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The evaluation of public health education initiatives on smoking and lung cancer: an ethical critique

This chapter considers the way in which public health education initiatives are evaluated. In particular, our concern is with such evaluation when it is done in terms of behavioural outcomes, such as how many people give up smoking. Our main claim is that this method of evaluation is scientifically and ethically flawed. We use the example of initiatives on smoking and lung cancer. This is because smoking is known to be a hugely important contributor to illness and to health inequality and because there have been many such initiatives. However, the criticisms we make of initiatives relating to smoking and lung cancer apply equally to many other public health initiatives. Indeed, some criticisms might apply more forcefully given that the epidemiological evidence for the link between smoking and lung cancer is stronger than that available for any other link between behaviour and an illness.

We begin the chapter by looking at how health education initiatives in the area of smoking and lung cancer are evaluated. We show it is done primarily in terms of behaviour change, particularly quit rates. We suggest this is because behaviour change is a good marker for future health benefits which might only accrue over many years: a drop in rates of smoking now could be expected to deliver significant health benefits in the future. However, we argue that looking at behaviour change alone is problematic as it ignores the possibility of unwanted effects from a public health initiative. We give some evidence for such unwanted effects based on our own empirical research.

In the light of this, we look at the two alternative methods of evaluation. The first involves a broader examination of public health initiatives, looking for both desired and undesired effects. This would accord with the usual standard of evidence-based medicine as in, for example, randomised trials. We argue that whilst this full-effect evaluation is preferable to evaluation based on behaviour change alone, neither is ethically satisfactory. In particular, it ignores the fact that it would be possible successfully to educate someone about a health issue without that person then deciding to change her behaviour. This is because of the role that people's values play in deciding how to behave. Evaluation that ignores this is compatible with unethical initiatives that, say, deliberately

overstate a case in order to get the desired health outcome. For this reason, we argue that health education initiatives on lung cancer and smoking should be evaluated primarily as education. On this account, what matters is that health education initiatives provide the information and understanding people need in order to decide whether or not they wish to smoke.

Finally, we consider the issue of whether professionals should target people's values, for example, the values of those who consider smoking a worthwhile pleasure. We argue that it is ethically acceptable in principle but raises awkward questions concerning which values to target.

I. What is a public health education initiative?

In the UK at present (2008) the term "public health education" has a quaint, old-fashioned ring. The Government body, the Health Education Authority was abolished in 2000 and replaced by the Health Development Authority. The remit of the former included a large role in education of the public. This disappeared in the remit of the latter, which was to develop the evidence base to improve health and reduce inequality. The Health Development Authority has since been absorbed into the National Institute for Health and Clinical Excellence (NICE) which is largely concerned with assessing the evidence for the provision of treatments under the National Health Service (NHS). Whilst the notion of health education has disappeared there has been the recent emergence of "social marketing"; this bears some resemblance to health education but we shall argue that it is significantly different.

We shall need a working definition of public health education. Hence: a public health education initiative is one that aims to tackle a public health problem through education of the public. This paper is concerned with such initiatives in the realm of lung cancer and smoking. An example would be one that aimed to inform smokers that their habit hugely increases their risk of lung cancer. Such messages are either implicitly or explicitly core elements of recent education campaigns in the UK. A mix of media has been used including television, billboards and newspaper advertisements.

II. How are public health education initiatives in lung cancer and smoking evaluated?

We have looked at the four key White Papers produced over the last 16 years that guide service delivery in terms of public health generally and more specifically, smoking cessation. Our review began with the *Health of the Nation* (Department of Health 1992). This was the first UK public health policy with measurable targets and outcomes. It also made clear that health education would be a key component in Government responses to public health problems such as smoking and lung cancer. The other White Papers we examined were *Our Healthier Nation* (Department of Health 1999), *Smoking Kills* (Department of Health 1998) and *Choosing Health* (Department of Health 2004). The first and second of these White Papers are located chronologically at the beginning of the period under a "New Labour" government; the third is located where that party had been in power for seven years. We have analysed the papers to identify the evaluation or outcome measures the policy set in relation to smoking and lung cancer. Our findings are that the measures of success focus exclusively on behaviour with no education outcomes included (Table 1). Targets and outcomes relate to reducing smoking prevalence and cigarette consumption.

