those in the intervention group had higher intentions to stop smoking at 2 weeks (adjusted mean diff 0.51, 95% CI – 0.02 to 1.03) and 10 weeks (adjusted mean diff 0.80, 95% CI 0.10 to 1.50). The two groups had similarly high intentions to attend future cervical screening.	This study is directly applicable to the UK population. <u>Applicability to our study</u> Potential route for giving women smokers of 20-65 cessation advice. However, The study did not report the socio-economic status of the women or the areas in which the study took place.	Intention to quit at 10 weeks was the primary outcome in this trial which was seen as a first step towards justifying the need for a RCT. Over a third of participants were lost to follow up at 10 weeks. Nurses were unblinded.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Harding et al, 2004 observational descriptive study +	98 gay men who were smokers in London during 2003.	To design, recruit to and deliver a series of pilot smoking cessation group interventions aimed at gay men and to evaluate short term cessation outcomes.	The intervention was designed and delivered by a voluntary agency with a remit to promote the health of gay men. Seven volunteers from the agency attended a Level 3 smoking cessation training course. Gay men were recruited to the resulting service by advertisements in the free London wide and national gay press. Editorials and articles in the same press were also written to encourage recruitment. Recruited smokers attended a 7 week group-based cessation intervention combining behavioural support and access to pharmacotherapy.	The intervention successfully recruited a high prevalence group (gay men) and delivered a cessation programme similar to that provided by NHS stop smoking services but tailored to the needs of the client group. Four week cessation outcomes were slightly higher than the national average reported from English stop smoking services at the time of the study. The authors conclude that gay men can be successfully recruited into smoking cessation programmes and supported to quit if the service is tailored to their needs and allows them to explore smoking in the context of relevant issues in their lives.	This study is directly applicable to the UK population. <u>Applicability to our study</u> Although gay men are a high risk group in that they have high smoking rates, the participants in this study were drawn primarily from affluent groups.	No serious confounders. This was a small pilot study and it is difficult to determine its wider applicability.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Lowey et al, 2003 Observational study ++	Data from 7 former Health Authorities in the North West of England. In these areas, smokers accessing NHS SSS, making quit attempts and successful quit attempts	Are NHS SSS disproportionately attracting smokers from deprived areas, and having an effect on inequalities?	Retrospective analysis of NHS stop smoking service data	<p>Disproportionately more people living in disadvantaged areas are contacting the services, but a smaller proportion of these are setting quit dates. However, greater proportions of people from deprived populations are still managing to set quit dates and the relative proportions of the total population quitting smoking increased with increasing deprivation.</p> <p>50% of all smokers setting a quit date lived in the most deprived areas, while only 25% of people in the NW are living in deprived areas. An estimated 3.3% (43,020/1.3 million) of smokers in the NW set a quit date, 48.5% of them successfully quit (at 4 weeks). Smokers living in deprived areas do not achieve greater success rates compared to those in more advantaged areas (p=0.16)</p>	<p>This study is directly applicable to the UK population.</p> <p><u>Applicability to our study</u> Services are attracting people from more deprived areas but less likely to set quit dates – this aspect needs further research</p>	<p>No methodological concerns.</p> <p>Data linking smoking with deprivation in small geographical areas not available and SES of smokers accessing services not recorded.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
<p>Lowry et al, 2004</p> <p>Focus groups and audit</p> <p>-</p>	<p>Pregnant smokers in Sunderland, Tyne and Wear. Nine focus groups with women from deprived areas, social class C2DE</p>	<p>To explore what it is like to be a pregnant smoker in Sunderland and to inform the development of a smoking cessation programme using social marketing techniques.</p>	<p>A smoking cessation intervention for pregnant women designed to address issues identified by pregnant women themselves in focus groups.</p> <p>Cessation service providers (a range of healthcare workers) attended role-play sessions with actors who convened the women's concerns identified in focus groups.</p> <p>A full time cessation worker was also employed to provide women with support in their own homes.</p>	<p>Focus groups with pregnant women identified a number of barriers women face in relation to smoking cessation during pregnancy: unsatisfactory information, lack of enthusiasm or empathy from providers and short term support. Through role play and the appointment of a specialist worker, the Sunderland service developed to try and address these needs and barriers.</p> <p>Recruitment of pregnant smokers to the new service increased 10 fold during the intervention period. Recruitment was higher than in neighbouring services also with a relatively deprived population</p>	<p>This study is directly applicable to the UK population.</p> <p><u>Applicability to our study</u></p> <p>This study is directly applicable to our study.</p>	<p>Focus group research appears to have taken place over 10 years from 1992.</p> <p>Main outcome measure is increase in client numbers and comparison with neighbouring areas, but no detail provided on the nature of services for pregnant women in the other areas.</p> <p>Increases in client numbers took place during 2002 when all UK stop smoking services were developing and expanding</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
McLean et al, 2006 Observational study ++	1024 general practices in Scotland	Does the quality of primary care measured by the 2004 contract differ by socioeconomic deprivation?	Retrospective analysis of data available on QOF achievement at practice level. Comparing quality indicators for payment and delivery of care – the latter includes all patients with the disease rather than those who fall outside of exclusion criteria and therefore gives a measure of tackling inequalities in care	The exclusion criteria for QOF appear to conceal continuing inequalities in provision of care. The contract therefore appears to be offering little incentive to the delivery of care for disadvantaged population. Some differences with recording smoking status, with COPD in particular.	This study is directly applicable to the UK population. <u>Applicability to our study</u> Relevance to our study is mostly contextual. However, it identifies problems of using primary care interventions through the QOF to reach disadvantaged populations.	No methodological concerns.

Citation	Study Population	Research question	Intervention	Main results	Applicability to UK	Confounders comments
Murray et al, 2007 Unpublished Cluster RCT ++	24 primary care practices, either active intervention or usual care Patients were all 18+ either smokers or no status recorded Sent questionnaire to confirm current smoking status and asked if happy to be contacted by stop smoking advisor Intervention (3051) Control (3805)	Cluster RCT to determine whether identifying all smokers in primary care population, followed by personal contact giving advice and info about local cessation service is effective in promoting independently validated smoking cessation	Either phoned or postal – given brief advice, if wanted an appointment was made with NHS SSS, if they didn't want to they were sent a pack about the service (all done within 8 weeks of initial contact) SSS appointment followed usual procedure and demographic data collected Control – nothing other than normal offered 6 months after intervention were sent a follow up questionnaire and quit status validated.	Intervention increased the proportion of smokers reporting attendance at local NHS SSS and had a modest effect on the number of quit attempts made, but no significant impact on actual quit rates or reported cigarette consumption This may not change quit rates but is a good way to access those who want to quit	This study is directly applicable to the UK population <u>Applicability to our study</u> The socio-economic status of the patients was not discussed in relation to outcomes.	No significant confounding factors.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Needleman et al, 2006 Review -	A review of studies examining smoking cessation in dentistry and barriers to providing smoking cessation advice	An evaluation of tobacco cessation advice in the dental setting, trials of effectiveness and barriers are reviewed	A review but no search terms were given for the effectiveness/efficacy trials although details are given for the barriers. Not a systematic review	Overall conclusions are that dentists could play an important role in promoting tobacco cessation and oral tobacco cessation for smokers but the magnitude of the effect is unclear from the studies reviewed. Many barriers identified and suggestions made for further research in both areas.	This study is directly applicable to the UK population. <u>Applicability to our study</u> This review is applicable to our study as it explores the dental settings role in improving access to cessation advice.	Not a systematic review. No methods provided for how the papers were identified. The evidence in the papers presented is frequently not critically reviewed.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
<p>Owens and Springett 2007</p> <p>In press</p> <p>Observational study</p> <p>-</p>	<p>Clients accessing the Roy Castle Fag Ends Stop Smoking Service (RCFE) in Liverpool between 2001 and 2005.</p>	<p>To describe the methodology behind the RCFE, describe how the service works and report 4 and 52 week cessation outcomes between 2001 and 2005.</p>	<p>A community-based stop smoking service accessed by self referral (helpline and walk in) and referral from a GP/primary care/hospital. Clients can attend group or one to one sessions with a trained adviser for as long as they want and are able to return to the service immediately following relapse, if they choose to do so. This differs from the 'traditional' model of service delivered by NHS SSSs.</p>	<p>CO validated quit rates at four weeks ranged from 34% - 45% between 2001-2005, rising to 57% overall when self-report cases were included.</p> <p>Self-report 52 week quit rates (only 4% were CO validate) ranged from 16-22% between 2001-2004.</p> <p>The authors argue that these results are better than most NHS SSSs and higher than the existing published evidence, although the limits of the study design, particularly in relation to 52 week outcomes, make these conclusions preliminary in nature.</p> <p>The proportion of 'walk in' clients has grown as the service developed, from 19% in 2001 to 41% in 2004. There has been a corresponding rise in the number of clients who set a quit date through the service. Ease of access may result in more quit attempts. The open, flexible model of service may also explain the positive cessation outcomes reported.</p>	<p>This study is directly applicable to the UK population.</p> <p><u>Applicability to our study</u></p> <p>Liverpool is a relatively deprived part of England but no client characteristics are reported so it is difficult to determine what proportion of the client group were drawn from disadvantaged communities.</p>	<p>A very basic descriptive study that reports general outcomes with no examination of the relationship between client characteristics, type of intervention received and outcomes.</p> <p>52 week cessation outcomes are reported but little detail is provided about how these were obtained and what proportion of clients were lost to follow up at 52 weeks. Only 4% of 52 week outcomes were validated.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Ritchie et al, 2007 Interviews -	12 smoking cessation groups in a low income community observed for 6 weeks from Oct-Dec 2003. 5 debriefing sessions with group facilitator. 11 interviewees selected on the basis that they had used the service at least three times in six consecutive months.	To make explicit the assumptions shaping the practice of open smoking cessation groups that use narrative therapy and to assess smoker's perceptions of the value of these groups	'Smokey Joe', a group-based smoking cessation intervention run by the NHS in a low income area of Scotland. The group was 'open' to people at any stage of the quitting process and used narrative therapy (where people are encouraged to tell their own 'self-story') to support people to quit.	Hypotheses generated suggest that flexible services that offer support to a range of smokers at different stages in their quit attempt are beneficial and valued. Programmes that are tailored to the individual's personal situation are valued by participants. An understanding of the local culture and community smoking norms should shape local cessation interventions. Parallel outcome evaluation found 52 week quit rates of 16%, similar to 'mainstream' NHS SSS, but this evaluation was not robust.	This study is directly applicable to the UK population. <u>Applicability to our study</u> Does not involve proactive identification of smokers, although 'open' model encourages drop in which could improve access. In disadvantaged area but smokers from a variety of backgrounds.	Limited information provided on methods. 11 interviewees purposively sampled out of group of 67. As they had used the service at least three times, may have been biased towards a positive outcome.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Roddy et al, 2006 Focus groups ++	39 smokers aged 21-75 from the most deprived areas of Nottingham who had made an unsuccessful attempt to quit in the last year without using smoking cessation services.	To determine whether disadvantaged smokers in Nottingham are aware of existing local smoking cessation services, to explore how they view the services on offer and to identify specific barriers and motivators to improving access to services for this group.	5000 households in the 5% most deprived enumeration districts in Nottingham were sent a postal questionnaire. Responses were then used to purposively select smokers who responded and were willing to participate in focus group discussions	The research identified a number of barriers to accessing services. These included: fear of being judged, fear of failure, lack of knowledge about existing services, inaccurate perceptions about NRT and negative media publicity about bupropion. Because of a low awareness amongst smokers from deprived areas, and misconceptions about availability and effectiveness, services should aim to provide a more personalised approach that is non-judgemental, provides free pharmacotherapy and is flexible. This may improve service uptake.	This study is directly applicable to the UK population. <u>Applicability to our study</u> This study is directly applicable to our study.	No significant confounders identified.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Springett et al, 2007 In press Interviews and focus groups -	Staff and service users of the Fag Ends service in Liverpool. Interviews with service staff and focus groups with clients (numbers unclear).	To ascertain the main characteristics of the Fag Ends smoking cessation service and how they contribute to its effectiveness from a user and service provider perspective	Group-based smoking cessation intervention staffed by lay advisers. Groups open to all on a drop in basis. One to one support also available, initially on a drop in basis and afterwards by appointment. Local helpline refers clients to group and one to one interventions and provides additional telephone support.	<p>A service that employs lay advisers, rather than health professionals can be successful in helping smokers to quit.</p> <p>A service which provides access to group and one to one support on a drop in basis in a wide range of venues is accessible and valued by clients.</p> <p>No one single model of cessation support will meet the needs of all – services need to be flexible.</p>	<p>This study is directly applicable to the UK population</p> <p><u>Applicability to our study</u></p> <p>Liverpool is a city with high levels of deprivation and therefore this service model may be particularly attractive to disadvantaged groups, although client characteristics were not discussed in the article. This combined with limited information on methods and no outcome data makes the results inconclusive.</p>	<p>Limited information on methods. Unclear how many clients were interviewed. No cessation outcome data reported.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Stevens et al, 2002 Observational study -	A panel of 303 Turkish speakers recruited through community centres and doorstep interviews	The cost-effectiveness of a Turkish campaign to promote non-smoking as the norm and reduce the prevalence of smoking in the Turkish community in Camden and Islington	<p>A community-based intervention aiming to highlight the dangers of smoking, reduce the amount smoked and the number of smokers in the local Turkish and Kurdish community.</p> <p>It included a 10 minute play performed in 20 venues, a poster campaign, a media campaign and a series of purpose-designed leaflets.</p> <p>A survey of smoking habits and awareness of the dangers of smoking was conducted before the intervention and one year later.</p>	<p>At follow up 51% of respondents recognized at least one of the Turkish language interventions. There was a higher awareness amongst the ABC1 group (64%) than those classified as being part of the C2DE group (48%).</p> <p>Those smokers who quit during the intervention showed a relatively high awareness of the material (61%) although 44% of those who took up smoking also noticed the materials.</p> <p>The authors concluded that the intervention had been moderately successful with a reduction in smokers amongst the Turkish speaking population of between 3 and 7% in one year.</p>	<p>This study is directly applicable to Turkish communities living in the UK.</p> <p><u>Applicability to our study:</u> Concerns about the quality of the study limit its applicability.</p>	Uncontrolled study. Several methodological problems , less than half followed up, all based on self-report

