

EDITORIAL

Incentives for promoting smoking cessation: what we still do not know

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Cochrane Database of Systematic Reviews 2011;(4):ED000027 <https://doi.org/10.1002/14651858.ED000027>

Publication date: 13 April 2011

In a newly updated Cochrane Review, Cahill and Perera summarise the effectiveness of incentives for smoking cessation.^[1] Their disappointing conclusion is that while there is some evidence that incentives work in the short term, the effects generally dissipate, and there is still insufficient evidence to recommend their adoption into routine practice. Much therefore remains to be discovered, but what are the particular questions that this review highlights?

Behaviour change has been divided into 'simple' (single actions at a point in time) and 'complex' (requiring effort over a sustained period).^[2] Adherence to medication is an example of a simple behaviour change. A systematic review in the *BMJ*, which assessed financial incentives to motivate adherence to medical instructions, identified 11 randomised controlled trials.^[3] The incentives ranged from USD 5 to about USD 1,000. Of the 11 studies included in the review, 10 demonstrated a positive effect. The studies incentivised several types of interventions, such as immunisation, engaging with antihypertensive treatment, attending postpartum appointments, completing cocaine dependency treatment, and dental care for children.

Complex behaviour change requires both sustained effort and typically the adoption of multiple strategies to achieve change. Like smoking cessation, weight loss to reduce obesity requires complex behaviour change. A systematic review of trials of incentives for weight loss found that larger incentives seemed more effective but that the effectiveness of interventions seemed to decline when the incentive was withdrawn,^[4] paralleling the data in the Cahill and Perera review.^[1] Might we conclude that incentives are effective for simple but not complex behaviour change?

This conclusion may seem at odds with the strong evidence for the efficacy of incentives for the management of drug misuse.^[5] While there is clear evidence that incentives increase adoption of simple behaviours, such as immunisations against tuberculosis or hepatitis, there is also evidence for improved abstinence from problem drug use, clearly a complex behavioural change. Although ceasing to use illicit drugs does require complex change, some actions are simple. Deciding to engage in a treatment programme in the first place is simple, and attending regularly for supervised dispensing of methadone, for example, is also a simple behaviour. These behaviours are part of the set of behaviours that have been effectively rewarded in previous

trials of incentives in drug misuse. The shining exception to the rather negative findings in the Cochrane Review of incentives for smoking cessation is the trial by Volpp and colleagues.^[6] In this study, participants gained rewards for attending a smoking cessation clinic as well as for validated abstinence and, as a result, nearly three times as many in the intervention group attended as in the control group. The intervention also increased the rate at which participants achieved abstinence at short-term follow-up. Although a somewhat lower proportion of people who achieved early abstinence returned to smoking in the intervention group than the control group, it seems the main effect was inducing two simple behavioural changes. The first prompted people to decide to quit smoking and the second prompted people to use evidence-based treatment.

Cahill and Perera also hint that other studies support the conclusion that incentives seem to work by drawing people into a cessation attempt. This is valuable because, while most smokers regret smoking and want to stop,^[7] only a minority of these take action and try to quit in any one year. Other Cochrane Reviews testify to the effectiveness of both behavioural support and medication in enhancing smoking cessation (e.g. Stead and Lancaster^[8] and Stead et al.^[9]), but these aids are infrequently used by people to support their cessation attempt. In the UK, for example, there is a widespread network of (free) cessation clinics dispensing (reimbursed) medication to support cessation, and their availability is advertised and promoted by healthcare professionals. Despite this, fewer than 10% of quitters use these clinics.^[10] It might be helpful for future studies to consider specific behaviours that they are trying to reward rather than cessation generally, perhaps focusing early in the process of quitting. Volpp and colleagues paid study participants up to USD 750 each.^[6] Perhaps the incentives required for simple behaviour change could be less than this. Simple behaviour changes may be sufficient to increase the proportion of quitters who attempt to stop or who use aids to cessation, either of which will increase the number of long-term abstainers. Even interventions of marginal effectiveness in smoking cessation are cost-effective because the benefits of cessation are so great,^[11] so this is an important area where further research would be useful.

Many people are sceptical about financial incentives to support behaviour change. One factor that might reinforce this is obvious 'gaming' the system to gain incentives. People who do not smoke may claim to smoke in order to have the chance to 'stop' smoking

and claim a reward. Unlike in opioid addiction, smokers do not typically face confirmatory tests to show that they are smokers. Cahill and Perera report few studies that addressed this issue. The studies did, however, more commonly use biochemical tests to confirm that when participants reported that they were abstinent, they were in fact abstinent. One problem with these tests is that they can confirm abstinence over the previous few hours only, in the case of carbon monoxide, or days only, in the case of cotinine.[12] Furthermore, because participants had to make appointments to declare and prove their non-smoking status, participants were effectively warned of the testing, and this leaves the door open for gaming. Only surprising smokers with tests can really appease sceptics, and such data are not yet available.

Smoking in pregnancy is a relatively intractable public health problem. A Cochrane Review of smoking cessation in pregnancy found that many of the interventions that are known to be effective in adult smokers are not known to be effective in pregnant women.[13] Financial incentives seemed the most effective intervention, increasing abstinence over three-fold. However, the outcomes of these trials were abstinence for the previous seven days, so the data are preliminary. Many women who smoke in pregnancy are among the most disadvantaged in society. If incentives have a place in smoking cessation, it is perhaps this group who might be seen as the most deserving. Both this review and the Cahill and Perera review show us the potential value of incentives. They appear to work sometimes for some smokers. Understanding how they work, whether the benefits are sustained, and that their effects are not due to gaming the system, is a public health priority.

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Declarations of interest

The authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request) and declare: (1) that PA has received a grant from the UK National Institute of Health Research, and both authors' work is partly funded by a grant from the UK Clinical Research Collaboration, but the authors have received no other payment or support in kind for any aspect of the article; (2) that the UK Centre for Tobacco Control Studies (UKCTCS) has received payment from Pfizer for PA's role on the advisory board for varenicline, and a grant from McNeil for PA's work on trials of a new product, and that both PA and the UKCTCS received payment from Pfizer, McNeil and Xenova (now Celtic) for consultancy, and that PA received payment from Pfizer for talks and educational presentations; (3) that the authors/spouses/partners/children have no other financial relationships with entities that have an

interest in the content of the article; and (4) that there are no other relationships or activities that could be perceived as having influenced, or giving the appearance of potentially influencing, what was written in the submitted work.

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