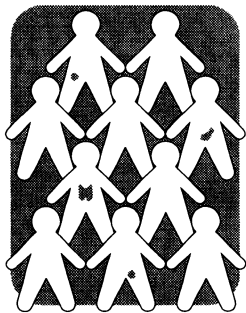


Cancer Prevention in Primary Care

Cancer prevention: setting the scene

Joan Austoker



This is the first in a series of articles looking at how cancer can be prevented in general practice

Each year in the United Kingdom there are over 300 000 new cases of cancer and nearly 165 000 deaths from cancer. It is widely believed that as many as four fifths of all cancers are preventable by means that are already available. The *Health of the Nation* and the Europe Against Cancer programme have set targets and strategies for reducing the risk of cancer. An approach based on the whole population will achieve the greatest reductions in morbidity and mortality. Complementary to this is the individual approach, which can be based in primary care and targeted at high risk subjects. Health promotion and screening in primary care are not in themselves self evidently valuable. Their effectiveness must be tested rigorously and scientifically. Furthermore, because of limited time and resources, health education in primary care should be focused on interventions that are likely to achieve the greatest benefit, such as helping people to stop smoking.

The size of the problem

Over 300 000 new cases of cancer are registered in the United Kingdom each year (fig 1). On the basis of current incidence rates it is estimated that one in three people will develop cancer at some time during their life. More than 70% of all new cases occur in people aged 60 years and over.

Cancer is currently responsible for a quarter of all deaths in the United Kingdom, with nearly 165 000 deaths in 1992 (fig 1). A few cancers account for more than half of all deaths from cancer, lung cancer alone being responsible for a quarter (table I). More women die of breast cancer than any other cancer, except in Scotland and parts of northern England, where deaths from lung cancer in women now exceed those from breast cancer.

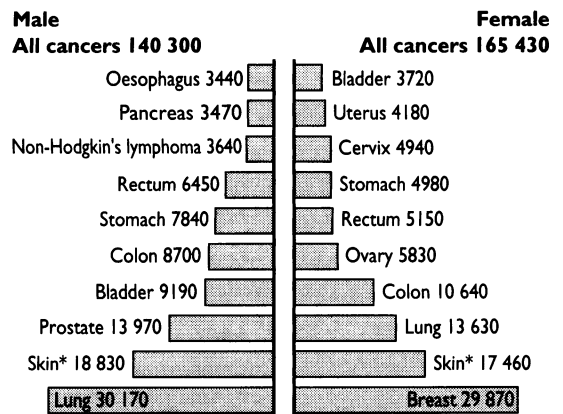
Trends in cancer mortality over the past three decades show that, with the exception of stomach cancer, there has been little improvement in death rates from all the major cancers. Moreover, the reason for the decline in deaths from stomach cancer is unknown.

Survival from cancer varies greatly depending on the type and the stage at which it is treated (fig 1). The survival of patients treated when their cancer is at an early stage is invariably better. For example, the five year survival rate in women with stage I breast cancer is over 80%, compared with 18% in women with stage IV disease.

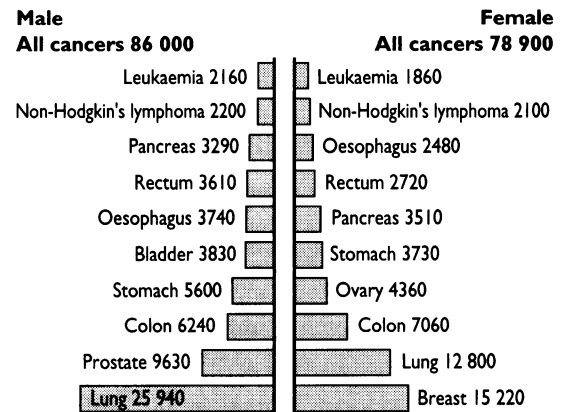
Cancer prevention: reducing the risk

Lifestyle and environmental factors play a considerable part in the development of many cancers.

No of new cases in United Kingdom, 1988



No of deaths in United Kingdom, 1992



Five year survival rates in England and Wales, 1981

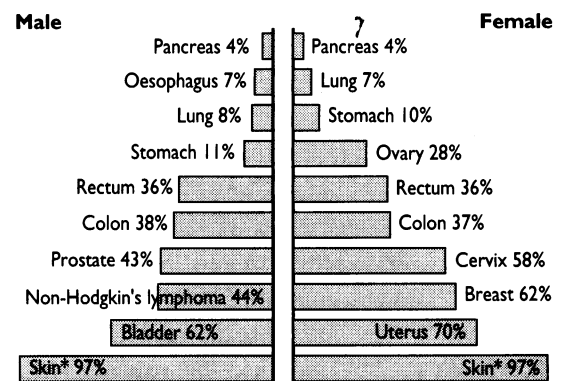


FIG 1—Numbers of new cases of cancer and deaths from cancer and five year survival rates. *Non-melanoma skin cancers'

