



RESEARCH

INFORMATION

Quitting smoking in pregnancy with the help of shopping vouchers



AIMS

The study had three main aims:

- To find out whether financial incentives offered in the form of shopping vouchers encourage more pregnant women who smoke to: 1) use Stop Smoking Services (SSS); and 2) give up smoking during and after pregnancy
- To work out if the cost of offering shopping vouchers is a worthwhile (cost-effective) way to spend public money
- To explore how differences in maternity services, SSS, geographical areas and views on financial incentives relate to recruitment of women and the findings of the study



KEY FINDINGS

- Offering financial incentives in the form of shopping vouchers of up to £400 on top of usual SSS support helped more than twice as many pregnant women who smoke to quit
- More women offered incentives took up the support offered by SSS compared with those not offered incentives
- Most women relapsed to smoking within six months of having their baby regardless of whether they were offered incentives or not
- Despite most women relapsing within six months, using financial incentives to help women to stop smoking would still be highly cost-effective over a lifetime and individuals would benefit through extra years of life (adjusted for quality of life)
- Usual care for pregnant women who smoke provided by maternity services and SSS varied considerably amongst study sites. Health professionals held a range of views on the acceptability of using financial incentives to help women to stop smoking and this had implications for their involvement with the study



WHAT DID THE STUDY INVOLVE?

In the UK all pregnant women are asked if they smoke at their first maternity appointment and those who do are referred to SSS. Usual SSS support includes the offer of counselling by specially trained practitioners and the offer of nicotine replacement therapy to support an attempt to quit. Women referred to seven SSS' in Scotland, England and Northern Ireland between January 2018 and April 2020 were invited to take part in the study. They were enrolled into the study over the telephone after which they were placed at random into one of two groups. One group was offered 'Love2Shop' shopping vouchers on top of usual local SSS support (incentive group) to help them to stop smoking. The other group received usual SSS support but was not offered shopping vouchers (control group). Women had a 1 in 2 (50%) chance of being in either the incentive group or the control group. Most women were followed up until six months after their baby was born and the two groups were compared at baseline, four weeks, end of pregnancy and six months after the baby was born. Smoking status at four weeks was confirmed by carbon monoxide (CO) breath test, and by biochemical testing of saliva at both end of pregnancy and six months after the baby was born.

Women in the incentive group could receive shopping vouchers at four time points in their pregnancy: 1) £50 for attending a first appointment with local SSS and setting a date on which they aimed to stop smoking (known as a 'quit date'), 2) £50 if not smoking four weeks later (i.e. four weeks from the 'quit date', 3) £100 if not smoking twelve weeks after the quit date, and 4) £200 if not smoking in late pregnancy. Women were sent the vouchers by post after their abstinence was confirmed by CO breath test and a saliva sample had been received.

A £50 shopping voucher at late pregnancy and a £25 voucher at six months after birth was sent to women who provided their smoking status (i.e. smoking or not smoking). Women in both groups received vouchers who had stopped also had to provide a saliva sample to. Samples were biochemically tested for smoking related substances cotinine and anabasine.

The proportion who took up SSS appointments and set a quit date were compared as were quit rates after four weeks, late pregnancy and six months after birth. Infant birth weight was compared. Research has found a 10-15% reduction in birth weight if women smoke throughout pregnancy which adversely affects short- and long-term health. An economic analysis compared the extra costs of incentives plus additional nicotine replacement therapy and SSS contact associated with quit attempts. Costs were aligned with short term benefits e.g. less days in hospital and longer term well documented health of mother and baby e.g. admissions to hospital with asthma. Short term extra costs per quitter allowed comparison with other smoking interventions. Longer term cost per extra year of life gained adjusted for quality allowed direct comparison with costs of other new interventions for the NHS. Case studies were undertaken at five trial sites to help understand the study findings; look for ways to improve participant recruitment and to examine usual care across sites. Case studies included observations of usual maternity and SSS care provided to pregnant women, discussions with research teams, interviews with health professionals and women, routinely collected SSS data, and an end of study survey of site staff..

This multi-centre study followed a successful single-centre study in Glasgow, UK. Planning included public involvement from two smokers from the Glasgow study as well as the UK Centre for Tobacco and Alcohol Studies smokers' panel with additional representation on the study steering committee.





WHAT WERE THE RESULTS AND WHAT DO THEY MEAN?

944 women agreed to take part. 472 were offered the addition of shopping vouchers and 472 usual SSS alone. Three women left the study and asked for their data to be removed.

27% of women who were offered shopping voucher incentives alongside usual SSS support (incentives group) were biochemically confirmed as non-smokers at late pregnancy versus 12% who received usual SSS only (control group). This result was not likely to be due to chance. Biochemical confirmation was not available for 98(10%) women who were assumed to be smoking.

