

# **Financial incentives, personal responsibility and prevention**

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## 1 Aims

The brief for this paper was to:

*“...examine the development of incentives (both individual and systemic) that are effective in encouraging greater personal responsibility for health. In developing this paper you may wish to consider successful working models from Australia and internationally. This could include programs based around rewards, access to higher levels of services for ‘compliance’/adherence with healthy lifestyles, co-payments, taxation and higher prices or regulatory interventions.”*

As economists, we would redefine the above to examine approaches that are cost-effective. It is important to consider from the outset that resources are scarce (including those available to individuals in terms of their time and incomes) and they need to be used to their best effect. It is also important to consider the distributional consequences of such incentives and their potential effect on health inequalities: who in the population should have access to such incentives and who is most likely to respond?

This paper assumes that government intervention is necessary because individuals may fail to take personal responsibility for their health for several reasons, including lack of information, lack of awareness of the consequences of their health behaviours on society, and misaligned incentives. The second Wanless report in the UK examined a broad variety of levers for Government action such as taxation, subsidies, service provision, regulation, information and education, to encourage personal responsibility in securing good health for the whole population (Wanless, 2004).

The aim of this paper is to focus on the role of financial incentives to encourage greater personal responsibility for health. The next section outlines a few conceptual issues, including defining ‘personal responsibility for health’ and defining financial incentives. The empirical evidence on the use of financial incentives for individuals in encouraging preventive care is reviewed in Section 4. Section 5 outlines a set of principles in designing such incentives, before outlining some options for Australia.

## 2 Conceptual issues

### Defining ‘personal responsibility for health’

*Personal responsibility* can be defined as an individual *choosing* a course of action that will change his or her health and well-being.<sup>1</sup> This definition does not only include primary or secondary prevention, but can also include compliance/concordance with a health professional’s treatment recommendations, an individual’s behaviour after an acute operation that aids recovery, or an individual’s behaviour with respect to activities that have a probability of reducing their health (e.g. extreme sports, driving fast, or risky jobs). The above definition excludes those factors that influence people’s health where they do not *choose* or are not involved in the decision to be ‘exposed’ to that factor, or where someone else makes the choice.<sup>2</sup>

The issue of ‘responsibility’ also suggests a notion of individuals taking control and having good information and knowledge about their health and factors that can reduce or increase it. This includes responsibility before contact with health professionals are made (e.g. primary prevention and lifestyle choices) as well as responsibility after health professionals become involved. Economists refer to this as ‘consumer sovereignty’ which recognises that individuals are the best judges of what is good for them if they are informed and knowledgeable. However, in health care the absence of consumer sovereignty and the imbalance of information between consumers and health care providers is a main cause of market failure, hence our reliance on and trust in health professionals.

The issue here is the amount of information and knowledge an individual has about how to maintain or improve health, and having the capability to use this information. Some highly educated individuals may seek out information and knowledge about their health and know how to use it to improve their health. Other individuals may visit doctors precisely because they do not possess such information or if they do, do not know how to use it. Individuals will usually have more information than health professionals about their own values, preferences and trade-offs about

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<sup>1</sup> Note the potential trade-off between health and well-being. Individuals may be happy to ‘choose’ to have reduced health status (e.g. smokers, those who are ‘fat and happy’, individuals who ‘adapt’ to a chronic disease or disability, individuals who undertake activities ‘risky to their health’, including extreme sports).