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Tappin et al, 2000 Pilot RCT +	100 self-reported smokers booked into a maternity hospital in Glasgow who gave consent and who lived in Glasgow between March and May 1997	A pilot study to determine if proactive motivational interviewing by a specially trained midwife in the patient's home helps pregnant smokers to stop.	Motivational interviewing by a trained midwife in the home – a median of 4 sessions were provided	<p>Preliminary process and pilot data.</p> <p>No significant difference between groups on any measures</p> <p>All intervention sessions were tape recorded and those belonging to a random 13 clients transcribed and ratings applied. MI provided was satisfactory in over three-quarters of transcribed interviews.</p>	<p>This study is directly applicable to the UK population.</p> <p><u>Applicability to our study</u></p> <p>75% of smokers were prepared to take part and the intervention did not seem to interrupt antenatal contact.</p>	<p>Only 14% power to detect a doubling of quit rates from 7.5%, but quit rates very low in this study and two failed validation. Main focus a process evaluation.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Ussher et al, 2004 Telephone survey +	206 pregnant smokers identified using the Patient Administration System of a large district general hospital in Tooting, SW London. All were telephoned within 1 week of their booking visit (between June 2000 and February 2001) and invited to take part in the survey. Demographically similar to national samples of pregnant women from across the UK	What types of smoking cessation support are pregnant smokers interested in and which would they prefer?	The study population was interviewed by telephone for about 10 minutes	Vast majority of women expressed interest in most types of support discussed (not complete range but those feasible at a national level). Support highest among heavier smokers and among professional/managerial occupations. Face to face behavioural support and self-help materials attracted the most interest. Preference for individual over group support, those from lower SEG reported more interest in buddying and those from ethnic minorities most interest in behavioural support.	This study is directly applicable to the UK population. <u>Applicability to our study</u> PAS appears to be a useful way of identifying pregnant smokers, although only two-thirds responded to contacts.	No methodological concerns. Reported interest in support, not actual uptake. Some of the statistical findings might be spurious.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Ussher et al, 2006 Internet survey +	An internet questionnaire was placed on a smoking cessation website and linked to other sites aimed at pregnant smokers or recent ex-smokers- 443 eligible questionnaires were completed	To explore perceived benefits of and barriers to attending smoking cessation services for pregnant smokers	A decisional balance questionnaire (10 statements benefits, 10 statements barriers) derived from a focus group of 10 pregnant smokers, completed via the internet	Many smokers reported benefits of attending a stop smoking course. Many barriers reported. Cessation advice and interventions need to be more routinely integrated into care as many did not access services or not believing that they would help. Further publicity about how the services can help and increase success also needed.	Majority of participants were from UK or North America so this study has some relevance to the UK population <u>Applicability to our study</u> Intervention restricted to those who have internet access so may have some biases particularly in favour of less deprived respondents.	Questionnaire completed by internet by self-selected sample. Further work needed on reliability and validity of measures used.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
<p>Wiltshire et al, 2003</p> <p>Face to face interviews in the client's own home</p> <p>++</p>	<p>100 smokers (50m, 50f) aged 25-40 years in two disadvantaged areas of Edinburgh interviewed between 1999 and 2000.</p>	<p>To investigate disadvantaged smokers perceptions and experiences of quitting</p>	<p>Completion of adapted 'life grid' to collect smoking data for one day from each interviewee</p>	<p>Combating nicotine addiction in isolation is likely to be insufficient. A combination of measures are required in order to address the place of smoking in the daily lives of disadvantaged individuals.</p> <p>Smokers may lack motivation to access cessation services unless they perceive that they will get help in dealing with the routines and stresses that are enmeshed with their daily smoking patterns.</p>	<p>This study is directly applicable to the UK population.</p> <p><u>Applicability to our study</u></p> <p>Interviews were conducted between the introduction of NHS stop smoking services or NRT on prescription, so applicability to current policy/service context is limited.</p>	<p>100 out of 167 people contacted agreed to be interviewed, not clear why 67 declined.</p>

8. Evidence Tables: International Studies

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
An et al, 2006 Cohort study +	<p>Cohorts of callers to the Minnesota, US, quitline QUITPLAN before and after the introduction of access to free NRT.</p> <p>4 cohorts were selected in the year before the introduction of NRT (2002, n=380) and 2 cohorts in the 9 months (2003; n=373) after the introduction.</p> <p>Eligibility: smoked 5 or more cigarettes per day; planned to quit within 30 days; were aged 18+; had no contraindications. Several exclusion criteria and callers were excluded if they transferred to their health plan.</p>	How does the addition of access to free NRT affect reach and effectiveness of a statewide tobacco quitline?	<p>In 2002, callers who enrolled in QUITPLAN's multi-session programme (which included 4 additional proactive calls) were offered NRT.</p> <p>Eligible callers were mailed an 8 week supply of patch or gum with starting dose determined by baseline level of tobacco use.</p> <p>Follow up surveys were conducted at 2 weeks and 6 months after registration.</p>	<p>Two week follow up response rates of 79.2% and 68.9% pre and post NRT respectively, 6 month follow up response rates were 56.8% and 58.7% respectively. 6 month non-respondents were younger, more likely to be from a non-white ethnic group and less likely to have completed education after high school.</p> <p>The number registering or QUITPLAN services (either 1 call or multi-session) increased from 155 per month to 679 per month (i.e. approx fourfold) in the period from Jan to May in the years before and after the introduction of free NRT. Post NRT a greater proportion of the callers reported being ready to quit in the next 30 days and a greater proportion of callers reported using more than one type of tobacco. 28.6% of callers pre-NRT indicated on the 2 week follow up survey that their main reason for calling was to 'get medicinal products' to help them quit, compared to 88.3% of callers post-NRT who indicated that their main reason for calling was 'to get nicotine patches or gum through the Helpline'. The proportion of callers enrolling in multi-session programmes substantially increased post NRT and also in the proportion of callers who used pharmaceuticals, particularly NRT.</p> <p>Using an intention to treat analysis, 10.8% of callers were abstinent for 7 days pre NRT compared to 21.7% post NRT (p<0.001). 10.0% of callers were abstinence for 30 days pre-NRT compared to 18.2% post-NRT (p<0.001). In a multiple regression analysis the only significant predictor of abstinence was use of pharmacotherapy. (Hence authors suggest that increase in abstinence rates was due to increased use of services rather than differences in caller characteristics. Education level was measured but not shown to play an effect in the multivariate analyses)</p>	<p>This study was conducted in Minnesota, USA and so the results may not be directly applicable to the UK population.</p> <p><u>Applicability to our study</u></p> <p>The study did not directly target disadvantaged groups, but did look at increasing access. Although not a causal analysis, the offer of NRT did appear to greatly increase calls to the quitline and the type of counseling opted for.</p>	<p>The analysis is done on all smokers not just those who entered the multi-session programme. The requirement to enroll in multi-session counseling to get the free NRT makes it difficult to isolate the individual effects of NRT and additional behavioural therapy.</p> <p>Cessation outcomes limited to self-report, and short-term (7 and 30 days).</p> <p>Concurrent increased media coverage of helpline services at the time free NRT was introduced and may have played a role.</p> <p>Observational study so cannot conclude causality.</p> <p>Eligibility only included highly motivated smokers</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Bains et al, 1998 Review +	Participants in 17 studies of smoking cessation interventions worldwide that used incentives. Studies were published between 1975 and 1997.	To review the published literature on population based smoking cessation interventions that involve incentives and to examine whether such interventions are effective in reducing the prevalence of smoking.	17 smoking cessation interventions employing incentives. Incentives ranged from holiday competitions to cars and cash. All studies measured recruitment and cessation outcomes ranging from 1 month to 21 months. Only five had a controlled element.	<p>The review examined what types of incentives were most successful rather than compared incentive programmes to those without such inducement.</p> <p>No specific type of recruitment strategy was shown to always be more effective than others. There was no evidence that particular types of incentives are able to influence participation or quit rates, but larger incentives are more effective both in improving recruitment and cessation.</p> <p>Estimates of costs per quitter from the programmes ranges from \$20 to \$400, with some evidence that the costs of such programmes does compare favourably with cessation clinics.</p> <p>The authors conclude that incentive schemes can be successful particularly if they are innovative, are of high intensity and use a high level of resource.</p> <p>There is an interesting finding in this study about the possible trade off between reach and effectiveness. The contest that recruited the highest proportion of eligible smokers produced the greatest impact, even though the sustained quit rate of participants (13%) was low.</p>	<p>The studies were carried out worldwide and may have limited applicability to the UK (only one was based in the UK), although incentive schemes are something that can presumably be replicated here.</p> <p><u>Applicability to our study</u></p> <p>Review did not discuss the characteristics (socio-economic or otherwise) of study participants, so we do not know if incentives are necessarily as effective with disadvantaged groups.</p>	<p>Studies used different methods and no standard outcomes, making comparison difficult.</p> <p>Only five studies had a controlled element.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Barbeau et al, 2006 Cohort study +	337 apprentices aged 18+ in a union apprenticeship program in Boston, USA completed both the baseline and final survey. 139 current smokers.	What is the feasibility and effect size of a smoking cessation intervention (MassBUILT) among unionized apprentice iron workers? The report covers the implementation of intervention components and level of participation and compares pre and post intervention changes in 7 day smoking prevalence, intention to quit, smoking, smoking frequency, smoking intensity and self efficacy to quit	Holistic intervention which addressed workers concerns about occupational safety and health hazards, as well as smoking behaviour. An educational program focusing on information about the hazards of tobacco use in the context of toxic occupational exposures Conducted over a 4 month period and included the following components: a) A 1-hour toxics and tobacco educational module taught in one of the apprentices regularly scheduled classes b) A tobacco use cessation group of 8 weekly sessions c) NRT made available at no cost to study participants d) Posters containing quitting information e) Relevant articles in the monthly union newsletter f) A Do-it-yourself quit kit for smokers interested in quitting but not attending group quit sessions g) Incentives to encourage ongoing participation in quit classes	Baseline smoking prevalence of 41%. A 7-day point prevalence smoking abstinence rate of 19.4% (27/139) Statistically significant positive changes in intention to quit within 6 months and 30 days, self efficacy to quit within 6 months and 30 days and reductions in the number of days smoked in the last 30 days among current smokers at baseline Positive but not statistically significant changes in intention to quit smoking in 6 months and 30 days, self efficacy to quit within 6 months and 30 days and reductions in smoking intensity and frequency among smokers who didn't quit Participants in the intervention were 3 times more likely to quit than those who did not participate. They were also significantly more likely to sustain an increase in intention to quit smoking and decreases in smoking intensity and frequency than those who did not participate.	This study was conducted in Boston, USA and so the results may not be directly applicable to the UK population <u>Applicability to our study</u> This study is directly applicable to our study as it covers disadvantage, identifying and attracting smokers and retention in a cessation programme.	There was not a formal control group, however expected quit rates without intervention expected to be 5% compared with 19% with intervention Cessation outcomes were short term (1 month) and limited to self-report

