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Executive Summary

Individual behaviours contribute significantly to the major sources of morbidity and mortality in our society, including cancer, heart disease, stroke, diabetes, and kidney and liver diseases. Although the relationship between individuals' behaviours and the factors that underlie them is complex, the way in which economic incentives are structured can play an important role in behavioural responses.

There are few good theories as to why individuals engage in excess behaviour. But it is clear that one of the main problems that face both individuals and the government or other agencies tasked with improving the health of those individuals is that *the costs of most unhealthy activities impact in the future, whereas the benefits from them occur in the present*. Policies have to be developed either that bring some of the costs from unhealthy activities (or the benefits from healthy ones) back from the future, or that reduce some of the benefits from unhealthy activities (or reduce the costs of healthy ones) in the present.

In this paper, we review some of what is known about economic incentive schemes and also consider the potential role of agencies involved in policy that directly or indirectly affect health in these areas. We apply five criteria to help identify the relative strengths and weaknesses of different schemes: their effectiveness, their cost relative to effectiveness, their impact on equity, their feasibility and their impact on individual and local autonomy.

We consider schemes targeted at NHS commissioners, other government agencies, providers, employers and individuals. A summary of the performance of the schemes against the criteria is presented in Table 1 at the end of the paper. This suggests that the following do well:

- Central government support via *matching grants* to commissioners (PCTs and Practice-Based Commissioners) who fund health promoting or disease prevention programmes
- Matching grants to employers (although this probably would do little to help reduce health inequalities)
- *Direct payments* or other subsidies to individuals to engage in health promoting activities
- *Taxes* on unhealthy behaviours.

But other ideas are also well worth considering:

- *Libertarian paternalist policies* also score well on all the criteria, but the scores here are more speculative.
- If measures for obtaining long term health gain can be defined as investment in the stock of health or human capital, then *the PCT capital budget* can be a source of funds. If defining preventive health care this way infringes conventional accounting rules, this may score low on feasibility; but it scores well everywhere else.
- Influencing GPs by adapting the *QOF* also scores well on most criteria but low on feasibility.

Ring-fenced allocations to PCTs or changing the surplus rules for Practice Based Commissioning do not score exceptionally well on our criteria, but would be desirable on other grounds such as low administrative cost and feasibility. Local schemes to work within *LAAs* to target vulnerable groups do well on the equity criterion, but their effectiveness depends heavily on the overall effectiveness of the underlying partnerships. *Payment By Results* could encourage providers to engage in preventive services but, under current institutional arrangements, probably only to undertake secondary prevention. Various forms of social marketing may have potential, but scoring social marketing properly suffers from an almost complete lack of information on costs, let alone on cost-effectiveness.

1. Introduction

There is a growing recognition that many of the health problems that confront governments in modern developed societies have their root in individual behaviour of one kind or another. Smoking, excessive alcohol consumption, lack of exercise, poor diet, illegal drug taking: all are individual behaviours that are widespread in our society and all contribute significantly to the major sources of morbidity and mortality in our society, including cancer, heart disease, stroke, diabetes, and kidney and liver diseases.

There is also an increasing recognition that, although understanding individuals' behaviours, and the factors that lie behind them, is a highly complex undertaking, those behaviours can be significantly affected by the structure of economic incentives that individuals or households face. It has long been known that raising the price of cigarettes or alcoholic beverages can be a powerful instrument for reducing smoking or excessive drinking. But there is also an increasing interest in less familiar forms of economic incentive schemes, such as paying people to undertake screening programmes or subsidising gym membership.

Moreover, this interest in incentives is not confined to those that affect individuals, but also in the structure of incentives that affect those who are the agents for delivering policy that directly or indirectly affect health. These include: NHS commissioners such as Primary Care Trusts or Practice-Based Commissioners; health care providers, such as GP practices, hospital trusts and pharmacists; government departments, including not only the Department of Health, but also others that deliver policies impacting on health, such as the Department of Work and Pensions and the Department for Children, Families and Schools; local authorities, and their partners in local area agreements; and, last but not least, organisations and institutions outside of government, such as employers and voluntary organisations. All of these face incentive structures that could work to help deliver health promoting policies - or that could work against them. In principle at least there may be changes in these incentive structures, too, that could change behaviour in the direction of promoting long-term health gains.

In this paper, we review some of what is known about economic incentives in these areas and offer some ideas for ways forward. We have neither the space or time to be fully comprehensive, and so have had to be selective. Specifically, we begin with an analysis of the problems that confront governments trying to incentivise different kinds of behaviour. Then we lay out the criteria that an incentive scheme needs to fulfil if it is to be reasonable policy option. This is followed by a discussion of various policy proposals for incentivising commissioners, providers, employers and individuals, including an assessment of their performance against the criteria. The concluding section provides a table summarising the performance of the proposals against the criteria¹.

2. The Problems

There are a number of fundamental problems that confronts any attempt by government to encourage healthy behaviour (including the taking up of preventive care) and to discourage unhealthy behaviour.

¹ Useful discussions that cover ground similar to that covered by some of the material in this Report can be found in Sassi and Hurst (2008). See also Le Grand (2008).

One of the problems is that we do not have a properly developed theory as to why people engage in unhealthy behaviours, or do not undertake healthy ones. Avner Offer in his book *The Challenge of Affluence* (2006) suggests the problems arise from the absence of individual self-control. Oswald and Powdthavee (forthcoming) have suggested that it may be due to people's relative position in the distribution of the relevant factor. So, for instance, people's decisions with respect to their food consumption or their exercise may be due less to their absolute weight than their 'relative' weight: that is, their weight as compared to that of the people around them. This is supported by recent work in the US suggesting that social networks do appear to be important in 'transmitting' obesity (Christakis and Fowler 2007).

Another, contrasting, set of theoretical explanations argues that any focus on individual behaviour is misplaced and that the risks to the nation's health actually arise from fundamental flaws in the structure of society: from the persistence of long-term poverty and the growth of inequality, through to the existence of powerful private corporations aggressively marketing tobacco, alcohol and fast food (see, e.g., Siddiqi and Hertzman 2007, Davey Smith *et al* 1999). The solution to the problems involved in trying to change individual behaviour therefore require nothing less than fundamental changes in the nature of the economy and society.

A recent illustration of this view, or least one that comes close to it, is the Foresight Report on obesity (Government Office for Science, 2007). It argues that the 'fault' for the behaviours of excess does not lie in the individual; rather it is the fault of the wider society and the context in which individuals find themselves. In the case of obesity, the Foresight Report calls this context the 'obesogenic environment'.

Now there is clearly something to this. Obesity and other health problems resulting from excess behaviour do clearly have multiple social causes that are difficult to untangle. Also a simple focus on the individual can lead to unhelpful attempts to allocate blame. And the result of that is to emphasise simplistic solutions, such as telling people that their health difficulties are their own fault, and that all they need to do to improve their health is to pull themselves together.

But analyses that place causality entirely within the frame of society are also often not very helpful. One of their dangers is that they present the problem as so enormous and so complex that its resolution seems daunting at best, and impossible at worst – impossible, that is, short of a revolution. A heavy emphasis on the scale and complexity of the fundamental causal mechanisms – and the message often accompanying it that there is no silver bullet that will resolve it all - can mean that people stop looking for any kind of bullet, silver or otherwise. And that would be undesirable. For the fact is that individual behaviours can and do change, positively or negatively, in relatively short spaces of time without social revolution: witness the decline in smoking in the 1970s and 1980s, and, more recently, the falls in the amount of exercise that people take.

There are simpler analyses that can help us understand the problems of individual behaviour with respect to their health and take forward the development of policy. In fact, there is a fundamental problem that bedevils the adoption of measures designed to improve the nation's health, but it is not that of the nature of society. It is the inexorable fact – which would be true in any society, feudal, capitalist, social democratic or socialist – that *the costs of most unhealthy activities impact in the future, whereas the benefits from them occur in the present.*

So, for a 20 year old, the smoking of a cigarette or the eating of a hamburger now has an immediate pay-off in terms of taste sensation, relaxation or hunger satiation; while the cancer or heart disease that may follow is probably at least thirty years away. Given that the future is uncertain, it is then perfectly rational for risk-averse individuals concerned to 'discount' those benefits: that is, to place a lower weight on them than if they were to occur in the present.

There are a variety of sources of this uncertainty, and therefore of discounting. The individuals may die of something else in the meantime; alternatively, there may be medical advances that mean that cancer or heart disease will not be the killers that they are now. Then there is the question of individual physiognomy: many smokers or heavy eaters do not in fact contract lung or heart disease, and the potential smoker or hamburger eater may be one of the lucky ones.

Another reason for discounting the future is the phenomenon that economists and others call myopia: that, even in a world where there was more certainty, people often seem to prefer pleasure now to that in the future. Even if this is regarded as 'irrational', it is understandable. Most people find it difficult to conceive of being thirty years older than their present age: twenty year olds may perceive themselves as being different people from their fifty year old selves, and hence thus may not weight these 'other', rather alien, people's interests as much as their own immediate ones².