<sup>2</sup> This includes health protection, the effect of other people’s choices on an individual’s health (e.g. passive smoking), and iatrogenic influences on health (e.g. the preference of doctor to prescribe drug y rather than drug x, or a surgeon to use a certain technique or procedure).

risks, which gives them a very important role in decision making about their own health in medical consultations. Those who use the health care system often, including individuals with chronic disease, disabilities and long term health conditions, will over time accumulate information and knowledge about their own condition. Other individuals who are less well educated may not understand such information or do not know how to use it to improve their health. For instance, they may not understand the far reaching implications of smoking (e.g. negative health effects for passive smokers), or they may not understand the extra costs imposed on the health care system caused by obesity or a failure to diagnose early stages of cancer or cardiovascular disease. Individuals may also be uncomfortable with ‘choosing’ and ‘being responsible’ for their own health, if they feel ill-informed or ill-equipped, or if they experience ‘regret’ if a wrong choice is made (Shackley and Ryan, 1994). Some patients may prefer their health professionals to make health-related decisions on their behalf as long as they have been informed of the options (Scott and Vick, 1998) and think that doctors are responsible for their health, especially when doctors directly charge patients fees. Others may prefer a ‘shared-decision making’ approach with health professionals and so ‘responsibility’ and control over such choices are shared and the patients’ own values and preferences are part of the decision making process. Responsibility can therefore occur at a number of levels, it may be shared with a health professional, or may be something that individuals do not wish to, or do not have the capability to, bear by themselves. Individuals therefore differ in their preferences and capabilities for personal responsibility, and this needs to be taken into account when designing policies to improve personal responsibility.

The emphasis on *personal responsibility* could give the false impression that decisions about healthy behaviours are made in isolation. In reality, however, this is not the case. There is ample evidence in the empirical literature on the interdependence of life-style choices within households, peer groups, and the broader social and community environment. For instance, research has shown a strong correspondence between spouses’ health behaviours (Kolonel et al 1981; Clark and Etile 2006) and changes in healthy behaviour may depend on the level of interaction and motivation between partners in a relationship (Lewis et al 2005). Personal responsibility also therefore includes household, peer group and community responsibility for health, and so these may also be appropriate ‘targets’ for financial incentives.

These choices must be considered in a dynamic and temporal context. Current health choices are usually influenced by past behaviour, and they influence future behaviour over the life course. The extent to which individuals take into account the effect of current choices on their future health status is known as '*time preference*' (van der Pol and Cairns, 2003). If these effects on health are expected to occur well into the future and are uncertain, then individuals may place less 'weight' on the benefits compared to if they were incurred immediately. Even though preferences over the importance of future costs and benefits of health may vary, in general individuals prefer receiving benefits now and incurring costs later, which suggests that preventive activity today could be less desirable as the benefits occur well into the future.

An individual's decision to improve his or her health, or the health of their dependents, is also a function of the opportunity costs incurred by the behavioural change, which means that it depends on the ratio of the additional costs and benefits relative to no action (or any other possible behavioural change). If benefits outweigh costs, then an individual will change their behaviour. Costs include resources used, such as time, money costs, and income. Since these resources are scarce, choices must be made to help maximise well-being, which as noted earlier may not always equate to 'health'. Time costs are based on the value an individual attaches to the time that could be spent in the next best alternative activity. For example, consider the case of using a preventive health care service: if an employed individual would lose income from being away from work, then he or she is less likely to attend a GP for a health check. Or consider the time constraints faced by working parents: how much time will they have to prepare healthy meals for their children or to undertake physical activity themselves to stay healthy during a regular working week? On the other hand, the use of preventive health care services or opportunities for healthy behaviour most likely involve monetary costs, those directly resulting from the costs of using the service and the travel costs to get to and from. Both time and money spent are influenced by distance to the preventive service or activity. The benefits of the behavioural change include the expected effects on an individual's health and other sources of well-being. These are influenced by when these benefits occur (see '*time preference*' above) and the expected probability of their occurrence. In sum, individuals may not engage in health improving activities either because they are poorly informed or, even if they are well informed, they weigh other aspects of their well-being higher, or there are differences in the costs of engaging in healthy and non-healthy behaviours.

That is why any policy intervention needs to ask first whether the absence of healthy lifestyles is the consequence of poor information, a lack of resources or preferences. One needs to ask as well if preferences and perceptions can be altered, that is whether the targeted individuals are responsive to interventions. By understanding the underlying causes of the potential costs and benefits of health improving behaviour and the importance of individual preferences in shaping them, it is relatively straightforward to identify suitable interventions. For instance, if unhealthy behaviour is simply a result of poor information, then media campaigns, education programs, and provision of health information may be effective to change perceptions about the benefits of health improving activities.