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Bauer et al, 2006 Cohort study (two studies) +	Adult smokers residing in a two-county region in Western New York State in 2003/2004 18+ yrs, smoked 10 + daily, lived in Erie / Niagara counties, no medical contraindications 2461 received free NRT vouchers, 732 followed up out of 1016 (72%)	Study 1: to assess the response to a press advertisement of a programme giving away a voucher for a free 2 week supply of nicotine patches or gum to eligible callers Study 2: to compare the responses to two newspaper advertisements, one offering a free stop smoking guide and the other offering the guide plus a free stop smoking aide called Better Quit® (BQ) – a plastic substitute cigarette	Study 1: a 4-week promotional press announcement urging smokers to call the quitline to get a voucher for a free 2 week supply of NRT. The intervention was timed to coincide with the implementation of New York State's Clean Indoor Air Act (CIAA). Embedded within the follow up to this study was a randomized experiment where half the smokers were sent a free BQ stop smoking aide 2,461 received free voucher, 1000 (randomly selected) were followed up by phone – 732 completed phone interview of smoking habits Control – 515 callers to quit line, before NRT given away were phone interviewed Study 2: 2 quitline newspaper ads, one offering a free stop smoking guide and the other also offering a free BQ stop smoking aide. The ads were run 3 weeks apart in a local newspaper reaching around 300,000 households. Did follow up interview with 408 callers who received BQ and 324 who did not. Calls were monitored before, during and after intervention.	Study 1: Calls to the quitline increased from a median of 6.0 calls per day in the 2 week period before the voucher giveaway announcement to a median of 148.0 calls per day for the 4 week period that the programme ran-a 25-fold increase. In the 2 week period after the voucher promotion was discontinued, the median call volume decreased to 26.5 per day. Study 2: Calls to the quitline increased from a median of 7.0 per day in the 1 week prior to the control newspaper advertisement running to a median of 14.0 per day in the 2 day period after the advertisement ran-a 2-fold increase. In the 2 day period following the advertisement offering the free BQ, the median number of calls to the quitline increased to 27.5 calls per day-a 4-fold increase. 85% of those who completed the follow up redeemed the voucher for NRT, of which 83% reported using the medication at least once and 60% said they had used the NRT for a minimum of 14 days. 79% of those surveyed reported making a quit attempt, and 22% reported being abstinent from smoking in the last 7 days. Quit rates were 30% in those using the patch, 26% in those using chewing gum and 6% for those who did not redeem the voucher or use the NRT. The quit rate in the comparison group was 12%. Quit rates for those who were sent the BQ was 20%, compared to 24% among those who didn't receive BQ The free NRT offer was more cost effective and generated more calls than either newspaper advert. This study demonstrates that offering a free 2 week NRT supply is a cost effective method to increase calls to a quitline and may increase the odds of those who call actually quitting.	This study was conducted in New York, USA and so the results may not be directly applicable to the UK population. <u>Applicability to our study</u> This study is applicable to our study as it covers identifying and attracting smokers, however does not focus upon disadvantage or retaining smokers in cessation programmes	Cessation outcomes were short term (7 days) and limited to self-report Quit rates were evaluated using historical comparison groups

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Bentz et al 2006 Observational study -	15,662 smokers were identified by 175 care providers in 17 primary care clinics and 2 teaching clinics with a diverse patient group, of which 745 patients were referred to the Oregon Tobacco quit line between October 2002 –October 2003 and 1342 were given a brochure advertising the quit line number which the patients then had to contact themselves.	Evaluation of the feasibility of connecting physician offices to a state level tobacco quit line, which offers proactive and reactive counseling.	The primary care provider delivers advice to quit, assesses readiness to quit, and refers interested tobacco user to the quit line by direct fax referral (quit line counselor proactively calls the tobacco user) or brochure (patient must initiate contact themselves). Both receive the same counseling service of an in-depth quit plan and referral to appropriate resources for pharmacotherapy and intensive cessation programmes	Between October 2002/2003, 103597 patients were seen, 745 patient referrals to quit line (4.8%). Of those receiving fax referrals (n=496), 59% were successfully contacted. Of these, 90% accepted a one-time tobacco cessation intervention from a quit line counsellor. All those who received fax referrals were mailed tailored self help materials whether they had been successfully contacted or not. Of the 1342 smokers documented as being given a quit line brochure, 19% (n=249) called the quit line. If these, 94% accepted a one-time tobacco cessation intervention from a quit line counsellor. Informal post-study interviews revealed that the fax referral process was well accepted and providers appreciated the additional resources for their patients. Providers were encouraged to use fax referral for patients who wanted to quit, fax referred pts reported being in the preparation or action stage of quitting more often.	This study was conducted in Oregon, USA and so the results may not be directly applicable to the UK population. <u>Applicability to our study</u> This study is applicable to our study as it covers identifying and attracting smokers but does not focus upon disadvantage or retaining smokers in cessation programs	Closure of the toll-free quit line 7 months into the study period may have affected results. No cessation outcome data reported. There is no explanation as to why the remaining 13,824 identified smokers were not fax referred or given a quit line brochure Not all state level quit lines can provide intensive follow up so not generalisable. This may only work with clinics who have access to an EMR system (electronic medical record)

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Boyd et al, 1998 Cluster RCT +	Fourteen communities (seven matched pairs) served by four Cancer Information Service (CIS) regional offices in North Carolina, Pennsylvania, Texas and Alabama in August/September 1994 (wave 1) and April/May 1995 (wave 2)	Does a targeted communications campaign (Quit Today) utilizing strategically placed radio and television advertisements in combination with community outreach lead to more Africa-American smokers calling the CIS for smoking cessation information and materials?	<p>Six radio adverts encouraging African American smokers to call the CIS were produced for 3 different radio programming formats-2 each for black contemporary, gospel and jazz. One TV spot conveying a similar message to that of the radio ads was also produced.</p> <p>There was also an outreach component with a videotape and associated printed materials distributed to African American community based organisations with a request to schedule video viewings and distribute flyers throughout their organization. The outreach coordinator was to distribute 1 video per 1000 African American residents</p> <p>Focus groups explored barriers to and facilitators for calling the CIS as content for advertisements.</p> <p>Experimental areas received 10 weeks of advertising over 2 waves</p>	<p>2264 radio ads and 208 television spots were aired over a 10 week period. Advertising was sufficient to reach 57% of African American adults in the target community, with the target audience hearing or seeing an ad an average of 7.7 times.</p> <p>A total of 709 calls were received by the four participating CIS offices from smokers seeking smoking cessation information living in either the experimental or control communities, of which 565 were from African Americans. Calls from African Americans in the experimental communities were approximately 80 times higher than in control communities (p<0.008).</p> <p>Smoking related calls to CIS offices increased from an average of 1.9 per week before the intervention to an average of 86 calls per week during wave 1 and 40 calls per week during wave 2. Call levels remained significantly increased for 8 weeks following wave 1 and 4 weeks following wave 2.</p> <p>Radio was cited by most people as the way they heard about Quit Today (51.39%), followed by television (41.63%)</p> <p>Campaign was successful at substantially increasing the smoking related calls from African-American smokers</p>	<p>This study was conducted in several states in the USA and so the results may not be directly applicable to the UK population.</p> <p><u>Applicability to our study</u></p> <p>This study is applicable to our study as it covers disadvantage and identifying and attracting smokers but does not focus upon retaining smokers in cessation programs.</p>	<p>Lack of detail on randomization procedures</p> <p>Call centres were open during normal office hours, those who had lower SES may have had restricted access to telephones during work hours, or may not have had a telephone in their homes.</p> <p>The radio ad, TV ad and video may have had independent effects upon the call rate, instead of working as a combined tool</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Carr & Ebbert, 2007 Systematic review -	Studies of the effectiveness of interventions for tobacco cessation in the dental setting Subjects were any age, reporting tobacco use and receiving oral health interventions from dental professionals.	To provide a critical and comprehensive review of evidence relating to dental office or community based activities for tobacco cessation in cigarette smokers and smokeless tobacco users	6 studies (3 conducted in dental office settings, 3 involving oral health professionals providing interventions to athletes within high school or college community settings.) All interventions involved behavioural support (a variety of forms) and an oral examination from trained oral health professionals. Only one study included NRT. Outcome measure was smoking and tobacco use cessation.	For smoking cessation, 6 RCTs were identified and reviewed. Five studies targeted smokeless tobacco users, one study targeted cigarette smokers A statistically significant increase in the odds of tobacco abstinence at 12 months was found when the six trials were pooled (OR 1.44, 95% CI 1.16-1.78) Findings demonstrate a 3% difference in cessation rates between groups receiving behavioural intervention and those who don't Interventions for smokeless tobacco users may increase the odds of quitting tobacco but insufficient evidence exists to make conclusions about the effectiveness of these interventions for cigarette smokers Dental interventions conducted in a dental office and school community setting are more effective than usual care for promoting tobacco use cessation	This review was conducted on 6 studies conducted in the USA, so it may not be directly applicable to the UK population <u>Applicability to our study</u> This study is applicable to our study as it identifies smokers but there is no specified age criteria for studies in school or community settings. Interventions in the dental office restricted to those aged 15+. There is no mention of focus upon disadvantage or retaining smokers in cessation programmes	Four studies did not report randomisation procedures at all or in insufficient detail. Not all studies used biochemical validation Heterogeneity was evident between the studies ($I^2 = 71.4\%$) which could not adequately be explained though subgroup or sensitivity analysis.