This problem – the long time gap between the benefits from the activity and the possible onset of its costs – also applies to policy-makers and others involved trying to curb unhealthy activities and promote healthy ones, but in reverse. For them the costs of whatever intervention they are trying to undertake are immediate, whereas the benefits will not accrue until a long time in the future - if at all.

For instance, consider Primary Care Trust (PCT) commissioners faced with the choice of either introducing a resource intensive exercise programme designed to promote their citizens long-term health, or of bailing out the local hospital trust that has got into financial difficulties. If they go for the health promotion programme, they will incur considerable financial costs. But also, as the local hospital has to close its doors, they will incur substantial political costs as well. Quite apart from the distress of the hospital staff and patients (actual and prospective), the commissioners will have to face the hostility of the local media and community. And they may get a rap on the knuckles from the Strategic Health Authority at best, or lose their job at worst, for not keeping the noise down.

Of course, if the health promotion programme is well chosen, it should deliver significant benefits for the health of the local population – which, in the long run, as well as being socially and economically desirable, could deliver cost savings for the PCT. But, given the fact that health service staff, like those in all other occupations, move on, get older, retire and so on, the PCT commissioners are unlikely still to be in their present roles, or even in the same organisation, when these benefits come in - indeed, given the pace of change within the NHS, the organisation itself might not be there. In that situation, there is no need to invoke psychological explanations of discounting to explain why they might choose to fund the deficit and not the exercise programme. It is not surprising that a recent survey of PCTs found that less than 10% used their public health allocation for the purposes for which it was

² See Le Grand (2006), pp 88-91, for a development of this argument

intended, with most axing public health programmes to pay for overspending on trust budgets for hospitals and GPs³.

What are the implications of all this for government policy? It implies that something has to be done to change the incentive structure faced by individuals – and indeed that faced by commissioners. Policies have to be developed that either bring some of the costs from unhealthy activities (or the benefits from healthy ones) back from the future, or reduce some of the benefits from unhealthy activities (or reduce the costs of healthy ones) in the present. This is not easy but not impossible; some policy ideas involving various kinds of economic incentives aimed at these changes are discussed below.

3. Criteria

Before discussing policy ideas, however, it is necessary to spell out the criteria that an economic incentive scheme designed to change the behaviour of either commissioners or individuals should fulfil if it is to be properly assessed. Here we identify five that seem to be among the most important: the scheme's effectiveness, its cost relative to its effectiveness, its impact on equity, its feasibility and its impact on individual and local autonomy⁴.

The most obvious criterion is that of *effectiveness*. The incentive scheme should work: that is, it should actually succeed in changing the behaviour of the relevant agent in the desired direction, and do so to the desired extent.

A criterion of almost equal importance is that of the scheme's *cost* relative to its effectiveness. Obviously the cost of most immediate concern to the Government is the impact on the public purse; a scheme that is highly effective but very expensive in terms of public expenditure may be less desirable from the Government's perspective than one that is marginally less effective but with a much lower expenditure requirement. But the cost in terms of public spending should not be the only consideration. There may be other costs of particular policies – to individuals and households, to employers and employees – that need to be taken into account.

A third criterion is that of social justice or *equity*. A number of possible concerns come under this heading, but perhaps the most important of these in terms of current government priorities is *the impact on health inequalities*. As we have seen earlier in this Report, one of the most distressing aspects of unhealthy behaviours, their associated risk factors and the consequent ill health is how much of all of them are concentrated among the less well off: smoking, lack of exercise, obesity, diabetes, most forms of morbidity and premature mortality are all significantly more pronounced in lower social groups than higher ones.

Almost equally problematic is the fact that many public health interventions designed to try and change behaviour, such as health education, often have more impact on the better off than the less well off. Hence, although such measures may contribute to an improvement in the average level of health, they also widen its distribution – or, in other words, widen health inequalities. Other things being equal, a good incentive scheme should impact at least as much as on the less well off as on the better off – and indeed preferably more.

³ *The Guardian* 19 October 2007, p.8

⁴ Schmidt (2008) uses a similar list of criteria for assessing the desirability of bonuses in German health insurance systems. They include solidarity; equity; intrusiveness; attributability and opportunity for choice; evidence, rationale and feasibility; affected third parties; and coherence.

A fourth criterion should be to take account of the scheme's *feasibility*. This needs to include political as well as administrative feasibility. Assessment of a scheme's political feasibility should involve considering its broad popular acceptability, as well as the various interest groups affected by the scheme (both positively and negatively). Administrative feasibility will depend on the complexity of the scheme, the level and number of staff and the amount of other resources required to run it, the number of government departments involved (in many cases more than one), and the extent of involvement of other agencies (outside contractors and so on).

Last, but not least, is the question of the nanny state – or, put less tendentiously, the impact of state intervention on individual *autonomy*. The most powerful arguments against a public health intervention often come from critics concerned with the intervention's impact on the autonomy of individuals: their right to make their own decisions about matters that affect only themselves, without the interference of the state or indeed of any other agency – no matter how well-meaning that intervention might be. One does not have to accept all the tabloid strictures about the horrors of the nanny state to acknowledge that there is something to this argument. Most of us do not like being told what to do (by nannies or anyone else), and feel that we have a right to make our own minds up or what is good or bad for us.

There is a similar argument relating to commissioners. A key part of government policy with respect to NHS commissioners is to encourage local autonomy, on the grounds that local communities are the best places to decide upon local needs. Other things being equal, it is as desirable to avoid central government diktat in public health or preventive care as it is in other areas of health service commissioning.

Having established some of the criteria for assessing economic incentive schemes, let us examine some of the schemes themselves. In what follows, we discuss schemes targeted at NHS commissioners, providers, other government agencies, employers and individuals.

4. Targeting NHS Commissioners

There is little evidence concerning the effectiveness of different measures for incentivising commissioners such as Primary Care Trusts or Practice-Based Commissioners, perhaps because the idea of doing this is relatively new. Hence here we discuss some specific proposals that could be developed for each kind of commissioner, and that could perhaps be piloted to assess the proposals' overall costs and effectiveness. These include changes in funding formulae, matching grants, redefinitions of capital investments, and, for practice-based commissioners, retention of budgetary surpluses.

4.1 Primary Care Trusts

In theory, Primary Care Trusts should be already incentivised to provide preventive services or health promotion activities. If they offer relatively cheap preventive care or undertake cheap forms of health promotion, and the result is a reduction in demand for relatively costly secondary care, then they should save resources – thus enabling them better to meet all the other many demands for care of various kinds.

However, there are a number of problems with this. First, preventive care is not always cheaper than secondary care. Even though each ‘unit’ of preventive care, say a mammogram for women aged 40-50, may be cheap, the fact that the tests have to be offered to the whole of the relevant population may drive up total costs, and make the procedure less cost-effective than curing the relatively few cases that would be found if the tests were not undertaken⁵. More importantly, as we saw earlier, the benefits from even cost-effective preventive care or health promotion often accrue a long time in the future – at a time well beyond the job tenure of the current post-holders or indeed even beyond the lifetime of the institution itself.

So the question to ask is whether there are ways of reducing the costs of preventive care to the PCT relative to the costs of their other activities, and/or of bringing forward some of the benefits of this care.

Formula Funding

PCTs receive funding through a weighted capitation formula. This is currently being reviewed under the auspices of the Advisory Committee on Resource Allocation (ACRA). ACRA were given the remit by the previous Secretary of State to develop a new formula that “gave equal opportunity of access for people at equal risk” and also served as an “instrument to reduce avoidable health inequalities”. The first is about achieving equity in access. The second is about moving toward more equity in outcomes. ACRA’s current thinking is that the two objectives are best met by two separate formulae. This approach would be more explicit and transparent than the current formula, which strives to hit both objectives simultaneously.

Total allocation would be split into two pots of money. The first would be allocated according to a new formula that models age and morbidity related need simultaneously. The second pot would be allocated according to a direct measure of health inequality (e.g. avoidable SMRs for the under 75s or healthy life expectancy).

This proposal meets the feasibility criterion (both administrative and political) and, in terms of cost, would be within current allocations. What of effectiveness in actually changing behaviour? If the health inequalities allocation were ring-fenced to preventive services, then the PCT would have an incentive to spend up to the limit and, provided the right programmes were chosen, this could be an effective mechanism for encouraging spending on preventive care. But ring-fencing of any kind offends against the principle of local autonomy: that local agents should decide upon how to allocate spending to meet local needs. On the other hand, if the allocation were not ring-fenced, or if it were only ring fenced to ‘health inequalities’, then there would be no guarantee that the extra resources would be spent on preventive care – although it would set the expectation that a certain level of resources should be dedicated to reducing health inequalities.

Options in between ring-fencing and no ring-fencing would include the rigorous monitoring of spending on preventive care, and the performance management of outcomes, with an automatic challenge if investment in prevention is low and outcomes are not improving. However, the ‘performance management’ is likely to involve elements of compulsion or command and control, and is damaging to local autonomy.

⁵ As indeed has been argued for this example (Olsen and Gotzsche 2001). Other cases where preventive care has been shown to be not cost-effective are annual comprehensive screening for men (Chacko and Anderson 2007).