Table 1. Smoking targets from UK health policy 1992- 2004

White Paper	Outcome measure
Health of the Nation (1992)	<p>B4/B5. To reduce the death rate for lung cancer by at least 30% in men under 75 and 15% in women under 75 by 2010 (from 60 per 100,000 for men and 24.1 per 100,000 for women in 1990 to no more than 42 and 20.5 respectively).</p> <p>B6/A5. To reduce the prevalence of cigarette smoking in men and women aged 16 and over to no more than 20% by the year 2000 (a reduction of at least 30% in men and 29% in women from a prevalence in 1990 of 31% and 28% respectively).</p> <p>B7. In addition to reduction in overall prevalence, at least a third of women smokers to stop smoking at the start of their pregnancy by the</p>

	<p>year 2000.</p> <p>B8. To reduce the consumption of cigarettes by at least 40% by the year 2000 (from 98 billion manufactured cigarettes in the 1990 to 59 billion).</p> <p>B9. To reduce smoking prevalence among 11-15 year olds by at least 33% by 1994 (from about 8% in 1988 to less than 6%).</p>
Our Healthier Nation/ Smoking Kills (1998/9)	<p>1. To reduce smoking among children from 13% to 9% or less by the year 2010; with a fall to 11% by the year 2005.</p> <p>2. To reduce adult smoking in all social classes so that the overall rate falls from 28% to 24% or less by the year 2010; with a fall to 26% by the year 2005.</p> <p>3. To reduce the percentage of women who smoke during pregnancy from 23% to 15% by the year 2010; with a fall to 18% by the year 2005.</p>
Choosing Health (2004)	<p>Reducing adult smoking rates from 26% in 2002 to 21% or less in 2010, with a reduction in prevalence among routine manual groups from 31% in 2002 to 26% or less in 2010</p>

This emphasis on behavioural outcomes is seen also in the reviews of evidence available regarding smoking and lung cancer. Two reputable and influential sources of evidence are the Cochrane Collaboration and the National Institute for Health and Clinical Excellence (accessed on www.cochrane.org and www.nice.org.uk). The majority of reviews of evidence on these sites focus on smoking cessation interventions rather than education interventions. NICE have recently published guidance on behaviour change (NICE 2007). This again

indicates an exclusive focus on behaviour over education. It is behaviour change that matters, not what people know about their health.

In response to the *Smoking Kills* White paper, the Government invested heavily in smoking cessation services. Services have employed diverse strategies and activities to address smoking and smoking related illness. Education is an aspect of some of these approaches. But it is noteworthy that the emphasis on behavioural targets is now reflected in the interventions themselves. For example, in Yorkshire and Humberside a recent (unpublished) document "Achieving four week quit targets: making it easier for smokers to quit" recommends *inter alia* the following interventions:

- Brief opportunistic advice from a health care professional to stop
- Face-to-face intensive behavioural support from a specialist
- Proactive telephone counselling
- Written self-help materials

In targeting the behaviour of smoking it is clear that smokers are to be put under some pressure to change their lifestyle.

III. Why are the initiatives evaluated on the basis of behavioural criteria?

Why are public health education initiatives on lung cancer and smoking primarily evaluated in behavioural terms alone? The answer lies partly in the more general movement towards evidence-based medicine and health care. The idea behind this movement is well known and widely accepted: in summary it is as follows. Health care interventions should be based upon the best available research evidence. All evidence-based health care works on the basis of a theory of cause and effect (Harrison 2003). An action causes an outcome via a mechanism. For example, the action could be giving patients suffering a heart attack a dose of thrombolytic (clot-busting) therapy; the outcome, reducing mortality and morbidity in that group; and the mechanism, the chain of reactions that lead to thrombolysis once the drug is administered. One of the main purposes of health care research is to reveal action and outcome and to suggest a mechanism. The focus should be on outcomes that are both measurable and of importance.