Cancer Research Campaign Primary Care Education Research Group, Department of Public Health and Primary Care, University of Oxford, Oxford OX2 6PE
Joan Austoker, director

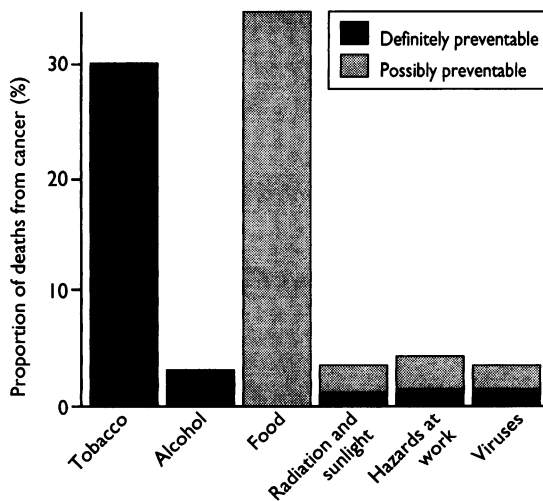


FIG 2—Proportions of deaths from cancer that are preventable according to cause (adapted from Doll and Peto¹)

Evidence increasingly shows that most cancers are potentially avoidable and, moreover, that they could be prevented or diagnosed earlier using knowledge that is already available (fig 2). Individual people can do much to reduce their risk of developing cancer. The age specific risks are, for the most part, potentially capable of being reduced by at least four fifths. However, action and positive change are required at many levels to create the conditions under which individual people can realistically make changes to reduce the risks they currently undertake. Primary care teams have a role in facilitating this process.

The ideal means of effecting cancer control is primary prevention—for example, avoidance of cigarette smoking. Second best is effective treatment to cure cancers. When these alternatives are not available, screening may be applicable if, and only if, it has been shown to reduce mortality from the disease.

Health of the Nation

The government's overall goal is to secure continuing improvements in the general health of the population of England (a) by adding years to life, which means increasing life expectancy and reducing premature death, and (b) by adding life to years, which means increasing the number of years lived free from ill health, reducing or minimising the adverse effects of illness and disability, promoting healthy lifestyles and physical and social environments, and, overall, improving quality of life.

One of the important aspects of the *Health of the Nation* strategy is to raise the status of health promotion in the health service, where the priority has traditionally been the treatment of ill health. Implementing the strategy depends on a broad range of approaches and activities requiring the participation of a wide range of organisations as well as ordinary people. Primary care teams are uniquely placed to focus on the objectives of the five key areas, one of which is cancer.

The *Health of the Nation* has three objectives for cancer:

- To reduce ill health and death caused by breast and cervical cancer
- To reduce ill health and death caused by skin cancers by increasing awareness of the need to avoid excessive exposure of the skin to ultraviolet light
- To reduce ill health and death caused by lung cancer—and other conditions associated with tobacco use—by reducing the prevalence of smoking and tobacco consumption throughout the population.

Box 1 shows the targets for cancer and smoking.

Of deaths from lung cancer, at least 80% are associated with smoking (some 26 000 deaths a year). In all, there are over 110 000 smoking related deaths each year in England alone. Particular efforts therefore need to be directed at combating the harmful effects of smoking.

The government has set ambitious targets for cancer, particularly with respect to lung cancer and smoking reduction. Those relating to breast cancer and cervical cancer are more realistic. National screening programmes are in operation whose aim is to reduce rates of death from these diseases and, in the case of cervical screening, to reduce the incidence of invasive cancer of the cervix. Primary care teams have an important part to play if the targets for breast and cervical cancer are to be met. They also have a part to play in effecting smoking reduction, but the targets to reduce lung cancer and smoking will require large commitment from the government—for example, banning cigarette advertising and promotion of tobacco—for there to be any chance of their being met.

Europe Against Cancer

The fact that the incidence of and mortality from cancer can be reduced by preventive measures has led to a European policy. This is based on influencing individual lifestyles to avoid exposure to known cancer risk factors (primary prevention) and encouraging screening to detect early lesions for those cancers for which screening is of proved efficacy (secondary prevention).