The High Quality of Care for All: NHS Next Stage Review Final Report (2008) intends to ensure that PCTs have financial allocations for the next two years. An operating framework will be published in the fall of 2008 and PCTs will be charged with publishing a strategic five-year plan in the early 2009 for the population they serve. (This may, of course, all change in the light of the current economic downturn). Generally these local level initiatives are an important step; but, on their own, they cannot guarantee that more money will be spent on preventive care unless additional measures of the kind to be discussed below are undertaken.

Matching Grants

An increase in resources would be welcome to commissioners, but, as we have seen, unless it is accompanied by some form of ring-fencing, the increase will only incentivise preventive spending (if at all) through an 'income effect'. Commissioners will not observe any differences in relative costs of preventive and curative care they offer, but rather simply have a larger budget from which to draw resources – which may result on increased spending on preventive care along with increases in everything else, but, given the often pressing nature of demands elsewhere, may well not.

One way of changing relative costs, and thus of encouraging spending on preventive care, would be to use central funds to set up a series of matching grants: say, offering to match every £1 spent on specific preventive programmes with £1 from the centre. This would reduce the costs of these programmes relative to other demands on PCT resources and thus encourage spending on them. The matching grants could be targeted on specific programmes that would benefit less well off groups, thus meeting the equity criterion.

This could be an effective means of encouraging spending. Moreover, it would not reduce local autonomy, in that PCTs would still be free to allocate their resources as they wished. The principal difficulty is a feasibility one: in order to fund the scheme, resources would have to be held back at the centre, or top-sliced from PCT allocations. But the sums involved would not necessarily be very large. Moreover, it is not clear that it is necessary to have a pound for pound matching rate to provide enough incentive; the matching rate could be lowered to, say, 50p per pound, which would further reduce the overall costs of the scheme. All in all, this seems to be a proposal worth serious consideration.

Human Capital Investment

A more ambitious idea has been suggested by a Board member of Health England. This is that, since preventive services are a means of building up the stock of health or human capital in an area, they could be viewed as a form of capital investment. In that case, expenditure on preventive services could be 'charged' to the capital budget. PCTs receive an allocation for capital but this amount is almost always under-spent; hence this change could release significant funds without affecting current spending.

This could be an effective means of increasing spending on preventive care. It does not interfere with local autonomy (at least no more than do current restrictions on virement between capital and current revenue accounts). It would also fall within current allocations and would therefore cost the NHS nothing. There is a danger that it could divert spending

from other capital projects; but, since PCTs' capital budgets are often under-spent anyway, this is likely to be a minor concern.

However, administrative feasibility is clearly an issue. In particular, it would be necessary to explore under what circumstances accounting rules would permit this. Also the new capital created would not belong to the PCT in the sense that normal capital investments by the PCT would.

4.2 Practice-Based Commissioners

Under practice-based commissioning (PBC) GP practices receive a firm indicative budget from the PCT that, in theory at least, they use to commission and directly manage the delivery of services. Services cover primary and secondary care. The actual budget is held by the PCT. Any savings arising from the entire commissioning budget are split between the practice and the PCT. Practices are in theory allowed to retain 70% of the savings with the remaining 30% claimed by the PCT.

Most of the above arguments and policy proposals applied to PCTs could also be applied to practice-based commissioners. In theory, under certain conditions as with PCTs, PBC should contain incentives to shift resources into preventive care. Indeed, practice-based commissioners have a further incentive in that they can retain some of any surplus they make on their budget. If the offering of relatively cheap preventive care to their patient population results in a reduction in the demand for relatively costly secondary care, then the practice's surplus will increase – to their own and their patients' benefit.

However, there are problems with the use of this budget retention as a lever for incentivising the commissioning of preventive services. Practices are required to identify how the savings will be used at the start of each financial period. This process is not straightforward, and requires approval from the Professional Executive Committee (PEC) of the PCT. The PEC then makes a recommendation to the Board to use the funds arising from savings. This is a clumsy process and one that often discourages the bidders. Hence many GP practices do not see the retention of surpluses as a powerful incentive. If this is to be used as an instrument for incentivising preventive care, the rules will have to be reconsidered.

A further factor that works against the use of surpluses as a means of changing behaviour is that the budget for PBCs is usually an indicative one, with much of the risk from a practice overspending impacting on the PCT rather than the practice itself. Converting these indicative budgets to hard budgets might serve to focus PBCs attention more on the potential savings that might accrue from spending on preventive care.

Finally, it might be noted that the twin formula approach discussed above under formula funding could, in theory, be devolved to practices with indicative or hard budgets set for treatment and prevention. The advantage of devolution of the twin formula approach to practices is that the money would be allocated closer to the problem and be in the hands of the agents, GPs and primary care staff, who are well placed to tackle the problem.

5. Targeting Providers

What are the possibilities for incentivising the direct providers of health care, such as GPs for primary care, and hospitals and other trusts, and pharmacists? There is some evidence here that suggests that monetary incentives may work in settings that involve simple preventive measures at least. First, we review that evidence. Then we consider various ways of incentivising GPs through the Quality and Outcomes framework (QOF), pharmacists and hospital trusts via Payment by Results (PbR).

5.1 Evidence

Most of the evidence comes from the US and derives from studies that targeted only physicians; other health care practitioners such as nurses or pharmacists were not targeted. The types of physicians targeted included family practitioners (GPs), internists and paediatricians. All studies took place either in solo or group practices. Studies looked at simple preventive measures. Most examined immunisations, with the remainder looking at prenatal care, child visits, cancer screening and cholesterol screening. The patient population in half of these studies were vulnerable populations. Patients of low socioeconomic status (e.g. drug users, teen mothers) were most frequently studied for simple preventive care.

Most studies used bonuses as reward, with a few awarding only the top performing practices in a tournament style. Of those studies that reported the monetary amounts, bonuses ranged from \$50 to a tournament bonus of \$4,682. Details of payments frequency and timing were not reported; nor were the costs the physician incurred to establish the procedures to support production and behavioural changes. Therefore the net effect of the incentive's financial benefit could not be assessed, and no information was collected on the physicians' expectations of receiving a bonus. Physicians with performance bonuses were linked to the study outcome, which were primarily measured as the percent of charts in compliance with a target outcome. Documented charts were classified as compliant irrespective of whether the physician or his/her staff completed the chart. No studies addressed cost-effectiveness but one did calculate the marginal cost of immunisation (\$3) (Kouides, Bennett et al. 1998).

Among the studies reviewed, findings were mixed: four out of the nine found positive effects (Morrow, Gooding et al. 1995; Kouides, Bennett et al. 1998; Fairbrother, Hanson et al. 1999; Fairbrother, Siegel et al. 2001) and five found no effects (Ritchie, Bisset et al. 1992; Fox and Phua 1995; Grady, Lemkau et al. 1997; Hillman, Ripley et al. 1998; Hillman, Ripley et al. 1999). The findings suggest that improvement in chart documentation accounted for the positive effects of the interventions. Not all studies reported size effects or provided adequate information to construct relative risk ratios but a review of the evidence suggests that the effect size was moderate (Kane, Johnson et al. 2004). One study in receiving economic incentives was associated with a 7.1 percent increase in immunisation rates (Kouides, Bennett et al. 1998). Modest incentives such as coupons were effective but bonuses did not appear to work well (Fairbrother et al. 2001). There is some evidence that incentives were effective in group practices versus solo practices, but the data are unavailable to disentangle the underlying causes (Morrow et al. 1995). It is unclear whether incentives were paid directly to physicians or to group practices and whether these incentives led to improvements in staff and resources in group practices.

A review of the studies stresses that organisational dynamics affect the financial incentives and the rules under which physicians practice (Kane, Johnson et al. 2004). Paying providers on health outcome measures rather than on the process will have implications on how well the incentive is linked to a physician's behaviour change. There will be differential effects on the

physician's motivation and information content. An incentive system on a widespread scale has not been adopted, and little is known about how large such incentives should be. Appropriateness and efficacy of financial incentives have only recently begun to be subjected to examination through either experimentation or well-designed studies.

5.2 GPs and the Quality and Outcomes Framework

One financial lever to target GPs to be more involved in preventive care could be introduced within the contractual arrangements of the QOF (Quality and Outcomes Framework). The quality and outcomes framework (QOF) is an incentive and reward programme for GPs. The QOF was intended to give GPs the professional freedom to decide which standards they wish to aspire to and to organise their work to meet them; it is outlined in the box below.

Box 1 – The Quality and Outcomes Framework

The QOF is a voluntary process for all surgeries in England and was introduced as part of the GP contract in 2004; the first year of operation was 2004/2005. Payments under the QOF amount to around 15% of expenditure on primary medical services and an even greater percentage of net reward to practices.