Citation	Study Population	Research question	Intervention	Main results	Applicability to UK	Confounders comments
Curry et al, 2003 RCT +	Self identified female smokers accompanying children to paediatric visits in 4 clinics in Seattle, Washington, which serve an ethnically diverse population of low income families. Eligibility: women over 18, had no definite plans to move from Seattle in next 4 months and could provide telephone contact.	1 year follow up of a randomised trial of a smoking cessation intervention for women bringing their children to paediatric clinics that serve low income families	Brief motivational message from child's clinician, a self help guide to quitting smoking, in person motivational interview with clinic nurse, 3 outreach counselling telephone calls from nurse who conducted motivational interview. In person follow up surveys 3-12 months after enrolment visit. Follow up – survey & breath test. Also received payment, 2 bus tickets. Follow up survey same as baseline, but exp group included questions about implementation, utilization and evaluation of intervention.	303 women provided consent, completed the baseline survey and were randomised into the study. 3 month response rate was 80%, 12 month response rate was 81%. Overall, 89% of women completed either survey. 68% of women in the intervention group reported that their child's physician discussed their smoking during the index visit, compared to 31% in the control group, of which 83% and 71% respectively reported the discussions as being somewhat or very encouraging of trying to quit. At 3 months, quit rates were 8% and 3% in the intervention and control group respectively (adjusted OR 2.40, 95% CI 0.85-7.80). At 12 months, quit rates were 14% and 7% respectively (adjusted OR 2.77, 95% CI 1.24-6.60) using an intention to treat analysis. Women were very receptive to the study, they welcomed it and liked the interest in their health and that of their child.	This study was conducted in Seattle, USA, so it may not be directly applicable to the UK population <u>Applicability to our study</u> This study is directly applicable to our study as it covers disadvantage, identifying and attracting smokers and retention in a cessation programme	Self-selected sample. Lack of data on those women who chose not to participate in the study. Cessation outcomes were limited to self-report.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Doescher et al, 2002 Pilot study +	32 Low income smokers in the USA who received health insurance coverage via a Medicaid and basic health plan insurer (CHPW) and were referred to receive free NRT and bi-weekly counseling sessions from a community pharmacist.	To assess the feasibility and acceptability of pharmacy-based cessation + free NRT for low income smokers.	Recruitment involved sending an advertisement of the service to CHPW insurance clients during a 9 month period. Posters were also placed in health centres and a reminder was added to smokers medical records for prompting by clinic staff. Free nicotine patches + gum and a \$15 dispensing fee for 4 trained pharmacists, who provided short counseling sessions. Initial session was up to 30 minutes, followed by sessions of around 15 minutes every 2 weeks for up to 10 weeks.	5% of eligible smokers (32 patients) were referred for NRT and counselling. 26 patients went on to receive NRT and at least one counselling session. Only 3 smokers completed the 10 week course. Smokers were satisfied with the intervention and pharmacists indicated they would continue with it if they continued to be reimbursed and the sessions lasted no more than 5-10 minutes. Study identifies that pharmacist delivered treatment is feasible. However, participation in the study was low despite treatment being free, and there was a high turnover of those who were eligible via their insurance.	This study took place in the USA and may have limited applicability to the UK population, particularly as it focuses on an intervention provided as part of health insurance. <u>Applicability to our study</u> Free NRT and pharmacy treatment is already available in the UK. This article provides further evidence of its potential appropriateness for low income groups but provides no information on cessation outcomes.	Small pilot study with limited recruitment and a significant drop-out rate.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Dornelas et al, 2006 RCT ++	105 low income pregnant women attending a prenatal clinic in Connecticut, USA.	To compare smoking outcomes for low income pregnant women who received either brief advice or a more intensive intervention.	Control group received brief advice from Ob-gyn residents or nurses. Intervention group received an initial counselling session from a trained adviser that lasted up to 90 minutes plus telephone follow-up	<p>The intervention was cost-effective and associated with lower smoking rates at the end of pregnancy.</p> <p>140 smokers recruited but 33 already quit, and 2 had missing data. 105 randomised. No difference in attrition – 100% followed up at end of pregnancy and 82% at 6 months post partum</p> <p>At the end of pregnancy, 28.3% of women in the intervention group and 9.6% in the control group were abstinent (p= .015). At 6 months post-partum, 9.4% of women in the intervention group and 3.8% of those in the control group remained quit (p=.251).</p> <p>Counselling was most effective when delivered early in the pregnancy and to younger (aged under 25) women.</p> <p>Cost of the intervention was \$56 per patient. Cost to produce a non-smoker at the end of pregnancy was \$299.</p>	<p>This study took place in the USA and may have limited applicability to the UK population.</p> <p><u>Applicability to our study</u></p> <p>Intervention specifically targeted low income pregnant smokers so is relevant. The intervention does not, however, differ significantly from the specialist support currently available to pregnant women in some parts of the UK through NHS stop smoking services. The article did not specifically address recruitment.</p>	<p>Recruitment methods not discussed.</p> <p>Not all of the intervention group attended the initial counseling session – 68% did.</p> <p>19 participants were lost to follow-up at 6 months and 5 refused further participation.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Glasgow et al, 2006 Cohort study (2 studies) +	Study 1: 160 smokers scheduled for outpatient surgery Study 2: 531 smokers about to undergo outpatient surgery or procedures. All research participants were members of the Kaiser Permanente HMO.	To evaluate the appeal of a low intensity phone counselling and printed material smoking reduction programme that offered the option of cessation to smokers about to undergo outpatient surgery or other invasive outpatient procedures.	Patients for both studies recruited via HMO lists which include a record of smoking status. Study 1: an 'Options' programme. Self-help materials sent by post in combination with telephone support Study 2: a 'Smoking Less Living More' programme. Also self-help materials plus telephone support. For those choosing cessation, referral to state programmes (behavioural support + NRT) In Study 2, those who smoked less than 10 cigarettes a day were ineligible for the reduction option.	Comprehensive programmes that include a smoking reduction component (rather than just cessation) could substantially increase their reach. In Study 1, 39% of patients chose smoking reduction and 38% cessation. In Study 2, 22% began participating in the smoking reduction programme, 12% chose cessation and 65% declined. No significant demographic differences across the groups although ethnicity in study 2, non-Hispanics were more likely to select smoking reduction and a tend towards less education inclining to greater dropout in study 1 Overall, the authors argue that 'an additional' 22-39% of eligible smokers were willing to participate in the reduction programme.	This study took place in the USA and may have limited applicability to the UK population, although recruiting smokers about to attend an outpatient appointment should also be possible in the UK. <u>Applicability to our study</u> Limited generalisability in identification and recruitment methods as this was done through the HMO. Our review examines cessation as the main outcome rather than reduction. Although the socio-economic status of patients was reported at baseline there is limited discussion of any possible effect on outcomes – despite the fact that a higher proportion of non-participants in both studies had lower education levels.	Study 1 and 2 were conducted two years apart. Each study included different procedures and inclusion criteria. No actual cessation or reduction outcomes reported – study is limited to a discussion of recruitment.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Gordon et al, 2006 Review +	Patients participating in 7 RCTs of smoking cessation interventions in a dental setting.	To review the literature on the effectiveness of tobacco cessation interventions delivered within the context of dental office visits. An additional element (not described here) reviewed studies evaluating the dissemination of cessation training to dental practitioners.	Review limited to clinical trials of dental office-based cessation programmes.	The 7 trials reviewed included a range of interventions from self-help materials and one follow up phone call to the provision of NRT, more intensive support and self-help materials. Follow up in the trials ranged from 15 weeks to 12 months. All showed a positive effect for interventions in the dental setting either on quit attempts or on cessation. One of the trials took place in a public health dental clinic in the USA service low income patients. The difference in self-reported quitting was significant at 6 months for the intervention group. The reviewers conclude that cessation interventions in a dental setting are effective and should be part of routine care, either through the provision of brief or more intensive support and/or advice plus referral to a cessation programme (ie telephone quit line).	This review took place in the USA and all but one of the studies reviewed took place in the USA and may have limited applicability to the UK population. <u>Applicability to our study</u> None of the studies in the review appear to have targeted disadvantaged groups. However, dental interventions include a proactive case finding element which is relevant to this review.	Not a systematic review. Other relevant literature not limited to trials may have been excluded.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Haviland et al, 2004 Descriptive study -	50 health professionals in 6 locations in the USA whose views helped refine the 'Great Start' programme Women smoking during pregnancy in the USA from 2001-2003 who were the target audience for the Great Start intervention, including 6 initial focus groups with pregnant women to help inform the design of the intervention.	To describe an integrated public education and smoking cessation program developed for pregnant women in the USA.	A media campaign to raise awareness and provide information of the quit line A telephone quit line for pregnant smokers Self-help material tailored to smoking in pregnancy.	Six focus groups with health professionals and an additional six with pregnant women were held and assisted in developing the materials for the intervention and ensuring they were appropriate. The media campaign included television adverts, posters, an educational video and a website were developed. The article describes the media campaign launch and viewing figures which were positive. The Great Start quitline received 11,811 calls from its launch in Dec 2001 until Sept 30 th , 2003. Most calls were made when the television ad component of the media campaign was underway. No further outcomes are reported.	This study took place in the USA and may have limited applicability to the UK population. <u>Applicability to our study</u> It is impossible to assess the intervention as the article merely describes its components. All pregnant women were targeted rather than focusing on disadvantaged groups, although the initial focus groups were primarily with younger low income women.	This study describes the programme but no results other than calls to the quit line.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Henrikus et al, 2002 RCT +	2402 employed smokers in 24 different workplaces in the USA between 1995 and 1999.	To examine the effect of programme format and incentives on participation and cessation in workplace smoking cessation programmes.	<p>Workplaces were recruited from local business listings and then approached to determine whether they were interested in taking part. 79% of worksites declined to take part. The remaining (n=24) were a range of private and public sector organisations, so the sample is not limited to manual workers.</p> <p>A 2x3 factorial design in which 4 worksites were randomized to each of the 6 interventions. 2 levels of incentives for participation in smoking cessation programmes (incentives vs no incentives) were crossed with 3 types of programme interventions (group programs, phone counseling programs, and a choice of group programs or phone counseling programs).</p> <p>Group program comprised 13 group sessions held at worksite over a period of 2 months. Phone comprised mailed print materials and 3-6 phone counseling sessions. Choice meant employees were offered a choice of group or phone programme. Programs were promoted 3 times over an approx 18 month period in each worksite, and employees could participate more than once. Incentives were of 2 types: for participation and quitting. Participation incentives consisted of \$10 for joining a cessation programme and \$20 for completing ¾ of the program. Quitting incentives employees notified staff that they intended to quit and then provided a form self-reporting not smoking for 30 days corroborated by family member or friend. Given \$20 and entered into grand prizes, winners had to be abstinent ant time of drawing and validated by saliva cotinine</p>	<p>Incentives increase participation in workplace smoking cessation programmes, although they do not appear to increase cessation rates.</p> <p>16.9% of eligible workers chose to participate. Registration was almost double in sites that used incentives vs. those that didn't (22.4% vs. 11.9%).</p> <p>Incentives did not affect cessation rate (7 day point prevalence abstinence) but this was related to programme type. Phone counselling programme was associated with highest cessation rate and group programme lowest. Cessation rates at 12 month follow up were significantly higher in phone and choice than group and at 2 years, phone was higher than group with choice not significantly different from either of the other conditions.</p>	<p>This study took place in the USA and may have limited applicability to the UK population.</p> <p><u>Applicability to our study</u></p> <p>Some of the workplaces included manual workers, but many did not, so this study does not necessarily contribute to understanding about how to reach and support manual groups.</p>	<p>Limited information provided on how randomization decisions were made.</p> <p>78 of 128 worksites contacted met study eligibility requirements but only 24 agreed to participate.</p> <p>Quit rates were validated by testing saliva sample for cotinine, but validation rates were low.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
<p>Lazev et al, 2004</p> <p>Face to face interviews + observational study</p> <p>+</p>	<p>Smokers attending a health care clinic for HIV positive residents in Harris County, Texas.</p> <p>49 smokers took part in the first part of the study and 20 in the second part.</p>	<p>To 1) explore barriers to participating in smoking cessation programmes amongst low income, HIV positive smokers and to 2) pilot a cessation intervention using mobile phone support with the same population.</p>	<p>For part 1), participants were recruited while waiting for a range of services at the clinic. They took part in a short structured interview to explore their views on smoking cessation.</p> <p>For part 2) participants were recruited over 6 days when attending a regular appointment at the clinic. Self-reported smoking status was CO validated. Participants were asked to set a quit date within the next week, carry a mobile phone and participate in six telephone counseling sessions within 2 weeks.</p>	<p>In study 1, a range of barriers to participating in a smoking cessation programme were identified, including lack of access to a working telephone, a high number of household moves, and lack of transportation. Participants were more interested in receiving telephone support via a free mobile phone than other forms of intervention (ie a home visit).</p> <p>In study 2, 64.5% (n=20) of eligible patients took part. 19 of the 20 patients completed the 2 week programme with a 93% (106 of 114 calls) contact rate. All 19 made a quit attempt and at 2 weeks the point prevalence quit rate was 75%.</p>	<p>This study took place in the USA and may have limited applicability to the UK population.</p> <p><u>Applicability to our study</u></p> <p>This study is directly applicable to the review.</p>	<p>The study was limited to very short term outcomes (2 weeks) and relapse after this point is likely to be high.</p> <p>There were also a number of exclusion criteria in study 2 that restricted who could participate.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
McDaniel et al, 2005 Cohort study -	A non-probability sample of 110 smokers recruited from 228 eligible women approached in a neighbourhood community health centre. The final sample consisted of 100 women aged 18-71. 68% were Caucasian, 35% of women did not complete high school, education level was typical of inner-city population	To design and test a computer-mediated smoking cessation programme for inner-city women aimed at motivating readiness to quit.	A computer based programme designed to deliver tailored smoking cessation messages navigated by a touch screen monitor. All screen text was simultaneously presented in audio format to increase comprehension in lower literacy participants. The program adapted to data entered by user and guided them through first 3 steps in stages of change model. The user received messages about health effects of smoking & strategies for quitting, addressing their individual motives and concerns. Programme was reviewed by experts throughout development – feedback was incorporated into final design. Women were observed using the program, women then completed a usability survey Key issues addressed were: lack of social support, low self-efficacy for quitting, stressors associated with expectations of women and concerns about weight gain.	First 15 women found content inappropriate however modified for final 85. Average time required to complete the programme was 13.9 minutes (range 7.2-88.8 minutes) and all subjects completed the programme. Patient satisfaction with the usability of the programme was high, with minority participants significantly more satisfied than Caucasians and significantly higher in women with at least a high school education. Stage of change was significantly related to usability scores with women in the precontemplation stage being least satisfied with using the programme After using the programme, participants reported a significant decrease in favourable attitudes toward smoking, regardless of stage of change. No significant difference in negative perceptions of smoking were found. Overall, 15% of participants progressed at least one stage of change after completing the programme (p<0.001). Information technology has potential for delivering brief smoking cessation intervention for low income women in primary care.	This study was conducted in the USA and so the results may not be directly applicable to the UK population. <u>Applicability to our study</u> This study is applicable to our study as it covers disadvantage and identifying and attracting smokers but does not focus upon retaining smokers in cessation programmes	No control group Small and self-selected sample so limited generalisability Very short duration of follow up (1 week) Potentially biased sample resulting from the relatively high refusal rate (52%)