In public health the picture is less straightforward. Take our main example: smoking and lung cancer. Here there are two theories in play. The first is the theory of what causes lung cancer: the action is smoking, the outcome is lung cancer and the mechanism is, say, irritation of the mucosa. The evidence base derives from epidemiology. The second theory is of what prevents lung cancer: the action is public health education on smoking and cancer, the outcome is improved public health or reduced levels of lung cancer and the mechanism is people giving up smoking. We make two observations here.

First, with both theories it is difficult to get evidence of the standard of a randomised controlled trial: the public health environment is one in which so many factors are at play it is hard to control for them all. This is clearly true in epidemiology, which relies on surveying huge numbers to overcome the problem. However, it is also true in the research of public health policy, where a wide range of qualitative and quantitative research is used. The second observation is that it will usually be many years before the desired outcome of the public health education will eventuate. In the light of this, public health professionals concerned with the effectiveness of their interventions will focus evaluation on what can be measured: the mechanism, for example, people quitting smoking. The epidemiological evidence will provide a background that is assumed correct and thus assures the professional that if her action triggers the desired mechanism, the public health benefit will eventually follow.

To summarise: public health education initiatives on lung cancer and smoking are primarily evaluated on behavioural terms alone. This is because the evidence of health benefit from such initiatives is deferred, often by many years. Reference to behavioural change from which health benefit is assumed to flow (on the basis of epidemiological evidence) provides an apparently good alternative; it provides a good fit with evidence-based medicine. For example, epidemiology has established beyond doubt the link between lung cancer and smoking. From this basis professionals can assume that the mechanism, people stopping smoking, will be effective on the outcome, reduced rates of lung cancer. Therefore, they need only assess whether or not their interventions are successful in triggering the mechanism; they know the outcome will follow.

IV. How the initiatives could be evaluated: full effects

One problem with looking at behavioural outcomes alone when evaluating public health initiatives is that it ignores the possibility that there might be other, perhaps harmful, effects that should be set against the benefit of behaviour change. Even in the case of smoking and lung cancer there may be risks or harms as well as benefits from health education initiatives deemed successful in behavioural terms. To illustrate this point we draw on our recent research identifying factors that contribute to a delay in lung cancer diagnosis (Tod *et al* 2008). This examined the pathway of people from first symptom to lung cancer diagnosis and identified a number of issues that helped and hindered people in reporting their symptoms to a health professional. The data identified examples of how health education regarding smoking cessation can have unanticipated harmful effects as well as the anticipated benefit of encouraging people to stop smoking. Let us turn to these harmful effects.

First, as with other research (Chapple *et al* 2004), the study revealed a prevailing expectation that people with lung cancer would experience blame and stigma. Participants reported an expectation that smokers would be blamed and held responsible for developing lung cancer. This belief was reinforced by the tone of stop smoking education campaigns and the way health professionals had treated smokers in the past.

“Whenever you see warnings about cancer, there’s always a cigarette there. I don’t think I’ve seen a warning where there hasn’t been a cigarette and I think that’s wrong” (68 year old male with terminal lung cancer. Ex-smoker of 25 years)

“I’ve got a friend who has a hacking cough because she smokes and I’m always saying to her, “you ought to get that looked at.” She said, “I’m not going to the doctor because the minute they find out I’m a smoker I get in trouble”. So you don’t go because you don’t want to be ticked off” (Wife of 67 year old male with terminal lung cancer. Ex-smoker of 25 years).

There was a perception that smokers would be stigmatised and seen as undeserving of health care. This perception created a sense of being ostracised and added to delay in symptom reporting.

"I mean it's all been focused on smoking and I'm not denying that that is what probably caused my cancer and other people's cancer, but,I don't know, by dictatorial ways or pressing people, making you feel ostracised, doesn't work!" (65 year old woman. 18 month survivor of lung cancer following lung resection. Ex-smoker who gave up on diagnosis).

Interestingly, even those who were non- or ex-smokers delayed in reporting symptoms because of an expectation they would be stigmatized as a smoker and blamed for their illness. This expectation was reinforced by experience. Health professionals assumed that they were smokers and kept asking about smoking status.