The QOF rewards practices in four domains of quality: for meeting clinical, organisational and patient-experience standards, and for offering additional services beyond the contractual minimum. The clinical domain covers 19 disease areas; the organisational domain rewards good practice⁶; patient experience collects information on consultation length and patient surveys; and the additional services domain covers cervical screening (e.g. percentage of patients who received a cervical smear), child health surveillance, maternity services and contraceptive services. Practices earn entitlements to payment under the QOF by accumulating points for meeting national targets. The value of each point is determined nationally through a complex formula which rewards, generally, practice size more than it rewards prevalence of disease, but rewards are paid by local PCTs.

In the area of primary prevention, the clinical domain has points for maintaining registers for obesity and learning disability. The clinical domain covers management and secondary prevention for 15 of the major long term conditions (e.g. stop smoking strategy). There are also organisational points such as recording blood pressure in patients over 45, and recording smoking status in adults. Practices are remunerated for providing immunisations to high risk groups (e.g. children, influenza and pneumococcal)

The QOF was one of two new funding streams introduced to the GP contract. The second new stream offered payments for enhanced services for practices that carry out functions beyond the minimum requirements (e.g. to specialise in certain clinical areas). This allows practices to specialise in certain clinical areas and control workload.

There is some evidence emerging on how the QOF has affected GP behaviour and delivery of care. One study found that financial incentives have not had a negative effect on GPs' internal motivation (McDonald, Harrison et al. 2007). This study also considered nurses who welcomed the increase in responsibility for delivering on targets in disease areas but, relative

⁶ Some examples include record keeping, information for patients, education and training, practice management and medicines management

to GPs, nurses expressed greater concern about the change in their clinical role. Another study found that the QOF contributed to improved care for chronic disease management of asthma and diabetes, while management of coronary heart disease, that had already experienced improvements before QOF was introduced, continued at the same rate (Campbell, Reeves et al. 2007). A very recent study found that the proportion of patients for whom the relevant targets for 48 clinical activities in the QOF were achieved increased faster in practices in the most deprived localities than those in the least, suggesting that financial incentives could help reduce inequalities in health care (Doran, Fullwood et al. 2008).

Within the QOF, the additional services domain already includes some preventive services, such as cervical cancer screening and some vaccination and immunisation programmes. These could be expanded include other forms of preventive care, such as such risk assessment and the primary prevention of disease.

However, there are particular challenges for introducing indicators in QOF for health and wellbeing. Few indicators currently relate to prevention, and addition of new indicators depends on negotiation on the General Medical Services Contract, the priorities of the negotiating parties and the resource available to deliver new indicators. Lack of agreement on the overall contract framework precluded changes in 2007/08. Further, one of the principles behind QOF is that indicators should, where possible, be based on best available evidence for the health benefit likely to result; but there are significant gaps in the evidence base for primary prevention interventions in primary medical care.

Further, if such measures were included, they would not necessarily meet equity concerns since the most vulnerable patients may not present themselves to a GP. Moreover, currently, full payment under the QOF is not conditional on those patients most at risk, because there are no incentives built in to reward treatment to those from the most vulnerable groups or with the most complex cases – although the study referred to above does suggest that it has reduced some inequalities in care overall (Doran, Fullwood et al 2008)

One of the key problems highlighted earlier is that of incentivising providers to engage in preventive measures in the present even though the benefits to patients' health will only be observed in the long run. A challenge with the current arrangement of the QOF is that it does not yet consider implications for providing long-term care. In particular, even though there has been an introduction of new registers for smoking and obesity, the current incentives do not exist for advice and follow up. The introduction of any preventive measures that would require follow up would need to be integrated into the current arrangements so that GPs are encouraged to offer advice, and provide referrals to counselling services. For instance, more weighting given to disease prevalence in QOF could incentivise case funding and greater weight could be given to encourage reaching patients most difficult to reach.

Finally, there is a disconnection between the financial cycles of PBC and the QOF; they do not complement one another but run in separate financial cycles. There is a further disconnection in the use of information: this is again not complementary because of the vastly different information standards between hospital and QOF data.

So a number of broad considerations remain:

- How to secure the release of resources from the existing QOF to match the Government's commitment to health and well-being

- How to rebalance the disease-based QOF to accommodate health and wellbeing risk assessment
- How to attain the standard of evidence required for all the specific health and wellbeing priorities
- How to frame and evidence an “all-risk” approach into one new QOF domain.

But, in spite of these challenges, there is potential to influence changes in the longer term. The recent High Quality of Care for All: NHS Next Stage Review Report (2008) identified that there is potential in the QOF to incentivise physicians in primary prevention. This is a welcome step.

5.3 Pharmacists

Incentives for pharmacists could be better integrated into an overall preventive care strategy. The involvement of pharmacists in preventive services is a new area of possible policy development but evidence as to whether such policies work does not yet exist.

There is a growing debate on increasing the role of pharmacists towards a more clinical orientation. The traditional role of dispensing has become less complex for pharmacists and as a result, pharmacists are an untapped potential (Taylor and Carter 2002). Their knowledge of medicines and management of disease could be used to target certain health prevention activities, including screenings for chronic conditions such as diabetes screening (sugar level checks), and hypertension screening (blood pressure control).

There are proposals to develop pharmacist involvement in the area of preventive care such as health checks. If accepted, these measures would be integrated into the Pharmacy Contract. The effectiveness of simple preventive measures could be monitored.

A recent report on how to better integrate pharmacy services into the NHS identifies a number of areas where pharmacists could be involved in preventive care (Secretary of State for Health 2008). The report is an important step to address the future role of pharmacists, but it is not clear on the incentives for pharmacists to be involved.. Furthermore, it is unclear how this integration would address the possible perceived professional threat of pharmacists in greater preventive roles working alongside physicians and nurses.

A greater reliance on pharmacists could possibly lead to a greater number of poorer people accessing preventive services than would otherwise have visited a GP, thus possibly reducing health inequalities and promoting equity. Patients would have to be reassured that a pharmacist is capable and competent to carry out such services.

5.4 Hospital Trusts and Payment by Results

Financial incentives for activity already exist for secondary care services. Payment by results (PbR) has been introduced, whereby payment is linked to activity and adjusted for case mix. This approach to hospital funding replaced contract-based commissioning.

The Department of Health is working on how to expand the current coverage of PbR. The team is considering developing quality markers and a risk adjusted capitation model to create

mini budgets for long-term conditions. This could create incentives for a trust in receipt of the relevant budget to engage in secondary prevention; that is, in activities that would prevent the condition getting worse, at least within the time period of the contract. However, it would only incentivise longer-term secondary prevention activities if the trust expected the contract to continue until those benefits were realised. It would do nothing to incentivise primary prevention: that is, activities that prevent the onset of the condition in the first place.

One of the main challenges of expanding PbR to 'primary' preventive services is that most preventive services are not yet priced. In the West Midlands, there is activity underway to look at developing tariffs for treating smoking and training programmes. However, the effectiveness of implementing such a policy is less clear because the relevant incentives are not linked to trust behaviour. That is, even if tariffs were developed for primary preventive care, it is not clear how this would incentivise trusts, unless they were providers of such care. The existing financial levers between PCTs and trusts do not complement one another because there is no incentive to transfer funds between trusts and PCTs. If the trust accrues any savings from preventive care, the savings accrue to the PCT rather than going to the trust.

The question is, therefore, whether trusts should be incentivised to undertake primary preventive care. But this raises issues of the appropriate division of functions between the providers of primary and secondary care that are beyond the scope of this paper. Suffice it to say that under current institutional arrangements there is relatively little scope for using PbR to incentivise providers to engage in primary prevention. However, there are opportunities for encouraging them to deal with secondary prevention, such as under the risk-adjusted capitation scheme for long-term conditions mentioned above.

5.5 Other Health Professionals

The recent review by Dame Carol Black on the workplace focussed on policy options to enable workers with health problems to stay at work and to help those not employed to enter, or to return to work (Black 2008). The report suggests that a model of integrated care that involves interaction and management by a case worker to work with the patient's GP and referral services under the *Fit for Work* programme. An integrated approach would highlight the multidisciplinary nature of many health interventions—these in particular, could also address those currently not working and receiving out-of-work benefits. Such measures could better integrate the role of GPs along with other health professionals, with the use of a clear accountability framework of the role and responsibility of providers.

The review also calls for greater expansion of occupational therapy to be funded and supported under NHS health provision. Occupational health is increasingly being recognised as an important policy lever to address health and workplace concerns. Strengthening a professional body of occupational therapists is a long term investment, which will require the establishment of clear standards, practice and accreditation. These steps are important to consider. The development of contracts with the NHS should include positive financial incentives to encourage health provision in this area.

6. Working Across Government

A more comprehensive approach to preventive care involves various actors in different capacities. A government-wide effort to address policies concerning preventive care implies a different approach to existing institutional arrangements. There is a need for greater coordination between government bodies whose policies influence health through joint budgeting arrangements so they have a greater incentive in implementation (Srivastava 2008). There is some evidence from Sweden, where experimenting with joint budgeting arrangements between sickness funds, health and social insurance began in the 1990s. This shows that these arrangements led to improved co-ordination across sectors (Hultberg, Lonnroth et al. 2003). Any measures for intersectoral work should be supported by law with a clear accountability framework. For example, recent efforts are underway in the Netherlands (see Annexe A).