A focal point of the Europe Against Cancer programme is the European code against cancer, which provides a simple message for informing the public about cancer prevention and early detection (box 2). The Committee of European Cancer Experts has stated that: "If the European Code were respected, there would be a significant reduction in the number of deaths from cancer in the Community; the decrease could be about 15% by the year 2000." The Europe

Box 1—Health of the Nation targets¹

Cancer

- To reduce the death rate for breast cancer in the population invited for screening by at least 25% by the year 2000 (from 95.1 per 100 000 population in 1990 to no more than 71.3 per 100 000) (baseline: 1990)
- To reduce the incidence of invasive cervical cancer by at least 20% by the year 2000 (from 15 per 100 000 population in 1986 to no more than 12 per 100 000) (baseline: 1986)
- To halt the year on year increase in the incidence of skin cancer by 2005
- 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) (baseline: 1990)

Smoking

- 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 35% in men and 29% in women, from a prevalence in 1990 of 31% and 28% respectively)
- In addition to the overall reduction in prevalence, at least a third of women smokers to stop smoking at the start of their pregnancy by the year 2000
- To reduce the consumption of cigarettes by at least 40% by the year 2000 (from 98bn manufactured cigarettes per year in 1990 to 59 bn)
- To reduce smoking prevalence among 11-15 year olds by at least 33% by 1994 (from about 8% in 1988 to less than 6%)

Against Cancer programme acknowledges that "in the campaign against cancer, general practitioners are in the front line."

Preventive strategies—whom should they be focused on?

Much of the focus of prevention relates to lifestyle issues, which could be seen as primarily a matter for individual people and society rather than health professionals. Persuading and helping people to modify their lifestyles is notoriously difficult to implement and is currently the main challenge for prevention.

Preventive strategies focusing on those at high risk have the advantage of allowing action to be targeted on particular people. This avoids interfering with those not at risk and allows a cost effective use of resources. Moreover, selectivity improves the benefit to risk ratio.

Box 2—European code against cancer^s

Certain cancers may be avoided

- Do not smoke. Smokers, stop as quickly as possible and do not smoke in the presence of others
- Moderate your consumption of alcoholic drinks—beers, wines, and spirits
- Avoid excessive exposure to the sun
- Follow health and safety instructions, especially at work when producing, handling, or using any substance that may cause cancer
- Frequently eat fresh fruit and vegetables and cereals with a high fibre content
- Avoid becoming overweight, and limit your intake of fatty foods

More cancers will be cured if detected early

- See a doctor if you notice a lump, a change in a mole, or abnormal bleeding
- See a doctor if you have persistent problems, such as a persistent cough, persistent hoarseness, a change in bowel habits, or an unexplained weight loss

For women

- Have a cervical smear regularly
- Check your breasts regularly, and if possible undergo mammography at regular intervals above the age of 50

A preventive policy focused on people at high risk may offer substantial benefits for some of them. A weakness of this strategy, however, is that prevention can lead to a preoccupation with health. It is also weakened by the inability to predict the outcome for particular people and by the fact that treating only those at higher risk makes little difference to overall morbidity or mortality in the population.

A high risk preventive strategy may be an inadequate response to a common disease or a widespread cause. In such cases a population strategy may be more appropriate. A population approach has the potential for large reductions in the incidence of and mortality from cancer. It is based on the recognition that the occurrence of common disease and exposures (such as eating, drinking, smoking, sunbathing) reflects the behaviour and circumstances of society as a whole. All major diseases show extraordinarily wide variation in their incidence rates among different populations, and often even within a single population. Most of these rates are in a state of flux, reflecting the widespread current instability of lifestyles. The fact that incidence rates vary so greatly indicates at least the possibility of controlling them. Many of their underlying causes are known—for example, the relation between lung cancer and smoking. The objective of the population

Box 3—Inequalities in mortality from stomach, lung, and cervical cancer^{*}

- Mortality from stomach cancer is two to three times higher in working class men and women than in middle class men and women
- Working class men are three times more likely to die of lung cancer than are those in middle class occupations
- In women, mortality from lung cancer has increased in social classes IV and V and decreased in social classes I and II
- Women in social class V are three times more likely to die of cancer of the cervix than those in social class I

^{*}Adapted from Coulter^s and Delamothe^s

approach is to control the underlying determinants of ill health and in this way to reduce incidence rates in the whole population. Measures that are beneficial to the population as a whole, however, are not necessarily beneficial to each individual. Moreover, which people will benefit cannot be predicted with certainty.

An individual based approach would result in a minor reduction in overall risk of cancer in the population. The size of the problem is so great, however, that the best use of resources in primary care may be to concentrate on those at high risk. It remains a problem that those who develop high risk lifestyles are not always accessible to primary care. Risk taking habits such as smoking most often become established during adolescence, when patients do not regularly attend doctors.