"They keep asking have I smoked? Have I drunk? It's mainly have I smoked ... anytime? I says, "No." The only thing I have is gone into bingo where there's been smoke" (63 year old woman with terminal lung cancer. Non-smoker).

Thus the tone and content of smoking cessation health education campaigns may promote symptom-reporting delay, contributing to delayed diagnosis and a poorer chance of survival.

Second, in health education campaigns, lung cancer is used as a threat to promote smoking cessation. On the basis of such education campaigns some ex-smokers and non-smokers believed they were not at risk of lung cancer. The following scenario illustrates the point. Two men had both given up smoking over twenty years ago, on the birth of their first child. This was motivated by a desire to protect the health of the child and to be healthy and provide for their child's future. Their decision was influenced by a belief, derived from health education messages, that if they gave up smoking their lungs would be clear and their risk of lung cancer would be nil.

"I packed up smoking and then after ten years you hear stories, you know, "well, it's all cleared out your system and everything" and I thought, I'm never going to get lung cancer or any other one come to that. I'm not smoking" (68 year old male with terminal lung cancer. Ex-smoker of 25 years).

This belief that they were not at risk of lung cancer meant that as symptoms emerged, and got worse, they continued to ignore them or explain them away as something else.

“I mean I gave up 25 years ago so you almost forgot that you ever were a smoker” (67 year old male with terminal lung cancer. Ex-smoker of 25 years). “If he’d been a smoker and he was getting breathless and he ... his irritating cough had got worse It would be different.... we might well have said, “Hang on, you’d better get this looked at,” I think everybody associates lung cancer with smoking and if you don’t smoke they assume you’re not at risk”. (Wife).

An additional issue to emerge from the experiences of these two participants was the lack of awareness of the risks of second-hand smoke. Both men thought their risk of lung cancer was nil after stopping smoking. This was despite working and socializing in smoky atmospheres. It was only after diagnosis that they realised the lung cancer risk from passive smoking.

“But he worked in a smoky atmosphere and I think most people think, “Oh I don’t smoke. I’m safe,” and that’s not true.... But the message that comes across is that it’s the cancer of the smoker, so if you’re not a smoker you can sit back and think, “Well, I’m not going to get that” ((Wife of 67 year old male with terminal lung cancer. Ex-smoker of 25 years).

Thus public health education initiatives can have negative consequences even where the epidemiological evidence is exceptionally strong as it is with lung cancer and smoking. This gives us our case for a fuller assessment of health education initiatives; not just in terms of whether they work on behaviour change or not but in terms of whether they have other, unanticipated, effects. In other words, such initiatives should be judged as other health initiatives are judged, on all of their effects not simply on their desirable ones.

Someone defending the behavioural method of evaluation might respond that any ill-effects of successful education initiatives to reduce smoking will easily be outweighed by the benefits; spending time and money measuring the ill-effects would be pointless. To deploy such an argument the evidence would need to assure a very strong health benefit from a public health mechanism. It is arguable that this is the case with smoking and lung cancer. Even then, however,

failing to look for the negative aspects of health education initiatives seems to block the way for improving future initiatives. On these grounds alone we believe the full-effects evaluation is superior to the behaviour-based evaluation.

There is one further, speculative point that might add support for using the full-effect evaluation rather than behaviour evaluation. Public health agencies are charged with reducing health inequality. But the adverse outcomes of health education initiatives might be such as to fall disproportionately in deprived areas and thus increase inequality. The adverse effects certainly occur in areas of deprivation (Tod and Craven 2006, Tod *et al* 2008). They also occur disproportionately: South Yorkshire is a relatively deprived area which suffers rates of lung cancer much higher than the national average; and within South Yorkshire, the most deprived areas have the highest lung cancer rates (Directors of Public Health of South Yorkshire, 2006). In that health inequality is itself a problem that needs addressing, the full-effects evaluation should be undertaken. It could be, for example, that misunderstanding of public health information is greater in areas of deprivation. If that were so, then such information could contribute to increases in inequality.