Recent local government initiatives have been targeted to include more input and activities in the area of preventive care. A local area agreement (LAA) is an agreement between a local area and the central government to identify local priorities and the development of programmes. The LAA is negotiated between the local strategic partnership (LSP) and the regional Government Office (GO). The LSP consists of all the key players in a local area who deliver services. The local authority is the lead partner in the LSP. The local authority negotiates the LAA on behalf of its LSP and is the only body accountable to government. Other key players in a LSP include the police and the Primary Care Trust. The role of PCTs has recently been strengthened since PCTs are required to work with LAAs to undertake their joint strategic needs assessment.

The LAA allows services to be delivered through improved coordination by bringing together partners from the public, private and voluntary sectors. It pools the streams of funding each partner into a single pot. This avoids duplicating effort and wasting money.

The actual impact of LAAs is unclear, partly because it may be too soon to observe changes during the transition and start-up phase. It is as yet very early days; many LAAs are evolving in structure and have yet to take on their final form. However, there are a few positive signs. The development of LAAs in London have involved identifying many preventive measures such as smoking cessation, improved nutrition, and increase in physical activity (Strategic Health Authority, Regional Public Health Group - London et al. 2007). A report by the Office of Public Management (OPM) found that LAAs are helping to strengthen governance arrangements at local level, but that both the central government and local partners had unrealistic expectations of how soon the impact of LAAs would take effect (Office of Public Management 2006). A survey of LSPs reported that the majority had developed a joint strategy and activity on health related activities and that just under 45% had achieved measurable outputs and outcomes (Geddes M, Fuller C et al. 2007). The OPM report, however, found that in general, there are difficulties of attribution to evaluate the marginal impact of LAAs initiatives.

Developing stronger ties between the partners may prove fruitful for more outreach related work to target vulnerable populations and those that do not present themselves to the GP. Outreach related work with the voluntary sector, particularly for patient counselling and advice could be beneficial but proper coordination and management of such interventions would be necessary.

With respect to economic incentives, in theory LAAs could be targeted by the use of *matching grants*, as with other commissioners. That is, the central government could offer to match LAA expenditure on preventive activities at a given rate (such as 50p or £ for £). The pros and cons of this approach in terms of our criteria are the same as for the other commissioners considered. However, there is an additional complication in that the effectiveness of the scheme will in large part depend on the effectiveness of the underlying partnership.

7. Targeting Employers

Most employers are not involved in delivering policy that affects health (directly or indirectly). But they do face incentive structures that could work to help deliver health promoting policies among their staff. Indeed, some businesses have become more engaged in making healthy workplaces as part of their business model.

A recent report developed in conjunction with the World Economic Forum's Working Towards Wellness Initiative highlighted the growing need for businesses to engage in prevention measures in the workplace to avoid adverse effects on productivity, to remain competitive and to attract new talent (PricewaterhouseCoopers 2007). A conservative estimate of the benefits of improving the general wellness of a workforce indicates an annual return of three to one or more. In addition, the report noted that there is growing consensus among business leaders that governments alone cannot be responsible for the health of people due to persistent under-spending on public health initiatives.

One example of a recent initiative in this area is that of Unilever UK. The firm measured the difference in productivity between its healthy and unhealthy employees and found that those who had a low score on their health risk assessments also performed at a lower level over

time. The company offered interventions to a group of staff to manage stress, cope with pain and sleep more soundly. They were found to be 8.5% more efficient at work and less liable to take time off. In contrast, absenteeism rates in the control group rose over this period (Vielife 2005).

A more general review of current research in the area found that most of the companies focus their efforts on healthy eating and physical exercise (PricewaterhouseCoopers 2007). Among the multinational companies surveyed, many companies tailor wellness programmes to suit different types of employees. One programme may focus on specific factors for senior management and a more broad-based approach for other employees. Evidence from the US shows that a regular employee health assessment paid for by employers can inform individuals and the employer about risks to health and possible measures for risk reduction. The most common wellness schemes in the US include health risk assessments, followed by smoking cessation activities, on-site workout facilities, diet groups, cafeteria with health food options, gym membership, diet counselling and exercise breaks. The company PepsiCo launched a HealthRoads Programme and found that 90% of the employees who completed the assessment were found to be at risk and were referred to a health coach. About one quarter of those who participated in the company's wellness programme experienced improvements in health.

Similar gains have occurred among companies in the UK who incorporate wellness into their business strategy to target executives, develop a culture and invest in their employees. A description of programmes among UK companies is presented in the box below.

Box 2 – UK Employers involved in wellness activities

Leadership. Unilever UK promotes active leadership of senior management in wellness initiatives that were piloted in the UK before implemented globally. The programme involves personal coaching to help executives remain energized and involved physical exercise, and eating healthy such as having healthy food at board meetings. The company runs this programme as a business initiative not a health initiative to generate support among senior leadership.

Culture change. Cadbury Schweppes have wellness activities that focus on physical inactivity, poor nutrition and smoking. In some of its markets in countries outside the UK, the company has programmes that extend to HIV/AIDS and malnutrition prevention. In the UK, the programme Fit for Life covers all of its employees (6,000). Within its business strategy, wellness is an integral part of its business culture. Employees are asked to consider how they can contribute to the overall values of the business through, for instance, team sport participation, and, once agreed, this forms a contract between the employee and the line manager.

People. GlaxoSmithKline conducted research on its employees and found that employees with mental ill-health were likely to be absent from work 7.5 times longer than those with physical illness. The company targets mental health to support the well-being of its employees and includes a personal programme, health professionals available to provide health information, and a 24-hour confidential help line available with additional counselling for individuals.

The report prepared by PriceWaterhouseCoopers (PriceWaterhouseCoopers 2007) concludes that based on the available evidence of best practices, employers should consider the following:

- Assess the health of their employees
- Encourage a culture of health that is linked to the company's objectives
- Help employees to change and sustain improvements by developing programmes for them to follow
- Collaborate with health programmes in the wider community
- Encourage senior management to lead by example and show that they are dedicated to living well

However, it has to be recognised that many employers in the UK do not invest in health because although they incur the costs in full, the benefits do not necessarily accrue to them. This in turn is because (a) they generally do not pay for their employees' healthcare costs, and therefore do not benefit from reduced use of the health services; and (b) employees often leave their employment before the health benefits are fully realised. Any economic incentive scheme needs to recognise this by helping employers to see the benefits more immediately, and/or by splitting the costs between all parties who benefit - the employer, the individual, and the government funded health services.

One way of doing splitting these costs is again to use *matching grants*. Government could provide matching grants to employers who undertake the relevant activities. The grant could be at a £1 for £1 rate, or less. The costs would thus jointly be born by government and employers: an outcome that would be both fair and provide the right incentives.

A less direct way to support such activities would involve the National Insurance system. Rebates to employers could be offered for certain activities such as an exercise hour offered at work.

Also, organisations actively involved in health promotion could be targeted. The measures could include tax relief or grants for leisure and sport companies to establish gyms and encourage a higher density of gyms, or for companies that advise firms on how to create a healthier workplace. The effectiveness of such measures would depend on the relationships developed with partners such as sport companies to offer services on site with trainers to offer health risk assessments, offer coaching programmes, or subsidise the development of activities offered on site. Government support for such programmes would address a wider population of those working but such measures would require development of long-run sustainable support structures. If feasible, a select number of companies could be targeted as pilot programmes to identify the most effective measures.

The recent review by Dame Carol Black on the workplace focussed on policy options to enable workers with health problems to stay at work and to help those not employed to enter, or to return to work (Black 2008). The report suggests that government, health professionals, employers and trade unions should consider a new approach to address healthy workplaces. One proposal is that government should initiate a business-led health and well-being consultancy service geared towards smaller businesses. Such proposals could be developed through matching grants as outlined above, and could draw on existing expertise from companies that currently advise firms on how to create healthier workplaces.

It is difficult to assess all these incentive measures in terms of the remainder of our criteria. They probably serve to increase the autonomy of both employers and individuals. Politically, they would be popular among both companies and trade unions; but they would have negative effect on tax revenue and they might run into EU concerns over state aid. Administrative feasibility is an issue – especially the costs of monitoring businesses which are likely to be considerable.

Finally, although not an economic incentive, it is worth noting that government departments and the NHS itself could lead by example and encourage healthy workplace activities among their employees. Such measures would signal an important step that the government is interested in the health of its employees and is proactive in its desire to engage with businesses to encourage healthy workplaces.

8. Targeting Individuals⁷

It will be recalled that we are assessing the incentives for changing individual behaviour against five criteria: effectiveness, cost, equity, feasibility (political and administrative) and autonomy. Here we examine a number of possible ways of incentivising individuals to change their health-related behaviour and assess their likely performance against those criteria.

8.1 Positive Economic Incentives

These are measures that encourage people to undertake healthy activities, or to discourage them from undertaking unhealthy ones, by offering immediate rewards of some kind to change their behaviour. This could take various forms: direct cash payments, vouchers, price subsidies, tax relief or some other non-financial incentive. An example of the last is the scheme offering ‘rewards’ of extra methadone or antidepressants to drug addicts by the National Treatment Agency (NTA) for clean urine samples that was recently reported (Easton 2007).