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Milch et al, 2004 Cluster Controlled Trial (not randomized) +	644 smokers attending a primary care practice based in an urban teaching hospital in the USA.	To assess the effectiveness of two brief interventions on screening for smoking, physician service advice and patient smoking cessation outcomes.	Prospective, group allocation controlled trial examining two interventions to identify smoking status. Smokers were identified by filling out a short questionnaire when arriving at the practice. Both existing and new patients were included. The 'minimal' intervention was the vital sign stamp developed by Fiore. The 'enhanced' was a smoking assessment questionnaire consisting of 6 questions. Patients followed up by telephone between 9-12 months after their first visit to the practice to determine smoking status and cessation attempts.	Smoking status was documented in 86%, 91% and 49% ($p < 0.001$) of the minimal, enhanced and control teams respectively. Cessation advice was provided in 38%, 47% and 30% ($p < 0.014$) of cases. Self-reported cessation was higher for the enhanced team (12%) compared with the minimal (2%) and control (4%) teams ($p < 0.001$). The authors conclude that a short questionnaire that assesses readiness to quit and documents whether cessation advice was given can improve rates of advice giving and of smoking cessation.	This study took place in primary care in the US so may have limited applicability to the UK population. <u>Applicability to our study</u> The socio-economic status of the patients was not identified or discussed.	Patients excluded if they did not self-report smoking. No assessment of whether patients were prescribed pharmacotherapy or whether prescribing patterns changed during the study period. Just over half of smokers were successfully contacted at follow-up. Those lost to follow-up may have been more likely to remain smokers.

Citation	Study Population	Research question	Intervention	Main results	Applicability to UK	Confounders comments
<p>Okuyemi et al, 2007</p> <p>Double blind, placebo controlled RCT</p> <p>++</p>	<p>The study was conducted in an urban community-based clinic serving predominantly low-income African-American patients between July 2003 and June 2004.</p> <p>Eligibility: 18+ African-Americans who smoked 1-10 cigarettes per day for longer than 6 months, had smoked on at least 25 of the previous 30 days, be interested in quitting within 14 days post screening. Must have a home address and functional phone number and no contraindications. Only 1 smoker per household was eligible.</p> <p>2*2 factorial design</p> <p>1933 individuals were screened, 1012 (52%) were considered eligible, of which 755 (75%) were enrolled</p>	<p>The study evaluates the effectiveness of Kick it at Swope II (KIS-II), a smoking cessation clinical trial testing the efficacy of nicotine gum and counselling among African-American light smokers</p>	<p>Participants were recruited through clinic and community based efforts designed to attract African-American light smokers</p> <p>Four treatment groups, all 8 week duration: T1: placebo gum + 6 health education (HE) sessions. T2: placebo gum + 6 motivational interviews (MI). T3: nicotine gum + 6 HE sessions. T4: nicotine gum + 6 MI session.</p> <p>All participants also received a culturally-sensitive smoking cessation guide.</p> <p>All were assessed at baseline, demographic info, metric physical measurements, co monitored, smoking history assessed, motivation and confidence assessed nicotine dependence, alcohol use, depressive symptoms and stress levels taken.</p>	<p>When given the opportunity African American light smokers will enrol in interventions to help them quit smoking.</p> <p>Radio ads, word of mouth, clinic referral and television advertisements accounted for more than 80% of participants enrolled.</p> <p>Most participants were women, single/separated/divorced, had an annual family income of less than \$21,600 and had at least a high school education</p> <p>Participants smoked on average 7.6 cigarettes per day (SD=3.21), had a mean exhaled CO reading of 13.9ppm (SD 8.9) and a mean serum cotinine level of 244.2 ng/ml (SD=154.4)</p> <p>Although the health centre served predominantly low SES patients, 84% of sample had a high school education – thus light smokers on average have more education than heavier smokers</p>	<p>This study was conducted in Kansas City, USA and so the results may not be directly applicable to the UK population</p> <p><u>Applicability to our study</u></p> <p>This study is directly applicable to our study, focusing upon disadvantage and access to cessation services</p>	<p>No cessation outcome data</p> <p>Potentially more disadvantaged groups were excluded, as patients without a home address and functional phone number were considered ineligible.</p>

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Perry et al (2005) Descriptive study -	Smokers in Wisconsin, USA, accessing the Wisconsin Tobacco Quit Line between 2003-2004 who were referred via 'Fax to Quit'	To examine the extent to which a fax referral system to the state telephone quit line has been adopted by health care providers in the state.	The 'Fax to Quit' programme developed by the University of Wisconsin Centre for Tobacco Research and Intervention. A referral by fax for a smoker presenting to any health care professional (who expresses interests an interest in quitting) to the quit line. Contact is then made proactively by the quit line, who phone the smoker within 48 hours. Since its development, it has expanded to include workplaces, community settings, dentists etc.	Since its start in 2003, more than 470 sites have joined Fax to Quit. Starting in 2004, approx. 30% of 12,000 calls received each year by the quit line came via Fax to Quit. In the past calls were often triggered by paid media campaigns. The authors argue that the fax intervention is more cost-effective and sustainable. The program was embraced by health care professionals. Fax to quit should be viewed as part of a comprehensive, multi-component tobacco cessation program.	This study was carried out in the US and may have limited applicability to the UK. <u>Applicability to our study</u> Other forms of referral are already used between UK health professionals and NHS stop smoking services as well as, in some instances, the telephone quit line run by Quit in the UK. Did not examine the socio-economic characteristics of participants.	Description of an intervention, not an evaluation or other form of study. No information on cessation outcomes.

Citation	Study Population	Research question	Intervention	Main results	Applicability to UK	Confounders comments
Prochaska et al 2001 RCT +	A random digit-dialling procedure was used to identify a representative sample of smokers in 3 distinct geographic areas in Rhode Island, 12109 participated in a brief phone survey, 4296 smokers. Smokers were then asked to participate in study, 4144 agreed (80% of smokers)	Is a population based recruitment approach combined with a stage-based expert system for smoking cessation effective	Subjects were randomly assigned to an Expert System (ES) intervention or an Assessment Only (AS) condition. Those in ES were mailed intervention materials, including the baseline feedback report and stage matched self-help manuals ES involved a series of 3 computer reports at the start of treatment and at 3 and 6 months split into 4 sections: (a)description of person's stage of change, (b)feedback on use of up to 6 change processes, (c)a description of tempting situations to smoke and (d)strategies for taking small steps to progress to the next stage A progress questionnaire was sent to intervention groups at 3 and 6 months. Both groups were assessed at 12, 18 and 24 months	Via proactive recruitment, 80% of eligible smokers were recruited into the trial. 25% abstinence was seen at 24 months follow up. There was significant differences between intervention and control point prevalence at every follow up. A stage effect was seen – where those who started further along in the stages of change model moved further through the model in both groups than those initially at an earlier stage. Intervention effects continued to be seen at follow up although the intervention had already ended. Control group of assessment only had a 20% quit rate.	This study was conducted in Rhode Island, USA, so it may not be directly applicable to the UK population <u>Applicability to our study</u> This study is applicable to our study as it focuses upon smokers access to and retainment within cessation services	Outcomes limited to self-report