Overall, therefore, we believe it is better for those involved in health education to evaluate possible unexpected and ill-effects of their initiatives; not simply to assume on the basis of epidemiology that behaviour change will lead to overwhelming benefit. This is of import also to social marketing, the application of marketing methods that are usually used to effect consumer behaviour change instead to effect population health-behaviour change (Grier and Bryant 2005). Its sole focus on behaviour change makes it vulnerable to our criticism of the behavioural method of evaluation.

V. How the initiatives could be evaluated: Education and attitudes

However, even full-effect evaluation of public health education initiatives in the area of lung cancer and smoking is problematic. There is a conceptual difference between health education and health treatment. A health treatment has the unproblematic goal (usually) of improving health in some way. With education, the goal is usually to educate: that people will gain knowledge or skills. Public health education could be evaluated in such a way: for example, we could

evaluate initiatives on the basis of whether or not people learnt the relevant facts about smoking, lung cancer and health.

This conceptual difference marks a significant ethical difference (Buchanan 2006). In the previous section we showed a number of people who either gave up smoking or never smoked at least in part because of health education initiatives. If we were to ask whether these initiatives were successful on the basis of behaviour change then clearly they were; people gave up smoking. Similarly, on the basis of overall effects the initiatives were successful; although some of the cancer sufferers had a delayed diagnosis because of false beliefs gained through health education they nonetheless benefited overall; had they continued to smoke they would very likely have died much sooner. However, if we were to evaluate the initiatives in terms of health education our response would be different: these people had not learnt all the relevant facts about smoking; indeed, they had taken on some false beliefs. It was not a success.

Of course, there may not necessarily be a conflict between the full-effect and education approaches. It may be that the health benefits would have been even greater if people had taken on true beliefs at the outset: for example, knowing that ceasing smoking hugely reduces but does not eliminate the risk of lung cancer. But there is a genuine tension here. Should health education be viewed as propaganda for health in which overstated or even deceitful claims can be made? Would it matter were people to believe smoking to be more dangerous than it is and stopping smoking more beneficial so long as they give up?

These questions mirror a classic standoff between utilitarian and non-utilitarian ethical positions, the former defending deception, the latter decrying it (Jackson 2001, Kozlowski and Edwards 2005). Perhaps it is unlikely that many would defend deception of the population in order to effect behaviour change. Nonetheless, the evaluation of health education either using the behavioural method or the (better) full-effect analysis invites the view that the good obtained through changing smoking behaviour outweigh any concerns about, for example, over-advocacy. By contrast, from other viewpoints, it is important that we convey information in such a way that people are able to weigh up true information and make decisions on that basis, even if those decisions are not what we want them to be. It is difficult to give an overwhelming argument

against the utilitarian defence of deception or over-advocacy. However, we do not generally accept anything less than informed consent to treatment in other areas of health care; it is unclear why health education should be different.

There is an alternative, non-utilitarian defence of using full-effect rather than the health education criteria. Someone might say that there is no need for deception; the facts are clear enough. Once people fully understand the dangers of smoking then almost all will want to give up or not to start. The only additional point health care professionals should bear in mind is the need to help people overcome addiction or peer pressure. For reasons that will become apparent, we call this the shared-values argument. It is an argument that appears to underlie much public health policy. For example, in the White Paper *Choosing Health* (discussed earlier) there is frequent slippage between the terms "healthy choice" and "informed choice". The implication is that no-one properly informed would make an unhealthy choice. Let us set out this argument in more detail before going on to show its problems.

Discussing this argument requires, first, that we set out a basic model of human action. Because public health professionals have been concerned with people's health behaviour they have been interested in action theory: theory concerned with why people act as they do. Such theory belongs primarily to the realms of psychology and philosophy. Various models have been employed (Allmark 2005, Azjen 1991, Megone 2000, Tones and Tilford 2001). From these it is possible to identify a simple action theory that will suffice for our discussion here. This can be written formulaically in the following way:

$$\text{Factual beliefs} + \text{values} + \text{perceived behaviour control} = \text{intention} \approx \text{action}$$

The component "factual beliefs" is straightforward here; we mean those beliefs that you have about the world that you believe to be true. You might, of course, be in error. Your values are your beliefs about things that are worth having and avoiding in life - philosophers sometimes call this your vision of the good. Perceived behaviour control is your belief about whether you are able to perform the action or not. So, if someone believes smoking is linked to lung cancer, highly values his health and believes he can give up then he is likely to form the

intention to give up. He will not necessarily go from intention to action: for example, because of addiction.