If individuals are choosing not to undertake health improving activities because of a lack of resources, then a policy intervention could reduce the price of health-improving activities through regulation, subsidies, or taxation. Subsidies could include vouchers for gym memberships, zero co-payments when visiting health professionals, altering the relative prices of ‘healthy’ versus ‘unhealthy’ food through taxation and food vouchers. Direct financial incentives may also help to reduce the costs of engaging in preventive behaviours. Reducing costs may also involve reducing the time and money spent on travelling to health, prevention and recreational centers, particularly in rural and remote areas. For instance, a policy intervention could ensure that more health centres are built in remote areas, or that prevention services are provided at the worksite or in schools.

On the other hand, increasing costs of, and therefore penalising, unhealthy behaviours is an alternative option to reducing the costs of healthy behaviours. The costs of smoking, binge-drinking, and non-compliance with medical treatment regimes could be increased through regulation and legislation (e.g. banning smoking in public places), taxes on unhealthy activity (e.g. smoking) and restricted access to health care or welfare services. For example, doctors may refuse to operate on individuals who continue to smoke or are obese, higher insurance premiums may be introduced for those with unhealthy lifestyles, or reducing health insurance coverage for those who don’t comply with treatment and visit recommendations (Steinbrook, 2006). Another way to ensure the uptake of preventive service is to condition the receipt of Governmental transfer payments on the actual use, as is currently practiced in Australia (Lawrence et al 2004). Another way to induce

healthy behaviours through financial incentives is to embed them into the workplace environment to take advantage of peer-group effects (National Business Group on Health 2007).

### **Consumer financial incentives and their effectiveness**

Consumer financial incentives are one of many different types of interventions that can be used to increase the uptake of health-improving activities, by influencing both the costs and benefits of such activities. A financial incentive can be defined as a monetary transfer, either in-cash or in-kind, provided directly to an individual with the intention to induce a behavioral change. The transfer can also be made conditional on the behavioural change. A cash transfer can be used as a reward which may increase income so that it can be used to consume other goods and services, or it could be used as ‘compensation’ to cover the time or money costs of engaging in health-improving activities. Financial incentives can also be provided in the form of an ‘in-kind’ subsidy for a specific activity (e.g. subsidised food and gym vouchers), a subsidy to a provider to reduce the price of a health-improving service (e.g. zero co-payments for health professionals), or a tax that changes the price of a ‘healthy’ or ‘unhealthy’ good or service. ‘In-kind’ rewards may also include gifts or vouchers unrelated to the behavioural change. For instance, T-shirts, raffle tickets or movie vouchers in exchange for the uptake of a preventive service is a reward unrelated to the intended behavioral change. A financial incentive may also work in the form of a penalty for failing to conduct a socially desired health behaviour, e.g. the cancellation of a welfare benefit.

The size of the incentive is likely to have an impact on the intended behaviour. Since individuals face different costs and benefits or perceive them differently, an incentive of a fixed size will induce some individuals to change their behavior but not others. For some, the amount of the incentive may be lower than the costs of the behaviour change and for others it may be higher. Higher levels of incentives are likely to induce more people to participate. The absolute size of an incentive is also related to an individual’s ‘marginal utility of money’: an extra \$10 dollars is more valuable to some individuals than to others (e.g. individuals on low incomes compared to those on higher incomes).