Citation	Study Population	Research question	Intervention	Main results	Applicability to UK	Confounders comments
Schorling et al, 1997 Ecological (population) study +	2 demographically similar communities, in different health districts in Virginia USA 648 smokers from 535 households were personally interviewed from a total of 865 smokers identified Buckingham County – intervention community, 39% African American, Louisa County – control community, 26% African American 3744 completed baseline survey, 648 smokers interviewed at baseline.	To describe the philosophy & initial organizational efforts used to develop the smoking control project, the development and implementation of the interventions, the results of the baseline survey and the initial results after the programs have been in place for 18 months.	The Alliance of Black Churches Health Project received funding to develop and evaluate a smoking cessation program in rural African Americans. In-person household baseline survey, follow up 18 months after intervention Up to 2 smoking cessation counsellors were trained from participating churches. Training included specific recruitment and counselling skills and guidelines for dealing with smokers at different stages of change. Smoking cessation devotional booklets were distributed through the churches. County wide Gospel Quit nights were held every 6 months. A County wide smoking cessation contest is held annually.	452 smokers were re-interviewed 18 months after the intervention began. Smoking cessation rates in the intervention community was 9.6% compared to 6.2% in the control community. Among those who attended church once a month or more, rates were 1.5% and 5.8% respectively and 8.8% and 6.4% respectively for those who attended less frequently (using data only from those who were successfully contacted at follow up) Using an intention to treat basis, quit rates were 6.7% in the intervention community and 4.3% in the control community.	This study was conducted in Virginia, USA, so it may not be directly applicable to the UK population <u>Applicability to our study</u> This study utilises counselling by non-health professionals to target an ethnic minority group in the community for smoking cessation and is directly applicable to our study	Cessation outcomes limited to self-report Data was analysed as though the individual was the unit of allocation, when in fact allocation was done at the county level

Citation	Study Population	Research question	Intervention	Main results	Applicability to UK	Confounders comments
Solomon et al, 2000 RCT -	Women from large obstetric practice in Vermont – 1996/7 151 pregnant smokers – at least 1 cigarette in past week at 1 st prenatal visit Mostly white, English speaking, lower income & education	To test the impact of proactive telephone peer support in addition to physician/midwife advice to help pregnant women quit smoking	The control group were given brief smoking cessation advice – covering concerns about smoking, feelings about quitting and encouragement to set a quit date The intervention group received the same as controls plus the offer of telephone peer support for women with moderately / high intentions to quit during pregnancy. They were called within a few days by an ex smoking woman, who provided encouragement, guidance and positive reinforcement. Calls continued weekly, until asked to stop. Smoking status was assessed at 1 st , 2 nd , 3 rd , 4 th and end of pregnancy prenatal visits. Self reported abstinence was no smoking in past 7 days – cotinine level taken via urine at end of pregnancy to confirm smoking status	18.2% of smokers in the intervention group and 14.9% of smokers in the control group were verified by urine cotinine analysis as having quit smoking at the end of pregnancy, a non-significant difference. 32% of those contacted by telephone reported that were abstinent at their last telephone contact, and 43% reported making a quit attempt during the support period. Of 19 women who received peer support and participated in a follow up interview, 89% said the telephone contact was useful in helping them change their smoking Women lost to follow up had significantly lower mean education level (p = 0.03)	This study was conducted in Vermont, USA, so it may not be directly applicable to the UK population <u>Applicability to our study</u> It attempted to access low income and low educated women, however many of these women were lost in follow up. The study did assess finding, retaining and providing to the target population.	Intervention offered only to those had moderate / high intention to stop Women lost to follow up had significantly lower mean education level – most disadvantaged therefore not accessed The number of women enrolled was approximately half that required based on power calculations. Additionally, a relatively low proportion of those in the intervention group were referred for peer support (57%), therefore the findings are inconclusive.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Tillgren et al, 2000 Observational study +	Women with at least one child aged 0-6 years living in the South-West Medical Care District in Stockholm County, Sweden between fall 1995 and Spring 1996. There were approximately 4,300 daily smoking women in the target group. Must have smoked daily for at least one year, and a personal motive for quitting had to be submitted in writing. Authors comment that socio-economically underprivileged individuals are apparently overrepresented in this district.	What is the impact of direct mail as a method to recruit smoking mothers into a "Quit and Win" contest?	3 recruitment strategies selected for the Q&W contest. 1) Main direct-mail technique using personally addressed letters. 2) Information about the contest was published in the medical care district's own local newspaper. 3) Key informants and personal communication using a brochure including a contest entry form were placed at a number of strategic locations, including medical care centres, preschools and pharmacies. Printed material was in Swedish, but also available in Spanish, Turkish and Arabic. A brief motivational letter was sent out on 5 occasions to encourage women to remain smoke-free. 1 st invited to a get together 6 weeks after quitting. Additional support on 2 other occasions when given opportunity to contact a hotline employing trained cessation counselors. People had to certify in writing that the contestant had not smoked during the 7 month period stipulated by the contest. Winners were required to undergo CO testing.	238 women qualified to participate (5.5% of those eligible in the district). 78% participants recruited through direct mail, 8% through local newspapers and 14 through personal communication. 96% participated in a questionnaire mailed after 1 month. 2 nd questionnaire mailed after 12 months, response rate 75%. At 12 month follow up, 14.3% (n=34) were still smoke free. Among women recruited by direct mail (n=28) 15.1% were smoke-free compared with 11.5% of those recruited through the other 2 strategies (n=6). Recruitment proportions were similar to those in other published Q&W contests, and in other direct-mail campaigns.	This study was conducted in Stockholm County, Sweden and so the results may not be directly applicable to the UK population <u>Applicability to our study</u> This study focuses on recruitment into and retention in a smoking cessation programme. It does not specifically mention SES but does state the district sampled had an overrepresentation of socio-economically underprivileged individuals. Direct mail is a useful way of targeting smoking mothers for a Q&W contest.	No discussion of demographics of those who participated and those who didn't of all those women eligible. Very small numbers were abstinent. Unclear whether all those claiming to be smoke-free were CO validated.

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Turner et al, 2001 Controlled before and after study -	Female smokers in Chicago metropolitan area in autumn 1993. Only those with a high school education or less were eligible.	What are the effectiveness of a reading manual and a series of televised programmes in increasing women's readiness for smoking cessation?	3 stages to intervention: a motivational component, a registration component and the cessation intervention. 1) Motivational component- a series of 3 televised commercial advertisements that each ran for 2 weeks, designed to interest women in the idea of quitting, emphasized the benefits of quitting and promoted women's confidence in their ability to quit. 2) Registration component beginning 1week after motivational component (but overlapping with it) - promotional spots aired on local TV, inviting women to call a toll-free no. to receive free information about how to quit smoking. Eligible women were sent a booklet/manual designed to help women progress through stages of change. A random sample of eligible women were called and asked to complete a brief baseline telephone survey. 3) Cessation intervention – a series of 10 televised segments on local television early evening and early morning and featured 4 women who had quit during the registration period. Segments were designed to be used in conjunction with the booklet. Great American Smokeout occurred on day 6 of series and was designated as quit date for those ready to quit (intervention was however based around stages of change).	24,926 women called in, 21% were eligible (high school education or less). A random sample of 1,796 known eligible women were called, and interviews completed with 1,577 (88% RR). A control sample was recruited from a baseline survey during a 3month period ending 1week prior to the beginning of the intervention. 1,043 sample. Some differences between those registered and control. Immediate follow up surveys were conducted with 1287 women (81.6% response rate) compared with 69% of baseline sample (n=722). 1026 registrants reported receiving the manual, of which 49.1% indicated that it encouraged to think about quitting 'very much' and 30.3% reporting that it encouraged them 'somewhat'. 64.5% reported that the manual led to a quit attempt, although only 10.5% said the manual helped them to actually quit. 58% of registrants reported having seen none of the television segments. 43.5% and 33% of those who reported seeing any part of the television programme (n=537) respectively indicated that it encouraged them 'very much' or 'somewhat' to think about quitting. 68.4% indicated that it led to a quit attempt and 10% reported it helped them actually quit. Multiple regression analysis – authors indicated that this indicated that manual and TV exposure contributed to prediction of stage of change immediately after the intervention.	This study was conducted in Chicago metropolitan area, US and so the results may not be directly applicable to the UK population. <u>Applicability to our study</u> Focus is on women with a high school education or less but the methodology and analyses mean that little can be learned from this report for our study	Self-selected intervention population. Intervention panel were people who had called a number and were highly motivated. Follow up samples based on those who participated in first follow up survey only. Large attrition rates, particularly amongst those women who were younger, unmarried and with lower incomes. Cessation self-reported but most focus on stages of change. V complex methodology and analyses

Citation	Study population	Research question	Intervention	Main results	Applicability to UK	Confounders Comments
Vidrine et al, 2006 RCT +	<p>Study participants were identified and recruited (when attending previously scheduled appointments) at a large inner city HIV/AIDS care center serving an ethnically diverse population of economically disadvantaged HIV positive patients in Texas US.</p> <p>Eligibility included HIV+, 18 yrs or over, current smoker of > 5 cigarettes per day, expired air CO of > 7ppm and willing to set a quit data within next 7 days.</p> <p>Excluded if in another cessation programme or significant cognitive/psychiatric impairment.</p> <p>684 consecutive HIV+ patients screened, 206 self-reported eligible HIV- positive patients, of which 137 consented and 95 enrolled in the study (48 intervention, 47 usual care) in the summer and fall of 2004.</p>	<p>What is the efficacy of an innovative smoking cessation intervention using a cellular phone with a multiethnic disadvantaged HIV positive population?</p>	<p>After baseline assessment (structured interview) patients were given recommended standard of care (RSOC) treatment. Then randomized to RSOC or cell phone intervention (CPI) using adaptive randomization to ensure balance in distribution of prognostic factors.</p> <p>For RSOC, physician advice to quit smoking, assistance in setting quit date within 7 days and 10 week supply of nicotine patch offered. Personalised quit smoking plan, self-help leaflet and a tip sheet tailored to HIV + smokers also given. (RSOC received nothing more until 3 months follow up).</p> <p>The CPI group received RSOC plus a prepaid phone, a proactive counseling call schedule and a phone number to access a hotline. This group received 8 proactive phone counseling sessions over a 2 month period. Calls were scheduled to occur around quit date with one call 2 months following quit date. Tailored CBT and social support involved in calls.</p>	<p>3 month follow up – 79% for CPI and 83% for RSOC (non significant).</p> <p>81% of the CPI group completed 6 or more the 8 scheduled counseling sessions.</p> <p>Using an intent to treat analysis, point prevalence abstinence (not smoking during 24 hour prior to assessment) at 3 months was 29,2% in the CPI group compared to 8.5% in the RSOC group (p=0.040).</p> <p>Sustained abstinence (not smoking during the 7 days prior to assessment) at 3 months was 16.7% in the CPI group compared to 6.4% in the RSOC group (p=0.283).</p>	<p>This study was conducted in Texas, US and so the results may not be directly applicable to the UK population</p> <p><u>Applicability to our study</u></p> <p>This study is directly applicable to our study. Providing cell phones allowed the investigators to overcome many barriers to accessing services. Although not directly discussed, the authors point out that the clinic served an ethnically/racially diverse population of economically disadvantaged individuals.</p>	<p>Participants had to be ready to set a quit date within 7 days.</p> <p>Only about a seventh of those patients screened, subsequently enrolled.</p> <p>Relatively small sample therefore randomized limiting power.</p> <p>Cessation outcomes were short term (3 month follow up, max 7 days abstinence). Self-report only.</p>