Rewarding people in this way clearly brings forward the benefits of undertaking desirable activities (from a health perspective), or of not undertaking undesirable ones. In addition, it does not directly threaten autonomy in that people are free to accept the reward or not, and so are still free to perform, or not to perform, the activities concerned. Indeed, some of these incentive schemes, such as those involving direct cash payments, could in one sense be thought of as increasing autonomy, in that they increase individuals’ disposable incomes over what they would have been and hence the opportunities open to them.

In terms of our effectiveness criterion, there is quite a lot of evidence that subsidising or directly paying people to undertake preventive health care of various kinds can be effective – and, moreover, more effective than alternatives. Giffrida and Torgerson (1997) reviewed eleven randomised trials concerning the effects of financial incentives on patients’ compliance to undertake preventive care and heed medical advice. They show that some form of financial incentive promoted compliance better than any other alternative in ten of the studies identified (Weingarten *et al.*, 2002). Another systematic review of the evidence concluded, positively

⁷ Another useful review of some of the material in this Report is provided in Jochelson (2007).

though more guardedly, ‘economic incentives [for individuals] are effective in the short run for simple preventive care and well defined, distinct behavioural interventions. However, there is insufficient evidence to say that economic incentives are effective for long-term lifestyle changes required for health promotion’ (Kane *et al.* 2004, p.5). A Cochrane review of incentives for smoking cessation found that the positive effect of incentives dissipated in the longer term once rewards were no longer offered (Hey and Perera 2008)

To take an example for obesity, in Jeffery *et al.* (1993) 202 men and women were randomly assigned to no treatment, standard behavioural treatment (SBT), SBT plus food provision, SBT plus financial incentives, or SBT plus food provision and incentives. One major finding was that food provision significantly enhanced weight loss – weight losses with SBT averaged 7.7, 4.5, and 4.1 kg at 6, 12, and 18 months, respectively, compared with 10.1, 9.1, and 6.4 kg, respectively, at the same intervals. More importantly however, is the comparison between the “incentive groups” (which also received SBT and/or food provision) with those groups that only received SBT and/or food provision. The “incentive groups” had 1.5 times greater chance to achieving and *maintaining* weight loss. While food provision provided respondents with a well-informed plan to guide them in their food choices so that they may improve their quality of diet and nutrition knowledge in general, it was financial rewards that enhanced the compliance to maintain these healthier eating habits.

Another study by Harland *et al.* (1999) compared the effectiveness between three alternative combinations of methods to promote physical activity in Newcastle. 523 British adults were randomised to one control group and four intervention groups that consisted of either a brief (one interview) or intensive (six interviews over 12 weeks) motivational interviewing, with or without financial incentives (30 vouchers entitling free access to leisure facilities). The most effective intervention was the one involving six motivational interviews and a financial incentive: 55% of these participants had increased physical activity scores, compared to 35% in the group that only received intense motivational interviewing.

A recent systematic review of financial incentives to reduce obesity found that at 12 and 18 months follow-up, the use of financial incentives were not statistically significant. The authors found in further sub-group analysis that the way in which incentives were delivered and the amount of incentives were statistically insignificant but produced interesting results. For example, there was a preference for rewards for behaviour change rather than weight, rewards based on group performance rather than for individual performance and rewards delivered by non-psychologists than by psychologists. There was a non-significant effect if rewards were more than 1.2% of disposable income (Paul-Ebhohimhen and Avenell 2008).

Experiments are under way in the UK. A local health authority in Dundee, Scotland has introduced a scheme for 12 weeks where smokers will be given £12.50 a week if they have not smoked, conditional on a carbon monoxide test (BBC 2008). The money will be credited on to an electronic card that could be used towards groceries but not towards cigarettes or alcohol. The Young Foundation Health Launch pad and Birmingham East and North PCT are setting up a social enterprise in which enrolled participants will receive points for engaging in healthy activities, where the points can be redeemed for a package of benefits such as sports equipment, shopping vouchers, free access to leisure centres, and football and cricket match tickets. The social enterprise will be piloting the scheme with four cohorts of the public: people with long term conditions, pregnant women, males over 40, and teenagers. The pilot will enrol 800 people and will be independently evaluated to assess the effectiveness of the

initiative⁸. Recently, a pilot scheme has been launched in the North East Essex primary care trust targeting those in deprived areas (BBC 2008). Participants will receive cash or vouchers to attend health checks.

Most of the studies have concerned rewarding people from undertaking healthy behaviour. Few have investigated rewarding individuals for not undertaking unhealthy behaviour. Can these financial incentive ideas be applied to unhealthy behaviours? That is, could people be offered payments or rewards to stop smoking, to reduce over-eating or to cut back their drinking? Anecdotally, this appears to be something that parents do with their adolescent offspring: most of us have probably come across instances of teenagers being offered rewards of various kinds (usually money) if they do not take up smoking before a certain age. And the NTA claimed that its drug scheme was based on US evidence of the effectiveness of similar schemes.

But there are problems in applying this more widely. In particular, there would be difficulties of monitoring. Parents often find it difficult to monitor their teenage children's behaviour even though they are living with them. But their problems in this respect would pale into insignificance when compared with those of some kind of outside authority trying to check whether adults are in fact complying with their promise not to smoke, or over-eat (though over-consumption of alcohol might be a little easier to monitor since those who over-consume to the point of drunkenness often come to the attention of the authorities anyway!).

Positive financial incentives to stop the behaviours of excess would also encounter the problem of moral hazard. That is, people might be actively encouraged to take up - or threaten to take up - unhealthy behaviour in the expectation of getting some kind of reward if they then give up or reduce the behaviour concerned. Again monitoring or checking this kind of reaction might be difficult.

All that said, it is worth noting that interesting – and apparently effective - ideas for individual incentive schemes for both encouraging healthy behaviour and discouraging unhealthy one have been applied in other countries and other sectors. Bonuses and rewards for healthy behaviour are a prominent feature of German social health insurance: see Box 3 below. In the UK, private health insurance companies such as PruHealth and Humana have engaged in measures to encourage their members to live healthier lifestyles; they are described in Box 4 below.

Box 3 – Positive Incentives in German Health Insurance

Bonuses for health-related behaviour are a key feature of German health insurance systems. They are offered for both primary and secondary preventive activities. The bonuses for primary prevention are offered for, inter alia, taking part in check-up programmes, dieting, smoking cessation, participating in yoga sessions and active membership of a sports club. The bonuses take the form of points of a nominal value that can be redeemed for a range of items including sports equipment and health books. Sometimes the points can be redeemed for cash, or for a reduction in social insurance contributions. The bonuses for secondary prevention are offered for, inter alia, adhering to previously agreed treatment plans and participation in special care plans. The bonuses usually take the form of reductions in co-payments (Schmidt 2008).

⁸ <http://launchpad.youngfoundation.org/fund/hia/portfolio/project/healthy-incentives>

Box 4 – Private health insurance activities: PruHealth and Humana

PruHealth has been operating in the UK for three years and now covers 135,000 people. The company's approach is encapsulated in its Vitality programme which has four main components:

- Provide members with the right level of personalized information
- Offer a range of subsidized deals with partners (e.g. screening, smoking cessation, health and fitness clubs)
- Award members with Vitality points for a range of defined health activities
- Incentivising healthy choices via reduced premiums or cash payments

Activity is focussed on screening, smoking cessation, nutrition, education and exercise. A third of its customers claim to have changed behaviour to earn Vitality points. The largest gains across the age spectrum are attributed to exercise, followed by education then smoking cessation (PruHealth 2006).

Humana Europe is a subsidiary of Humana Inc, a private health insurance company in the US. The company has developed incentivised health programmes to engage and motivate individuals for taking responsibility for their own health. These include HealthMiles, an incentive-based wellness programme which offers participants tools to track their progress and stayed motivated in the workplace. As participants progress, they are rewarded with points which can be exchanged for a variety of products (Humana 2007).

In terms of our criteria, all these kinds of positive incentive measures obviously have a cost to the public purse. But few of the studies concerned give much information about their actual costs. It seems likely that they are quite resource intensive - which would affect administrative feasibility as well as cost, especially if rolled out on a national scale. Monitoring behaviour on a national scale might be particularly difficult. However, given that most other methods investigated seem to have more limited effectiveness, they are also likely to be relatively cost-effective.

In terms of political feasibility, subsidy measures of this kind seem unlikely to cause problems with powerful interest groups, except of course those directly involved in the production of unhealthy commodities or services, such as tobacco manufacturers and fast food outlets. Indeed, the providers of healthy activities (such as gym owners) who may be subsidised are likely to offer strong support.

There might be a more general political problem in that incentive schemes of this kind might raise moral concerns: ought we to 'bribe' people to do some things that after all are in their own interests to do? Certainly ministers had doubts over the NTA rewards mentioned above, although these seem to have been more concerned with the form that the reward took in this case (prescription drugs) than necessarily the general principle of rewarding healthy behaviour.