Financial incentives may not work equally well in any setting, their effect will vary across individuals, and they may induce unintended consequences. The first point depends partially on

individuals' responsiveness to the incentives. A small change in price or a small cash transfer may lead to very large changes in behaviour for a group of individuals in one setting, whereas the incentive may have little effects for the same group in other circumstances. Apart from the influence of individual responsiveness, the size of this 'elasticity' depends also on the type of behaviour to be changed. Increasing taxes on cigarettes has been shown to have a relatively small impact on smoking prevalence of some groups in the population, in particular for older adults (Harris and Chan 1999), due to the strong individual preferences for smoking and its addictive properties.<sup>3</sup> (Chaloupka and Warner 2000, Jones 1994). The size of these elasticities will differ across individuals according to differences in their preferences and the other factors that influence their well-being. Empirical evidence on the size of these elasticities is therefore required before policies can be designed.

An incentive may also have unintended consequences. A tax on 'alcopops' may reduce consumption of alcopops, but may encourage people to switch to cheaper spirits, resulting in a negligible net change in alcohol consumption overall.

The theoretical literature suggests that financial incentives are most likely to be effective for simple, well-defined and measurable behaviours. For complex and sustained changes in behavior, financial incentives may need to be paid frequently or increase in size as individuals adapt to the reward system. To encourage complex changes in behavior may require more complex and continuous financial incentives. Financial incentives would have to be complemented with additional interventions such as education programs and should not therefore be regarded as the only solution.

There is broad evidence from the psychology literature that individuals do not necessarily adhere to the rational economic model (Kahneman and Tversky 1979, Rabin 1998). Individuals may use rules of thumb, past experience or personal anecdotal evidence to make decisions, rather than trade-off objectively costs and benefits. This may be another reason why incentives may not work for

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<sup>3</sup> The general consensus among economists is that the overall price elasticity of demand for cigarettes lies between -0.25 and -0.5, which implies that a 10% increase in prices will lead to a 2 to 5% decrease in smoking behaviour (Choupka et al 2002).

some individuals and so understanding how individuals make decisions about preventive care is therefore important.

Another problem of implementing financial incentives is that they may be taken up by individuals who would have engaged in the health improving activity in the absence of the incentive or who are in less 'need'. The 'inverse care law' suggests that individuals who visit GPs for screening and prevention are less likely to be in need than those who do not attend (Furler et al 2002). For instance, subsidized preventive health services may be taken up by those who would have attended anyway, or by those who are less in need for the service. In this case incentives are inefficient.

### **3 Brief review of the empirical evidence on the use of financial incentives in prevention**

This section presents a brief review of the literature on the effectiveness of the use of financial incentives in prevention.<sup>4</sup> Existing systematic reviews and other key studies were identified and summarised if they included studies examining the effects of consumer financial incentives on the uptake of preventive care by any population group.

Of the nine systematic reviews identified, the majority included low-income or vulnerable populations or varying age ranges as their target populations. A broad range of preventive activities was included across the reviews. There was a distinction between simple and complex preventive care (Kane et al, 2004) including a single visit for screening, immunizations and follow-ups (Lagarde et al, 2007; Stone et al., 2002; Zaza et al., 2001; Jepson et al., 2000), or more complex lifestyle changes, such as smoking cessation, physical activity, weight loss and dietary change (Paul-Ebhohimhen and Avenell, 2007; Hey and Perera, 2005). Jochelson (2007) examined any type of behavioral change related to health improvement. Guiffrida and Torgerson (1997) examined patient compliance with medical advice. Most reviews examined a range of different types of financial incentives.

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<sup>4</sup> The studies included here were also part of a recent unpublished review conducted by the authors for the Medicaid Evidence-Based Decisions Project (Scott and Schurer, 2008).

There was consensus amongst the reviews that financial incentives had positive effects on preventive health behaviors, but that these were restricted to simple behaviors such as one-time visits for preventive health checks, screening and immunization. For more complex behavioural change, evidence suggested that financial incentives did not sustain long term change. Paul-Ebhohimhen and Avenell (2007) in their review of financial incentives for weight loss found no effect of financial incentives on the reduction of weight. Similarly, Hey and Perera (2005) find in their meta-analysis of smoking cessation only short term, but not long term, effects of financial incentives on quitting smoking. Kane et al (2004) and Jochelson (2007) explicitly compared simple and complex behaviours and found a higher likelihood of effects for simple preventive care. Incentives that increase the person's ability to purchase the preventive service work better than diffuse incentives unrelated to the program (e.g. a movie or fast food voucher). Financial incentives may increase participation (and decrease attrition rates) in complex lifestyle changing programs, but once the financial reward ceases, individuals relapse into former behavioral patterns. There was also some evidence that the timing of the incentive mattered, with more immediate payment relative to the behavioral change having a larger effect than delayed payment or payments spread out over a longer period.