	Incentives	Control	Odds ratio (95% CI)	p-value
	No./Total (%)			
Engaged with SSS and set quit date	335/469 (71.4)	301/470 (64.0)	2.78 (1.94, 3.97)	0.018
Carbon monoxide-verified non-smoker 4-weeks post-quit date	162/471 (34.4)	62/470 (13.2)	4.11(2.85, 5.92)	<0.001
Biochemically-verified non-smoker at late pregnancy	126/471 (26.8)	58/470 (12.3)	2.78(1.94, 3.97)	<0.001
Biochemically-verified non-smoker 6m after birth	21/348 (6.0)	15/342 (4.4)	1.39 (0.69, 2.79)	0.356
	Mean		AMD (95% CI)	
Birth weight (kilograms)	3.18	3.13	0.05(0.03, 0.13)	0.212

71% offered incentives attended an appointment with SSS and set a quit date compared to 64% in the control group. 34% of women in the incentives group were not smoking four weeks after they set a 'quit date' compared to 13% of women in the control group. CO confirmed smoking status was not available for 448 (48%) women in the study who were assumed to be smoking. 303 (68%) of these women did not engage with SSS. 73% (690) of women were followed up six months after their baby was born. 6% offered incentives and 4% of the control group were biochemically confirmed as non-smokers.

The average infant birth weight was 3181 grams in the incentives group and 3134 grams for controls. The extra 15% of women who quit with incentives accounted for all the birthweight difference so each infant would have gained on average 310 grams – a 10% increase in birthweight which is of clinical importance.

In the short-term, cost per each extra woman who quit was £4400 which compares with £4916 calculated for Nicotine Replacement Therapy used during pregnancy. Overall including short term costs, long term NHS costs for each mother infant pair offered incentives was £40 less (range £106 less to £35 more) with increased years of life adjusted for quality (QALY) of 0.170 (0.124-0.229), a reduction in NHS costs while gaining additional QALYs. Extra cost per QALY for Nicotine Replacement Therapy was calculated as £12426 by the National Institute for Health & Care Excellence(NICE). Vouchers could be redeemed in a wide range of shops. More than two thirds of the vouchers were spent in Iceland (32%), Argos (22%), Boots (8%) and Matalan 6%.

Case studies highlighted considerable variation in usual care and SSS for pregnant women who smoke, both between and within sites during the study. Health professionals had a range of views regarding financial incentives which had implications for study involvement.

The offer of £400 of shopping vouchers helped more than twice as many women to stop smoking and were highly cost-effective when delivered across seven sites in three UK countries with different SSS. Even though most relapsed after birth, long term NHS cost savings remained.



WHAT IMPACT COULD THE FINDINGS HAVE?

- Offering financial incentives will lead to more pregnant women taking up SSS support and quitting smoking, increasing SSS efficiency for women who smoke during pregnancy
- Using £400 of financial incentives will lead to less NHS costs and an increase in years of life gained adjusted for quality (QALYs) by reducing the lifetime health care costs for pregnant women who smoke and their children, after taking account of early extra costs associated with incentives. In comparison Nicotine Replacement Therapy prescribed throughout the UK for pregnant women who smoke costs the NHS £12,426 more for each QALY gained.
- The NICE recommends new interventions for the UK NHS that cost up to £20,000 more per life year gained adjusted for quality (QALY). This study supports the NICE recommendation (NG 209) to add the offer of financial incentives to UK SSS to help pregnant women quit
- Shopping voucher incentives were easily added to a range of different UK SSS for pregnant women, and a trial is underway prolonging payment after birth to reduce relapse
- Differences in how maternity services and SSS are provided and health professionals' views on the use of financial incentives are likely to have implications for decisions about how future care is provided to pregnant women who smoke



HOW WILL THE OUTCOMES BE DISSEMINATED?

Reports of the research will be prepared for publication in peer reviewed journals. Presentations are planned at local, national and international conferences to audiences concerned with helping pregnant women to quit smoking. There will also be a press release.

Further research is needed to look at the best incentive schemes (e.g. what type of incentive, when, how often, how much and how long for) to offer women to give them the best chance of quitting smoking and remaining a non-smoker and how this could be delivered. Questions remain about the role incentives for women's partners, family and friends and the impact of providing incentives after the baby is born. A study is underway to look at post-partum outcomes, up to 12 months, to reduce return to smoking.



CONCLUSION

Offering financial incentives in addition to usual SSS support is a safe, simple, and very cost-effective way to help pregnant women to quit smoking during pregnancy and can be easily added to the range of current different types of SSS that exist in the UK.



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