From the shared values perspective, values remain constant across different people - we all place a high value on good health. Therefore, people's smoking behaviour is viewed as depending on their factual beliefs and their perceived behaviour control. The thought then is that aside from public health education aimed at informing people of the risks, the other need is for public health measures aimed at, say, reducing peer pressure (e.g. limiting areas of smoking) and overcoming addiction (e.g. providing nicotine substitutes).

The fault in the shared-values picture lies in the assumption that we all value good health similarly. That this is not true is shown by the risky behaviour that some people indulge in where their perceived behaviour control is likely to be high (e.g. climbing). What the shared value picture misses is the chance that people will see positive aspects to smoking. Hilary Graham's research suggests something to this effect (Graham 1987). Young unmarried mothers in deprived areas whom she spoke to valued the present benefits of smoking, for example, in giving them time to themselves, higher than they disvalued future harms. The shared values argument also misses the possibility that some people may not particularly value a long life - if cigarettes provide solace in a fairly unhappy life then there seems little reason to give up. Smoking may be part of a sub-culture in which its rebelliousness against authority is valued (Ling and Glantz 2002). Hence, there can be a pro-attitude to smoking. It follows that the shared values argument is wrong: people could have the same factual beliefs about smoking and about behaviour control but have different values. Hence the shared-values argument cannot be used as a non-utilitarian defence of using the full-effect criterion in evaluating public health education initiatives.¹

To sum up: we have argued that the full-effect evaluation of public health education is preferable to evaluating only behaviour change. However, both methods are vulnerable to the criticism that they are compatible with the use of deception and propagandizing. We have examined two responses to this

¹ The existence of pro-attitude smokers would raise a problem for those charged with meeting ever rising targets of smokers quitting. The likelihood is that early campaigns will meet with success as those who want to give up are helped to do so. Far more difficult will be the remainder who have no desire to quit.

criticism. The first is that deception is justified for the good cause of the nation's health. We argued that this is probably not compatible with an ethos of informed consent and respect for autonomy. The second is the deception is not necessary; accurately informed people will make the right choices. We only need to assess the extent to which people make the right choices to know whether or not they are properly informed. We showed that this argument depends on a shared-values view. We argued that whilst this view seems to be reflected in public health literature, it is problematic.

By default, this leaves us with the education approach to evaluation of public health education initiatives. If health care professionals were to take this approach to evaluation then it would be ethically acceptable for them to engage with people's factual beliefs and with their perceived behaviour control. Hence if people don't believe smoking is harmful, or believe their addiction is insurmountable, public health education initiatives could correct these beliefs. However, a critic of this approach might say it does nothing to address pro-attitude smokers, those who currently see smoking as positive overall. This is unlike the full-effect and behaviour approaches where one is entitled to tackle smoking in whatever way is necessary.

How might a defender of the education method of evaluation respond? It is true that at the heart of the education approach is the ethical idea that it is wrong deliberately to distort or frame information in order to get a desired behavioural outcome. This is a matter of principle, something like the principle of respect for autonomy. To some extent it is also a matter of practicality. Health education initiatives lose credibility if they are based on distortion; this is reflected in the emergence of an alternative "lay epidemiology" (Allmark and Tod 2006, Davison, Smith and Frankel 1991, Frankel, Davison and Smith 1991). However, it does not follow that public health initiatives should not target people's values. From the perspective of the education approach there is no reason in principle not to. The ethical case for or against doing so will come down to wider ethical beliefs.

The case against engaging with people's values might begin from an assumption that it is wrong to impose your values on others. As an example, it might be argued that it is wrong to make abortion illegal as this imposes anti-abortion views on those who don't share them. In the context of health education, the

argument might be that it is wrong to try to change people's minds about what is and is not of value in their lives. If someone has a pro-attitude to smoking despite knowing the medical facts then health education should leave it at that. Such a view will tend to draw on the idea that values are outside of rational criticism. For example, some people like cakes or smoking, others do not; there are no rational arguments that would persuade individuals to change their values.