8.2 Negative Economic Incentives

A promising area for incentivising individuals not to undertake unhealthy behaviour is the use of various charging strategies, or policies that offer negative financial incentives. Specific ideas here are raising existing taxes on tobacco and alcohol, and a new tax on the fat, salt and sugar content of food.

There is a large volume of evidence that raising prices or taxes on unhealthy activities, or on the commodities associated with those activities, is an effective means of changing behaviour. Analysis of the impact on starting and quitting smoking using British data shows that a 5% increase in tobacco duty would lead, on average, to a reduction in years of smoking between 2% and 3.5% (Forster and Jones 2001). More detailed evidence on the price sensitivity of demand for cigarettes suggests that price elasticity is somewhat inelastic, at an average of around -0.45 (Chaloupka and Warner 2000), but the study estimates have a wide range (from -3.12 to 1.41, (Gallet and List 2003). The responsiveness varies with respect to age and income, with youth more responsive to prices than the population at large (DeCicca, Kenkel et al. 2002), and lower income groups are more responsive to price. This latter finding is particularly interesting because it suggests that an increase in taxes on cigarettes may not be regressive (may indeed even be progressive); for low income individuals reduce their consumption by more than high income ones do, when faced with higher cigarette prices (Gruber and Koszegi 2002; Gruber, Sen et al. 2003). Overall, policies to increase tobacco duty appear to have substantial benefits in discouraging smoking activities.

Similarly, evidence on the effect of alcohol prices on consumption suggests that the demand for alcohol is responsive to shifts in prices with estimates of price elasticity having a mean of -0.5, although again there is significant variation (Leung and Phelps 1993; Gallet 2007). Differences are observed among certain demographic groups. Price responsiveness decreases among heavy drinkers but this depends on health information: heavy drinking among the most informed consumers is much more price elastic than moderate drinkers (Kenkel 1996). Adolescents are price responsive and some studies have found that both alcohol participation and binge drinking are responsive to alcohol prices (Chaloupka and Wechsler 1996; Saffer and Dave 2006). Older adults aged 55 and over are also price responsive and are found to have higher tax elasticities than younger adults (Dave and Saffer 2007).

There is no evidence on the effectiveness of tax measures on consumption of foods likely to contribute to obesity since they have not been tried, however, there is indirect evidence, showing the effect of a fall in price leading to increased consumption. For instance, using data from the U.S. 1984-1999 Behavioural Risk Factor Surveillance System, Chou *et al* (2004) show that reductions in convenience and fast-food restaurant prices, and increases in the number of fast food restaurants raised calorie consumption and increased both BMI and obesity. They found that this “food price” component accounts for 12% of the trend in weight outcomes. Some care has to be taken about any direct inference from this kind of evidence that, because consumption increases as price falls, then it will decrease at the same rate as price increases. This is not always the case. For instance, smoking has been found to be twice as responsive to price reductions as to price increases (Pekurinen, 1989).

In terms of our remaining criteria (cost, equity, feasibility and autonomy), these kinds of measures do not cost the public purse anything; indeed the reverse, in that they are revenue-generating. However, they do impose a financial cost on individuals – especially those who carry on with some or all of the activity concerned and pay the tax. It should be noted that

there is also a (non-financial cost) to the individuals who do change their behaviour, in that they no longer undertake an activity (or do not undertake as much of an activity) that they previously enjoyed. For individuals for whom the activity is a health risk, this welfare loss could, however, be outweighed by the welfare gain to them from the improvement in their health.

The last point only applies to those for whom the activity is in fact a health risk. This may apply to almost everybody for smoking, but most foodstuffs and even alcohol to which these taxes might be applied are harmless or benign in moderate quantities. It is hard to design a tax that only kicks in when consumption is immoderate, and up till that point the welfare cost from taxation needs to be taken into account. (This also affects the politics of such imposts.)

The fact that there is a financial cost to those who continue with the activity raises another issue with respect to our equity criterion. Given that, as was noted above, a large proportion of the unhealthy behaviours are undertaken by those in the lower social groups, might not these measures be regressive? That is, might the measures concerned not take a larger proportion of the income of the poor than the better off? And might not this in turn lead to poorer groups cutting back on other perhaps more healthy activities, thus worsening their health yet further?

Interestingly, for smoking at least, this would not appear to be a problem. For, as we have seen, estimates suggest that the less well off have a higher price elasticity for tobacco than the better off. In other words, a price rise causes a proportionately greater reduction in the poor's use of tobacco than in use by the rich. So the price rise would be progressive in its impact, with beneficial consequences for reductions in health inequality.

With respect to the other criteria, it would seem that autonomy is preserved in that the individuals are still free to undertake the activity concerned, albeit they have to pay more if they do. Most of the measures seem to be administratively feasible, although stopping the development of black markets and smuggling in untaxed commodities may be difficult (as indeed it has proved to be in the case of cigarettes and alcohol). Aside from the pressures from the industries engaged in the production of unhealthy activities, the principal political difficulty is probably the sheer unpopularity of tax increases of whatever kind; this could perhaps be overcome by concomitant tax reductions elsewhere.

8.3 Libertarian Paternalism

The idea of libertarian paternalism, also known as the 'nudge' agenda recently expounded by Richard Thaler and Cass Sunstein (Sunstein and Thaler 2003, Thaler and Sunstein 2008), builds on the fact established by behavioural economics experiments that 'defaults' and 'starting points' matter. So, for instance, if workers are automatically enrolled in a pension scheme, but with the freedom to opt out if they wish, most stay in. But if they are not automatically enrolled, but have to make a conscious decision to opt in, then most stay out (Madrian and Shea 2001). If one is required to carry an organ donation card to permit one's organs to be used for transplants in the event of one's death, there will be fewer organs available for transplant than if the 'default' is one where permission is assumed to be automatically given, unless one is carrying a card denying permission (Gimbel, Strosberg et al. 2003; Johnson and Goldstein 2004).

So, at least in these cases, policy-makers can achieve the ends they want, while still preserving individual autonomy, by adjusting the default position. In Sunstein and Thaler's terms they will be 'nudged' in a particular direction: one that should promote their long-term interests or welfare. But the individuals concerned still have the freedom to reject the policy concerned; to choose whether or not to continue with the activity.

Libertarian paternalist ideas applied to prevention include the ideas of *separate alcohol sales outlets*; requirements for supermarkets to *put healthy foods on eye level shelves* where they are more likely to get purchased; *the omission of salt from all forms of processed foods* (thus allowing people to add salt if they wished); and *an exercise period* where employers are required to offer a time during the working week for their employees to exercise, but which employees could opt out of if they wished⁹.

How do these kinds of ideas fare with respect to our criteria? We do not know how effective or how costly they are likely to be, although experience with these kind of applications in other areas (for instance those with pensions and organ donations) suggest that effectiveness could be high and costs low. The issues concerning equity and administrative feasibility are much the same as with those that arise from taxes and subsidies. Politically, these kinds of measures might be viewed by full-blooded libertarians as a subtle and hence even more dangerous form of paternalism: paternalism squared. On the other hand, choices and hence freedom of action would be preserved, which should contribute to increased political acceptability.

8.4 Social Marketing

There are varying definitions of social marketing since this term was first used in the 1970s. For instance, the National Social Marketing Centre (NSMC 2006) defines it as the systematic application of marketing alongside other concepts and techniques to achieve specific behavioural goals, for a social or public good (NSMC 2006).

The NSMC carried out a review of the effectiveness of health-related social marketing. The report's main findings were as follows (NSMC 2006):

⁹ For some further discussion of these ideas see Le Grand (2008)

Physical Activity

Twenty-two studies on physical activity were reviewed. Most studies (19) looked at physical activity within a range of cardiovascular risk factors (e.g. diet, blood pressure, physical activity, and smoking). Only 3 looked exclusively at physical activity. Interventions were implemented in a range of settings: schools, workplaces, youth centres, and community. The interventions used a variety of approaches but most used multiple strategies: fitness classes, media materials, pamphlets, training of staff to give advice and training or coaching on physical activities.

Ten out of the 22 interventions showed positive effects. These results showed changes in attitudes and perceptions, and positive changes towards increased levels of physical activity. For example, a seven year community intervention study was carried out among low income adults in US involved counselling, worksite activities, weight loss contests (Gans, Assmann et al. 1999). There was increased knowledge of physical activity as a risk factor for cardiovascular disease. A community based campaign to promote walking in sedentary adults in the US involved paid media, public relations, and public health activities over an eight-week period (Reger, Cooper et al. 2002). The study found that there was an increased knowledge of the benefits of physical activity.

Four studies found improvements in physiological outcomes. For instance, a 25-year community based project for residents in Finland involved media campaigns, fitness classes, training of health and other professionals. There was an overall 75% reduction in the annual mortality rate of coronary heart disease and a significant reduction in cholesterol levels (Puska 2002). However, others found no improvement in hard end points such as changes in BMI, cholesterol and blood pressure. For example, one study carried out on children in schools in the US involved school environment and curriculum components (Luepker, Perry et al. 1996). The study found increased levels of physical activity in the treatment group but no change in BMI levels.