There was some evidence on the effect of the size of the incentives and a 'dose-response' relationship (Paul-Ebhohimhen and Avenell, 2007). Incentives that encouraged positive behaviours seemed to have larger effects than financial penalties for undesirable behaviours (Jochelson, 2007). Financial rewards in conjunction with educational measures were most successful in changing complex behaviors.

The reviews did not comment on the cost-effectiveness of the use of financial incentives versus other mechanisms for behavior change, presumably because no studies were found in the literature. Only Kane et al (2004) reported that they found seven out of 47 studies reporting a cost-effectiveness analysis, but these were of poor quality. However, the reviews may have missed such studies as they were not always explicitly included in the search criteria.

Lagarde et al (2007) specifically studied the impact of cash transfer programs conditional on attendance at preventive care clinics and primary school in Latin America (or pick-up of test results

in one African country). They found that of the six studies they included in the review, five found an increased use of health services. Effects on immunizations were mixed. There were also some positive effects on health outcomes. In most of these studies the reported effects on utilization were quite large, between 15% and 40%, although it was unclear how large the cash payment was in proportion to disposable income.

In terms of comparison with other mechanisms for behavioural change, Stone et al (2002) conducted a meta-analysis of 81 papers on immunization and cancer screening and found that financial incentives for patients were the second most effective intervention, preceded by organizational change. They found that a combination of interventions also had positive effects, especially where interventions were characterized by collaboration and teamwork.

Jepson et al (2000) examined the uptake of screening programs and found 14 controlled trial studies that evaluated interventions which either removed or reduced financial barriers to screening or offered financial rewards. Overall, eight of nine studies found that offering to remove financial barriers increased the uptake of screening.

Although lower prices have been shown to have an effect on general utilization of health care, evidence suggests that utilization is still relatively low, especially for preventive programs. For example, the RAND Health Insurance Experiment, the only large randomized trial of different levels of co-payments conducted in the United States from 1974 onwards, tested whether co-payments had any effect on the utilization of medical services and health outcomes (Manning et al 1987, Newhouse et al. 1993). The experiment randomly assigned several thousand families to insurance with varying levels of patient co-insurance, and then followed them over a five-year period to evaluate the effect on their medical utilization and health. Higher co-payments generally reduced the utilization of health and preventive care such as immunization for children and pap smears (Gruber, 2006). Compared to those families who had to pay part of the price themselves, the children of families with full coverage (the free plan) were significantly more likely to receive needed immunization (Lurie et al 1987). While participants under the free plan used more preventive services, their utilization was still low. Although they paid neither for the vaccines nor for physician services, only 59 percent of children aged 0-6 in these families received any

immunization during the three-year experimental period. Completely free care did not ensure that the children would receive anything close to recommended levels of immunization. A mere reduction of barriers in the form of free provision of vaccination programs, hence, may not ensure a wide uptake of immunization among pre-school children (Hemenway, 1995).

## **4 Examples of models and programs**

In addition to some of the schemes included in the above reviews, there are other examples that have not been evaluated. In the United States, a number of state Medicaid programs are offering or are considering offering rewards for healthy behavior. Florida and Idaho recently launched programs that would reward Medicaid beneficiaries for certain behaviors. California, Kentucky, Michigan, Missouri, Pennsylvania, Texas and Wisconsin are considering this strategy. West Virginia makes some health care benefits contingent upon specified behavior (Redmond et al. 2007). Georgia and Maryland have introduced financial disincentives to improve immunization rates among children. Parents who do not update their children's immunization risk losing other welfare benefits.