7. APPENDIX A – Excluded studies

<i>Excluded UK Papers</i>	<i>Reason for exclusion</i>
APHO. Indicators of health in the English regions: ethnicity and health, APHO, 2006.	Report of routine data -no relevant outcomes
T. Coleman, M. Antoniak, J. Britton, J. Thornton, S. Lewis, K. Watts. Recruiting pregnant smokers for a placebo-randomised controlled trial of nicotine replacement therapy. <i>BMC Health Services Research</i> 4 (1) p. 29, 2004.	Recruitment to a trial only -- not directly relevant to the review
Engaging Communities Learning Network, <i>Stories that can change your life: communities challenging health inequalities</i> , ECLN, 2005.	No relevant outcomes
A. Crosier. <i>A rapid mapping study of smoking projects and services targeted at people living on low income and/or minority ethnic groups</i> . London: HDA, 2001.	No relevant outcomes
A. Crosier. <i>Homelessness, smoking and health</i> . London: HDA, 2004.	No relevant outcomes
R. Croucher, S. Islam, M. J. Jarvis, M. Garrett, R. Rahman, S. Shajahan, and G. Howells. Oral tobacco cessation with UK resident Bangladeshi women: a community pilot investigation. <i>Health Education Research</i> . 18 (2) pp. 216-223, 2003.	Not directly relevant to the review
L. Grant. <i>Starting fresh: community pharmacists and smoking</i> . Greater Glasgow NHS Board, 2006.	Internal evaluation report, external evaluation available and included.
D. McVey. <i>Can anti-smoking television advertising affect of smoking behaviour?</i> Controlled trial of the Health Education Authority for England's anti-smoking TV campaign.	Not directly relevant to the review
S. Oliver, L. Oakley, J. Lumley, and E. Waters. Smoking cessation programmes in pregnancy: systematically addressing development, implementation, women's concerns and effectiveness. <i>Health Education Journal</i> 60 (4) pp. 362-370, 2001.	Qualitative study, no focus on disadvantage
D. Ritchie. 'Breathing space' -- reflecting upon the realities of community partnerships and workers' beliefs about promoting health. <i>Health Education Journal</i> 60 (1) pp. 73-92, 2001.	Not directly relevant to the review
D. Ritchie, O. Parry, W. Gnich, and S. Platt. Issues of Participation, Ownership and Empowerment in a Community Development Programme: Tackling Smoking in a Low-Income Area in Scotland. <i>Health Promotion International</i> 1 pp. 51-59, 2004.	No relevant outcomes

<i>Excluded International Papers</i>	<i>Reason for exclusion</i>
D. Anderson, K. Mizzari, V. Kain and J. Webster. The effects of a multimodal intervention trial to promote lifestyle factors associated with the prevention of cardiovascular disease in menopausal and postmenopausal Australian women. <i>Health Care for Women International</i> 27 (3) pp. 238-253, 2006.	No detail of smoking disadvantage
J. A. Andrews, H. H. Severson, E. Lichtenstein, J. S. Gordon, and M. F. Barckley. Evaluations of a dental office tobacco cessation program: Effects on smokeless tobacco use. <i>Annals of Behavioral Medicine</i> 21 (1) pp. 48-53, 1999.	Single article, already included in a reviewed systematic review
J. O. Andrews. <i>Sister to sister: a community partnered tobacco cessation intervention in low income housing developments. (University of South Carolina) ** p. 249. 2004.</i>	Magazine article – not available through inter library loan
J. A. Barbero Gonzalez, A. M. Quintas Rodriguez and J. E. Camacho, [Smoking cessation from the community pharmacy]. [Spanish]. <i>Atencion Primaria</i> 26 (10) pp. 693-696, 2000.	Not directly relevant
C. C. DiClemente, P. Dolan-Mullen and R. A. Windsor. The process of pregnancy smoking cessation: implications for interventions. <i>Tobacco Control</i> 9 Suppl 3 pp. III16-III21, 2000.	Not an intervention
G. Hastings and N. McLean. Social Marketing, smoking cessation and inequalities. <i>Addiction</i> 1 (3), 2006	Not an intervention

T. Kadowaki, M. Watanabe, A. Okayama, K. Hishida, and H. Ueshima. Effectiveness of smoking-cessation intervention in all of the smokers at a worksite in Japan. <i>Industrial Health</i> 38 (4) pp. 396-403, 2000.	Not directly relevant to the review – workplace intervention but not focused on manual workers
T. Lang, V. Nicaud et al Smoking cessation at the workplace. Results of a randomised controlled intervention study. <i>Journal of Epidemiology and Community Health</i> , 54, pp. 349-354, 2000.	Not directly relevant to the review –workplace intervention but not focused on manual workers.
E. Lichtenstein, R. E. Glasgow, H. A. Lando, D. J. Ossip-Klein, and S. M. Boles. Telephone counselling for smoking cessation: rationales and meta-analytic review of evidence. <i>Health Education Research</i> 11 (2) pp. 243-257, 1996.	Not directly relevant to the review
J. B. McClure, S. M. Greene, C. Wiese, K. E. Johnson, G. Alexander, and V. Strecher. Interest in an online smoking cessation program and effective recruitment strategies: Results from Project Quit. <i>Journal of Medical Internet Research</i> . 8 (3), 2006.	No relevance for disadvantaged groups
P. W. McDonald and P. W. McDonald. Population-based recruitment for quit-smoking programs: an analytic review of communication variables. [Review] [86 refs]. <i>Preventive Medicine</i> 28 (6) pp. 545-557, 1999.	Not an intervention, not target population
A. McEwen, R. West, S. Mitchell and M Ussher. Problems identifying pregnant smokers. <i>British Journal of Midwifery</i> 11 (11), 2003	Not an intervention
A. N. Nafziger, T. A. Erb, P. L. Jenkins, C. Lewis, and T. A. Pearson. The Otsego-Schoharie healthy heart program: prevention of cardiovascular disease in the rural US. <i>Scandinavian Journal of Public Health Suppl</i> 56 pp. 21-32. (39 ref), 2001.	No specific smoking related outcomes
K. I. Pollak, C. A. Oncken, I. M. Lipkus, B. L. Peterson, G. K. Swamy, P. K. Pletsch, P. Lyna, R. J. Namenek Brouwer, L. J. Fish and E. R. Myers. Challenges and solutions for recruiting pregnant smokers into a nicotine replacement therapy trial. <i>Nicotine & Tobacco Research</i> 8 (4) pp. 547-554, 2006.	Not an intervention, no relevant outcomes
R. D. Reid, A. L. Pipe and B. Quinlan. Promoting smoking cessation during hospitalization for coronary artery disease. <i>Canadian Journal of Cardiology</i> 22 (9) pp. 775-780, 2006.	Not directly relevant
M. D. Robinson, S. L. Laurent, and J. M. Little. Including smoking status as a new vital sign: It works. <i>Journal of Family Practice</i> 40 (6) pp. 556-563, 1995.	System described not applicable to UK
L. Ruggiero, K. Webster, J. F. Peipert and C. Wood. Identification and recruitment of low-income pregnant smokers: who are we missing? <i>Addictive Behaviors</i> 28 (8) pp. 1497-1505, 2003.	No relevant outcomes
L. F. Stead, R. Perera and T. Lancaster. Telephone counselling for smoking cessation. <i>The Cochrane Library</i> 2006;CD002850.	Much of the review not relevant to the study, no mention of SES data
V. J. Strecher. Computer-tailored smoking cessation materials: A review and discussion. <i>Patient Education and Counseling</i> 36 pp. 107-117.1999.	Not an intervention
J. L. Thomas, S. Hall, N. L. Nollen, K. P. Richter, S. K. Jeffries, A. R. Caldwell, J. S. Ahluwalia and K. S. Okuyemi. Smoking cessation in homeless populations: a pilot clinical trial. <i>Nicotine & tobacco research: official journal of the Society for Research on Nicotine and Tobacco</i> 8 (5) pp. 689-699, 2006.	Not relevant to our study population

10. APPENDIX B – Search Strategy

A search of the following databases was undertaken:

- Medline
- EMBASE
- HMIC
- the British Nursing Index
- PsycInfo
- CINAHL
- HEED

The full Cochrane Database of Systematic Reviews (CDSR), Database of Abstracts of Reviews of Effectiveness (DARE) and the Cochrane Central Register of Controlled Trials were also searched.

The Medline search strategy is included in full below. This was modified for the remaining databases listed above.

Database: Ovid **MEDLINE** Search Strategy:

- 1 SMOKING/ (81885)
- 2 SMOKING CESSATION/ (10442)
- 3 TOBACCO/ (15915)
- 4 "TOBACCO USE DISORDER"/ (4039)
- 5 "TOBACCO USE CESSATION"/ (306)
- 6 (smoker\$ or smoking).ti,ab. (95982)
- 7 or/1-5 (101283)
- 8 (nhs service\$ or treatment service\$).ti,ab. (1346)
- 9 (equity adj3 access).ti,ab. (333)
- 10 (equity adj3 audit).ti,ab. (8)
- 11 health impact assessment.ti,ab. (151)
- 12 (case adj3 find\$).ti,ab. (7219)
- 13 health action zone\$.ti,ab. (37)
- 14 ((service\$ or programme\$ or program\$ or healthcare or treatment\$) adj3 evaluation).ti,ab. (17673)
- 15 (barrier\$ adj5 (delivery or service\$ or uptake or access or healthcare or treatment)).ti,ab. (3898)
- 16 (outcome\$ adj3 evaluat\$).ti,ab. (11748)
- 17 (cessation adj3 outcome\$).ti,ab. (222)
- 18 ((unequal or equal) adj3 access).ti,ab. (601)
- 19 (risk adj3 profile).ti,ab. (3582)
- 20 (risk factor adj3 detect\$).ti,ab. (92)
- 21 (access\$ adj (service\$ or programme\$ or program\$ or care or treatment)).ti,ab. (791)
- 22 ((service\$ or programme\$ or program\$ or treatment\$) adj3 (uptake or provision or evaluation)).ti,ab. (22567)
- 23 ((retention or retaining) adj3 (people or patient\$ or person\$ or adult\$ or smoker\$)).ti,ab. (1876)
- 24 (market\$ adj3 (service\$ or programme\$ or program\$ or treatment\$)).ti,ab. (1560)
- 25 social marketing.ti,ab. (477)
- 26 ((retention or retaining or complying or compliance) adj3 (service\$ or programme\$ or program\$ or treatment\$)).ti,ab. (5317)

27 ((improv\$ or promot\$ or increas\$ or enhanc\$ or support\$ or encourag\$) adj3 (recruitment or retention or compliance or access)).ti,ab. (22354)

28 ((improv\$ or promot\$ or increas\$ or enhanc\$ or support\$ or encourag\$) adj3 (delivery or uptake) adj3 (care or service\$ or programme\$ or program\$ or treatment\$)).ti,ab. (1517)

29 (outreach adj3 (care or healthcare or service\$ or programme\$ or program\$ or treatment\$)).ti,ab. (1490)

30 (service adj3 (access\$ or utilisation or availability or utilization or usage or provision or providing or uptake)).ti,ab. (5353)

31 ((reach\$ or target\$ or identify\$ or find\$ or support\$ or attract\$ or recruit\$) adj5 smok\$).ti,ab. (4579)

32 (disadvant\$ or low income or deprived or deprivation or minority group\$ or vulnerable or pregnant or black or homeless or lone parent\$ or ethnic minorit\$ or underserved or benefit\$ recipient\$ or social welfare or itinerant\$ or traveller\$ or gyps\$ or learning disability\$ or mental health or mental disorder\$ or mental illness or institutionalized).ti,ab. (287454)