Nutrition

In the area of nutrition, 31 studies were reviewed. Interventions included in the review included fruit and vegetable consumption, fat consumption and consumption of fibre and processed meats. Interventions were broad (e.g. mix of ethnic groups, geographical area) while others were more narrow (e.g. black female teenagers).

Interventions were effective in areas such as fruit and vegetable intake, dietary knowledge and psycho-social variables. For instance, 10 out of the 18 interventions that examined fruit intake had a positive effect. An illustration is a study in a school setting that consisted of curriculum education, peer-led sessions, and changes in the school environment (e.g. food service changes) (Birnbaum, Lytle et al. 2002). Students were incentivised to win a reward if they completed a booklet of behavioural coupons. Students who were recruited as peer leaders and those that received both the curriculum education and the food service changes showed an increase in fruit and vegetable consumption. Students who only received school environment changes and those in the control group showed no change.

Nine out of 11 studies which were aimed at increasing dietary knowledge were effective. For example a one-year follow up study in a church setting consisted of tasting foods, distribution

of self-help materials, motivational interviewing and training (Resnicow, Jackson et al. 2001). The study showed that motivational interviewing improved knowledge of health benefits of fruit and vegetable consumption among church members.

Thirteen out of 17 studies reported a positive effect on psychosocial variables. A school based study over three years was conducted in selected US states involved classroom curricula and food service changes (Caballero, Clay et al. 2003). There was a positive effect on attitude change even though there was no change in BMI and mixed results in a reduction in fat intake. There was modest evidence for reduction in fat intake (Delichatsios, Hunt et al. 2001), and other dietary behaviours (Havas, Anliker et al. 2003). There was limited positive effect on physiological variables such as BMI, blood pressure and cholesterol (Beech, Klesges et al. 2003). Interventions that targeted several areas were as effective as those that were narrower.

Alcohol, Tobacco and Substance Abuse

Thirty-five studies concerning alcohol, tobacco and substance abuse were reviewed. Most were school based programmes while a few were adult studies targeting minority ethnic communities. The majority involved a one to two year follow up. The studies reviewed had modest evidence of the effectiveness of social marketing. About half reported positive effects which sought to prevent youth smoking and alcohol use. Evidence on adult smoking cessation and illicit drug use had mixed effects. In general, the majority of short term studies showed positive effects while medium to long term studies had mixed results.

One short term study (18 months) was carried out as a school-based intervention and involved class curriculum, home learning activities with parents, and interactive activities (Ellickson, McCaffrey et al. 2003). The treatment group showed lower uptake of smoking, and marijuana use.

A school-based project was developed in the late 1980s and disseminated in the 1990s in the Netherlands was examined (Cuijpers, Jonkers et al. 2002). The treatment groups involved school curriculum and home activities and were examined at 1 year, 2 years and 3 years after follow-up. Intervention students had lower uptake of alcohol use even after three years. There was lower uptake of smoking after one year but no differences after three years. There was lower use of marijuana immediately after the intervention but no differences at later follow-ups.

The review identified a small number of studies that used social marketing to target retailers as well. A community-based intervention involved media advocacy, and retailer education (Biglan, Ary et al. 2000). Over a six month period, results showed a reduction in illegal sales from 57% to 22%.

The report notes that Cochrane Reviews in these areas also found mixed results. A review of primary prevention for alcohol misuse in young people concluded that 20 out of 56 studies were ineffective (Foxcroft, Ireland et al. 2002); mass media interventions for preventing smoking in youth found that 4 out of 6 were ineffective (Sowden and Arblaster 1998), and a review of school-based programmes for preventing smoking found 7 out of 15 studies were ineffective (Thomas 2002).

With respect to our criteria, social marketing would score well on feasibility (e.g. areas where there is good evidence such as nutrition and physical activity), and well designed measures could address equity concerns. The extent to which individual autonomy would remain intact would depend on the types of social marketing practices used. However, the evidence on effectiveness is mixed and there is virtually no information on cost; hence there is no clear evidence on the cost-effectiveness of such interventions. This is an area that is badly lacking research.

Overall, there may be scope for the government to use social marketing techniques, particularly in the area of nutrition and physical activity. The recent report by Carol Black (2008) also recommends that the government should promote the relationship between health and work among employers, health professionals and the public. Social marketing practices that have proven to be effective from nutrition and physical activity campaigns could be drawn on to develop this area of public knowledge and engagement.

9. Conclusion

By way of conclusion, we present a summary table showing how each of the ideas discussed above fare against the criteria. The scores range from 1 (largely fails to meet criterion) to 5 (largely succeeds to meet criterion). The actual scores are only indicative, and are based on subjective judgements by the authors. Two total scores are provided, one simply adding the scores on each criterion (and thus giving each equal weight), the other giving effectiveness a double weighting as the most important criterion.

The table suggests that scoring well at least on most of the weighted criteria are:

- Matching grants to commissioners
- Matching grants to employers (although this probably would do little to help reduce health inequalities)
- Direct payments or subsidies to individuals for certain kinds of healthy activities
- Taxes on unhealthy behaviours

Libertarian paternalist policies also score well, but inevitably the scores here are more speculative.

The human capital investment accounting rules proposal scores badly on feasibility, but well everywhere else; in the absence of accounting advice, the feasibility score is really unknown. Adapting the QOF scores well on most criteria, but is let down by feasibility. Ring-fenced allocations to PCTs scores quite well, but not exceptionally so. Changing the surplus rules for Practice Based Commissioners does not score particularly well, but may be desirable on other grounds. Schemes for incentivising LAAs may work, but as yet we know little about the effectiveness of the underlying partnerships. There are no specific ideas for subsidising pharmacists, but there is potential here for further development. Payment by results could be an effective way of incentivising providers but, under current institutional arrangements, probably only to undertake secondary prevention. Various forms of social marketing may have potential, but scoring social marketing properly suffers from an almost complete lack of information on costs, let alone on cost-effectiveness.

TABLE 1

Economic Incentive Schemes: Criteria for Assessment

Scheme	Effectiveness	Low Cost	Equity	Feasibility	Local or Individual Autonomy	Total score (unweighted)	Total score (weighted)
PCT formula funding with ring fencing	4	4	3	4	1	17	21
PCT formula funding without ring fencing	2	4	3	5	4	18	20
Matching grants to commissioners	5	5	4	3	5	22	27
Human capital investment rules	4	5	3	1	4	17	21
PBC surplus rules	1	4	1	4	5	16	17
GP and QOF	5	2	3	1	4	16	21
Pharmacists	4	2	3	4	4	17	21
PbR	2	5	2	1	4	14	16
LAAs	3	3	4	5	4	18	21
Matching grants/NI or tax rebates to employers	5	2	1	3	4	18	23
Direct payments/subsidies for healthy behaviour	5	2	4	4	5	22	27
Taxes on unhealthy behaviour	4	5	4	3	5	21	25
Libertarian paternalism policies	4	5	4	2	5	20	24
Social Marketing	3	2	4	4	4	17	20

Scoring range: 5 – largely meets criterion. 1- largely fails to meet criterion

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11. Annexe A – Monitoring and evaluating public health policies

Sweden	Finland	Denmark	The Netherlands
<ul style="list-style-type: none"> • National programme started in 2003. • The National Institute of Public Health (NIPH) is responsible to report on progress every four year. • The NIPH presented its first report in 2005. • Some of the areas the report identified include: <ul style="list-style-type: none"> • inequitable living conditions contribute to mental health; • improve safety of elders who fall experience falls; • improve quality of youth clinics; • limit access to alcohol among youth. 	<ul style="list-style-type: none"> • Monitoring across sectors takes place at the national level. • Annual surveys are conducted; research institutions contribute to public health research (STAKES and KTL). • Progress reports are planned every four years on the health of the population and factors associated with certain health problems. The most recent report was published in 2006. • The report identified that some of the main public health problems include: <ul style="list-style-type: none"> • diabetes • alcohol related harm • and functional limitations among the older people. 	<ul style="list-style-type: none"> • Previously, monitoring towards achieving national targets will be coordinated by the Ministry of Health. • To date, no evaluation of public health interventions have taken place. • A new Ministry of Health and Prevention was established in late 2007 so it is too early to know how monitoring and evaluation of health interventions will be implemented. 	<ul style="list-style-type: none"> • Previously there has been evaluation of interventions targeting health inequalities. • Public health policy is found in the public plan 2007-2010. The plan introduces a legal framework for responsibility at the local and central level of government, which will include reports every 4 years on how achievements are being made. • The report identified the following areas for action: <ul style="list-style-type: none"> • smoking • alcohol • overweight • diabetes • depression

Source: (Swedish National Institute of Public Health 2005)

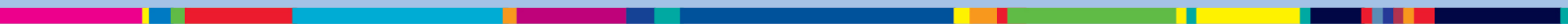
Source: (Hultberg, Lonnroth et al. 2003)

Source: (Allin, Mossialos et al. 2004)

Source: (KTL 2006)

Source: (Ministry of Health and Prevention 2008)

Source: (Ministry of Health Welfare and Sport 2006)



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