There is some anecdotal evidence that the incentive plans are simply not taken up by consumers. A collaboration of California Medicaid managed care plans offered movie tickets and gift certificates to adolescents who came by themselves or to parents in exchange for bringing their children for well-child visits, but only 3,000 of the 145,000 adolescents who qualified for the rewards redeemed their rewards (for parents: 2,000 out of 56,000). Florida's Enhanced Benefits program experiences a similar low uptake of the reward. The program provides beneficiaries a credit worth \$15 to \$25 that could be redeemed for health related products such as over-the-counter medication or Band-Aids in exchange for a flu shot or quitting smoking. However, only 2,000 out of 57,000 eligible beneficiaries redeemed the reward. There is speculation that current beneficiaries don't understand the incentive (Redmond et al., 2007).

On the other hand, the existing evidence on the effectiveness of the two disincentive programs in Georgia and Maryland is mixed: the study evaluating Maryland's experiment finds no effect of the

incentive program (Minkovitz et al., 1999), whereas the study evaluating Georgia's experiments finds positive effects of financial disincentives on the immunization rate (Kerpelman et al., 2000).

In Australia the General Practice Immunization and Incentives (GPII) scheme offers incentives to both parents and GPs. Parents who have an up to date immunization schedule for their child are eligible to receive child care benefit and the lump sum child care rebate to help cover the costs of childcare, as well as a one off Maternity Immunization Allowance (Lawrence et al., 1998). GPs also receive payments for completion of a vaccination schedule and for reaching a target of 90% immunization. Infrastructure payments were also made to Divisions of General Practice. Although there has been no rigorous evaluation of the scheme, nor the disentangling of the effects of patient and GP incentives, immunization rates of patients of participating GPs are over 90%.

## **5 Policy options for Australia**

A basic assumption of the use of consumer financial incentives, is that they should only be used to encourage behaviours that are known to be cost-effective in improving health status. The existing evidence suggests a number of principles that should be acknowledged if financial incentives are to be used to encourage greater personal responsibility for health. These are:

- 1) Financial incentives can be effective in increasing the uptake of preventive health programs.
- 2) Since financial incentives could be costly, they should be used for defined 'hard to reach' populations with known high risk factors, and not used for those who would attend anyway. This would help to reduce inequalities in utilisation and health.
- 3) Financial incentives should only be used for well defined, measurable and simple behaviours, such as attendance at preventive health checks, screening or immunization.

- 4) For more complex behavioural change, financial incentives should be used cautiously and as part of a multi-faceted intervention.
- 5) Direct cash payments are likely to be the most effective. Other incentives (e.g. reduced co-payments, vouchers, lotteries) do work, but are less effective.
- 6) Payments must be made close to the time of the intended behavioural change.
- 7) The higher the payment, the greater the behavioural change. This relationship may not always be linear.
- 8) Financial incentives that reinforce and reward 'positive' behavior appear to be more effective than penalizing 'negative' behavior.
- 9) Financial penalties should be used with caution, as they may penalize the least well off who may be most in need of preventive care.
- 10) Further research is required on the likely effect of using the tax system to tax unhealthy behaviours. These effects depend on the elasticities of demand for these unhealthy goods and services, and little is known about how they vary amongst different income groups.

### **Suggested policy options**

- 1) All national screening and immunization programs should consider introducing financial incentives of a fixed amount for attendance by 'hard to reach' population groups or in geographical areas with high levels of deprivation. Direct and tax-free payments immediately after the visit could be made.
- 2) Medicare Health Assessments visits and chronic disease management items could also involve a direct financial incentive of a fixed amount paid to patients attending. This could

be paid in geographical areas where uptake is currently low but population need is high. It would be important to consider if these should be means tested and how this could occur.

- 3) The above should be considered alongside existing and new policies to encourage uptake, lifestyle change and compliance, including increased supply of preventive services and activities in rural and remote areas.

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