33 (inequality or inequalities or variation\$ or inequity or equitable).ti,ab. (266699)

34 (poor or poorer or poorest).ti,ab. (201574)

35 ((low or lowest or lower) adj3 (socioeconomic or education or social class\$)).ti,ab. (7952)

36 (debt\$ or arrear\$ or financial hardship\$ or low pay\$ or low paid or poverty).ti,ab. (8740)

37 (damp housing\$ or poor housing\$ or crowding\$ or standard of living\$).ti,ab. (3807)

38 (lone parent\$ or divorce or marital separation or single parent\$).ti,ab. (3308)

39 (social adversity or social disparit\$).ti,ab. (159)

40 Health Services Accessibility/ (27826)

41 Delivery of Health Care/ (44310)

42 Community Health Services/ (21129)

43 Marketing of Health Services/ or Marketing/ or Social Marketing/ (13832)

44 "Outcome and Process Assessment (Health Care)"/ or Treatment Outcome/ or "Outcome Assessment (Health Care)"/ (329033)

45 Medically Underserved Area/ (3501)

46 Patient compliance/ (31332)

47 or/8-31 (90597)

48 or/32-39 (745395)

49 6 and 47 and 48 (988)

50 or/40-46 (457348)

51 7 and 50 (3388)

52 49 or 51 (4293)

53 limit 52 to yr="1995 - 2007" (3491)

54 exp ECONOMICS/ (375813)

55 exp "Costs and Cost Analysis"/ (129414)

56 exp "Cost Allocation"/ (1801)

57 exp Cost-Benefit Analysis/ (40089)

58 exp "Cost Control"/ (22827)

59 exp "Cost Savings"/ (5703)

60 exp "Cost of Illness"/ (9149)

61 exp "Cost Sharing"/ (2555)

62 exp "Deductibles and Coinsurance"/ (1120)

63 exp Medical Savings Accounts/ (339)

64 exp Health Care Costs/ (28541)

65 exp Direct Service Costs/ (802)

66 exp Drug Costs/ (7948)

67 exp Employer Health Costs/ (964)

- 68 exp Hospital Costs/ (5236)
- 69 exp Health Expenditures/ (11188)
- 70 exp Capital Expenditures/ (1796)
- 71 exp "Value of Life"/ (4847)
- 72 exp "Quality of Life"/ (59486)
- 73 exp Quality-Adjusted Life Years/ (2921)
- 74 QALY.mp. (1276)
- 75 exp Economics, Hospital/ (14731)
- 76 exp Economics, Medical/ (11355)
- 77 exp Economics, Nursing/ (3741)
- 78 exp Economics, Pharmaceutical/ (1764)
- 79 exp BUDGETS/ (9970)
- 80 exp "Value of Life"/ (4847)
- 81 (econom\$ or cost or costs or costly or costing or price or prices or pricing or pharmaeconomic\$).ti,ab. (245796)
- 82 budget\$.ti,ab. (10892)
- 83 (value adj money).ti,ab. (1)
- 84 ((low or high or health care) adj cost\$).ti,ab. (19242)
- 85 (fiscal or funding or financial or finance).ti,ab. (40647)
- 86 (cost\$ adj (estimate or variable)).ti,ab. (110)
- 87 (expenditure\$ not energy).ti,ab. (10410)
- 88 (cost adj (effectiveness or utility or minimization or minimisation or benefit) adj analysis).ti,ab. (5100)
- 89 or/54-88 (601300)
- 90 53 and 89 (563)
- 91 from 90 keep 1-563 (563)

Simplified search strategies were run for a number of other databases, listed below.

ASSIA simplified search strategy

inequalit* or socioeconomic or "social class" or "single parent*" or "lone parent*" or divorce) or deprived or disadvant* or poor or "low income" or "damp housing" or homeless or ethnic minorit* or vulnerable or black)) and smoking or "SMOKING CESSATION" or TOBACCO AND outcome* or NHS service* or treatment or service* or program* or programme* or Delivery or uptake NOT substance use Limited to 1995 -2007

Sociological Abstracts

smoking or smoking-cessation or tobacco) or KW=smoker AND inequalit* or social-class or socioeconomic or single parent* or lone parent* or divorce) or low income or homeless or damp housing or poorest or deprived or disadvant* AND outcome* or NHS service* or treatment* or (service* or program* or programme*) or prevention or uptake or access or treatment outcome Limited to 1995 -2007

SIGLE simplified search strategy

Smoking or smoking cessation or tobacco AND Social class or single parent or lone parent or homeless or low income or socioeconomic or inequality or deprived or deprivation or disadvantaged AND Healthcare or treatment or clinic or health or services or health service
Limited to 1995 -2007

Social Policy and Practice simplified search strategy

Smoking or smoking cessation or tobacco AND Social class or single parent or lone parent or homeless or low income or socioeconomic or inequality or deprived or deprivation or disadvantaged AND Healthcare or treatment or clinic or health or services or health service Limited to 1995 -2007

EPPI Centre Databases

No results

Econlit simplified search strategy

Smoking AND disadvantaged or depriv* or social class or low income or social welfare or single parent or socioeconomic status or lone parent or homeless or inequality AND health

NHS EED (NHS Economics Evaluation Database

Smoking or tobacco or smoking cessation AND disadvantaged or depriv* or social class or low income or social welfare or single parent or socioeconomic status or lone parent or homeless or inequality AND health.

The grey literature was searched using a simplified strategy and the following sources were used:

Department of Health (UK)

Joseph Rowntree Foundation

Public Health Observatories:

North East

North West

West Midlands

South West

Yorkshire & Humber

East Midlands

London

Eastern

South East

Scotland

Healthy Schools (previously Wired for Health)

Black Health Agency

Welsh Assembly

National Public Health Service for Wales

Scottish Parliament

Health Scotland

Scottish Executive

European Health Inequalities Portal

Neighbourhood Renewal Fund projects

Health Promotion Agency

Economic and Social Research Council

London Health Commission

Local Government Association

Healthcare Commission

SCIE (Social Care Institute for Excellence)

National Social Marketing Centre

University of York - Social Policy & Research Unit

EPPI (Evidence for Policy and Practice Information and Co-ordinating (EPPI) Centre)

TRIP (Turning Research Into Practice) database

European Directory of Good Practices to reduce health inequalities
Community Development Xchange
WHO Health Evidence Network
NHS networks
ASH
Quit
Smoking Cessation Service Research Network
National Pharmacy Association
Centre for Tobacco Control Research
Smoke Free London
Smoke Free Northern Ireland
Tobacco Information Scotland
British Heart Foundation
HeartUK
National Heart Forum
European Cholesterol Patient Foundation

Finally, a search of the National Research Register was undertaken to identify smoking cessation studies funded in the last five years. Appendix C lists the relevant studies identified.

11. APPENDIX C – National Research Register Studies

1. Csikar, Julia - Developing models of Good Practice: Tobacco Cessation and the Dental Team

To gain an understanding of the personnel, timescales, materials and the impacts of health promotion activities within the dental setting.

The study will aim to take into account of two contrasting perspectives; that of the dental team and that of their patients:

SD:1/9/2005

ED:1/9/2008

Leeds University, Leeds Dental Institute, Clarendon Way, Leeds, LS2 9LU, United Kingdom

0113 3436 181

0113 3436 140

denjic@leeds.ac.uk

Leeds PCTs Research Consortium

2. Herberts, Carolina - Improving the uptake of stop smoking services by pregnant smokers and midwives

What are the barriers perceived by pregnant smokers in attending stop smoking services?

What would attract pregnant smokers to using a stop smoking service?

What are the barriers perceived by midwives in providing smoking cessation advice to pregnant smokers?

SD:19/2/2007

ED:31/1/2009

Camden Primary Care Trust, St Pancras Hospital, 4 st Pancras Way, London, NW1 0PE

020 7530 6333

020 7445 8556

carolina.herberts@camdenpct.nhs.uk

NHS R&D Support Funding

3. Aveyard, Paul - Promoting smoking cessation in Bangladeshi and Pakistani male adults: pilot RCT of trained community smoking cessation workers.

Refine 2 (clinic and clinic plus outreach) models of using trained community smoking cessation services (Phase 1). Conduct a pilot RCT comparing the likely uptake and effectiveness of these models of care with standard care (Phase II of the complex intervention framework).

SD:1/1/2006

ED:30/9/2008

The Dept of Primary Care and General Practice, Primary Care Clinical Sciences Building, The University of Birmingham, Edgbaston, Birmingham, B15 2TT, England

0121 414 8529

0121 414 2282

P.Aveyard@bham.ac.uk

National Prevention Research Initiative

4. Edwards, G - Does the theory of planned behaviour for smoking cessation correlate with attendance at smoking cessation services in pregnant smokers: An exploratory study to determine abstinence rates in pregnant smokers attending and not attending for smoking cessation

Provide robust estimates of the uptake of midwife-led cessation services in women and of abstinence rates in those who do not attend smoking cessation services.

SD:12/9/2006

ED:12/9/2007

Obs & Gynae, Crown St, Liverpool, L8 7SS

NHS Health Technology Assessment Programme

NHS R&D Support Funding

5. Taylor, Adrian - Walking as an aid to smoking cessation: A feasibility study in the NHS stop smoking service (NPRI Walk-2-Quit)

The principal research objectives are: (1) to understand smokers' perceptions about using exercise to help quit smoking, (2) to help design effective ways for smokers to use exercise to quit smoking.

SD:8/1/2007

ED:1/5/2008

School of Sport and Health Sciences, University of Exeter, St Lukes Campus, Exeter, EX1 2LU, UK

01392 264747

01392 264726

a.h.taylor@exeter.ac.uk

Medical Research Council

6. Ussher, Michael - Physical Activity as an aid to smoking during pregnancy: a pilot study

To assess the acceptability and feasibility of physical activity as an aid to smoking cessation during pregnancy.

SD:13/2/2006

ED:13/2/2007

Psychology Department, Hunter Wing, St. George's Hospital Medical School, Cranmer Terrace, London, SW17 0RE, UK

020 8725 5605

020 8767 2841

musser@sgul.ac.uk

7. Langley, Carole - Using a screening questionnaire to decrease non-attendance at first appointments for smoking cessation advice clinics in general practice: a pilot study

Can a short pre-booking questionnaire be used to reduce wastage due to non-attendance of first appointments for smoking cessation advice? Does screening for readiness by using a questionnaire have an impact on successful quit rate and waiting list?

SD:3/4/2006

ED:30/9/2006

Air Balloon Surgery, Kenn Road, Bristol, BS5 7PD, BS5 7PD, UK

0117 9099914

0117 9086660

clangley@airballoon.cix.co.uk

8. Hippisley-Cox, Julia - Uptake and effectiveness of smoking cessation treatments in primary care

To determine the pattern of uptake of smoking cessation treatments (NRT vs Bupropion vs no treatment) for smokers by age, sex, deprivation and co-morbidity.

To report the proportion of patients who receive smoking treatments who appear to have a recorded contraindication.

To determine on recorded quit rates and hence estimate the health benefit of smoking cessation on risk of IHD.

To investigate reasons for variations between general practices in the use of anti-smoking treatments such as practice size, location, levels of health promotion activity (uptake of immunisations, cervical screening etc, recording of body mass index and blood pressure, recording of smoking status etc)

SD:1/10/2003

ED:31/10/2007

Department Of General Practice, Floor 13, Tower building, University Park,
Nottingham, NG7 2RD, UK

0115 8466915

0115 8466904

julia.hippisley-cox@nottingham.ac.uk

NHS R&D Support Funding

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