However, this position can be challenged. There appear to be some values that we do believe to be wrong, for example, torturing for fun. In that we hold this to be wrong we are generally able to give reasons or arguments to defend our view. This would suggest that values are amenable to argument. On this account, someone who believes that the pleasure of smoking now outweighs the future harm might be mistaken. It would therefore be reasonable to engage with that person with a view to helping her see aright.

Holding that people can be mistaken in their values does not require that you believe that the same values should hold for all people. A full discussion of the rights and wrongs of smoking for an individual might still result with that person retaining a pro-attitude to smoking. On the other hand, that individual might come to believe that he has not sufficiently valued, say, the effect of his early death on those around him. As a result, his pro-attitude may change. This argument could be reinforced by reference to certain basic shared values, such as good health. Although it is not the case that we all value health equally, because some of us are willing to risk it or even lose it for other goods, it is certainly the case that for almost all people it is better not to be ill, other things being equal.

We suggest, then, that public health professionals could be justified in tackling people's values; helping them think about whether they have got them right. Public health professionals probably do this already under descriptions such as "changing attitudes" or "changing cultures" (as in tackling the culture of binge drinking in the UK). A good example is a television advertisement in which a young girl spoke to an interviewer about her father who was dying of lung cancer. She spoke very movingly about him and what she thought of smoking. This

advert was not really concerned with conveying information; it was asking smokers to re-think their attitude to the habit, to re-evaluate.

So it is not necessarily objectionable in principle for professionals to engage with people's values with a view to changing them. There is, though, a difficult problem here. Why should we focus on those with a pro-attitude to smoking rather than those with a pro-attitude to other risky behaviour such as climbing, horse-riding or driving? Why are there no adverts asking climbers and horse-riders to think about taking up a safer sport; or drivers to travel less and use lower-risk transportation?

The answer is perhaps that smoking combines a unique set of factors: it risks harm to others; it is unpleasant to many; there is an element of addiction amongst those with the pro-attitude; it is a major cause of avoidable harm; the epidemiological evidence is strong; and both the habit and the pro-attitude are probably concentrated in relatively poor and powerless groups whilst its disparagers are wealthier and more powerful. If this answer is along the right lines then the justification for intervention is clearly not straightforward. It follows that it is not straightforward to say which health values professionals should tackle. It seems revealing that many public health campaigns are focused on areas that encompass traditional vices: intemperance (smoking and drinking); gluttony (obesity); sloth (exercise); and lust (sexual health). Perhaps this underlines Buchanan's (2006) point, that health education is a moral and political enterprise. If so, public health professionals walk a line between justified advice and unjustified moralising.

Conclusion

Using the example of smoking and lung cancer we have argued that public health education initiatives should not be evaluated solely on the basis of behavioural outcomes or overall (full-effect) outcomes. The latter is better than the former in that it involves looking for undesired side effects of your interventions as well as whether they had the desired effect of changing behaviour. However, both fall foul of a non-utilitarian ethic that disallows deception. If only behaviour change or health outcomes matter then the way we achieve those outcomes is of less concern; if deception is necessary to change behaviour then perhaps it should be deployed. We argued that this is not the

spirit in which health education should be conducted; that is, as a medium for imparting knowledge. We also argued that it might be appropriate to use health education as a focus for personal reflection on values. There is little ethical problem in justifying health education initiatives on lung cancer and smoking, because the epidemiological evidence is so strong. However, the case for value-tackling initiatives is more complex and subtle. Health is almost universally of value to people; knowing that some activities pose immense risk to health helps them in making decisions. But public health professionals perhaps need to take stock before embarking on value-based campaigns, such as the tearful girl. They should ask - why the pro-attitude smokers; why the culture of binge drinking; why teenage sex; and why not teenage horse riding, middle-aged drivers and exercise addicts with crumbling joints? Insofar as health education initiatives seek to change people's values as well as their knowledge, professionals need to think carefully about whether and why they are justified in doing so.

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