Targeting people at high risk: inequalities in health

As in the past, socioeconomic factors continue to play an important part in health. Premature death in social class V is twice that in social class I. Although mortality from all causes has been declining in all social classes, the decline is much greater in social classes I and II. The relation between social class and mortality from cancer suggests that the overall risk of cancer is higher among working class than middle class groups, although in a minority of cancers (including breast cancer), a greater risk is found among middle class groups. The widest socioeconomic differences in the most common cancers are currently observed for cancer of the stomach in people of either sex, for lung cancer among men, and for cervical cancer among women (box 3). Variations in the occurrence of cancer among social classes are associated with differences in lifestyle and exposure, as is well illustrated by exposure to tobacco smoking, alcohol, and specific patterns of food consumption (box 4), although many social and economic factors other than lifestyle influence social class differences in health. Much of the variation

Box 4—Inequalities in lifestyle related to cancer^{*}

- Men and women in social class V are nearly four times more likely to be smokers than those in social class I
- Unemployed men and women are more likely to be smokers than those in paid employment
- Men in social class V are significantly more likely to drink more than the recommended limit (21 standard units per week) than those in all other groups
- Men and women in social class V are four and almost eight times, respectively, more likely to report eating diets high in fats and sugar and low in fibre than are those in social class I

^{*}Adapted from Cancer Research Campaign factsheet^s and Wright *et al*^s

Box 5—Advantages of primary care as focus for cancer prevention or early diagnosis

- Coverage—primary care provides access to almost all the population
- Practice registers provide an ideal (if at present inaccurate) basis for providing cancer screening
- Health promotion and screening—primary care now encompasses several health promotion and screening activities; prevention is an integral part of primary care
- Advice—increasingly, the general public expects that general practitioners and practice nurses will provide advice and support about lifestyle issues. Lifestyle advice given in general practice to those at high risk can be effective—for example, advice to stop smoking
- Motivation—primary care can provide a source of encouragement for the less motivated and those who do not attend for screening
- Continuity of care—primary care offers a continuity of care, which is important because any preventive intervention should be followed through on a long term basis

between social classes in the incidence of and mortality from cancers of the lung, oesophagus, and pharynx can be attributed to smoking. The degree to which raised cancer mortality is related to occupation and to general social circumstances is difficult to determine. Both occupation and lifestyle contribute to the variation in cancer mortality between occupational classes.

If primary health care teams are to make any impact on the prevention of avoidable mortality and morbidity strategies need to be devised for tackling these social class inequalities in health. These entail understanding some of the reasons why people behave as they do, and shifting from a reactive to a proactive approach. A systematic strategy is required, to include the targeting of specific high risk groups, if inverse care is not to prevail—that is, when those most at risk are less likely to take up the services offered.

Although there is plenty of scope for tackling inequalities in health in primary care, there are limits to what can be achieved. Unless there is a move towards creating the social and economic conditions that make it easier for people in all social classes to make healthy choices, there is a danger that, despite all the best efforts of primary health care teams, the gap will continue to widen.

Preventing cancer through primary care

Primary care teams are well placed to provide a focus for cancer prevention and early diagnosis (box 5). Studies have shown that general practitioners can be effective in health education. The most convincing evidence has come from studies evaluating interventions aimed at controlling cigarette smoking. Some

Box 6—Role of primary care teams in cancer prevention and early diagnosis

- Advising people how to stop smoking
- Preventing alcohol misuse
- Giving appropriate dietary advice
- Advising people to avoid excessive exposure to sunshine
- Identifying and advising eligible women about breast cancer screening
- Running an effective cervical cytology programme

evidence suggests that interventions in general practice can be effective in reducing alcohol consumption. As yet, evidence for an effect of interventions by general practitioners on other aspects of lifestyle such as diet is scarce and inconclusive. The results from studies of patients' beliefs have shown that they believe that general practitioners have an important role in health education and that they now expect to receive health and lifestyle advice from their doctors.

The potential contribution of primary care to cancer control is shown in the sixth box. Cancer control interventions planned in primary care, particularly in terms of effecting changes in lifestyle, should when appropriate be integrated into wider activities concerned with preventing chronic diseases.

Implementing a preventive strategy in primary care

What is needed is a comprehensive public health approach encompassing the community and the co-ordinated efforts of primary care teams, health authorities, and government. The *Health of the Nation* strategy advocates the importance of establishing alliances to prevent ill health and promote good health. Primary care teams have a crucial role in these alliances as advocates of change, but they will need to develop strong links with their local community if they are to be effective.

Box 7—Barriers to general practitioners' participation in preventive activities

- Lack of motivation
- Lack of simple protocols to follow
- Disillusionment with low rates of success
- Lack of training in effective approaches
- Lack of time
- Inadequate financial reimbursement
- Limited availability of appropriate health education resources
- Lack of continuing support
- Failure to use the skills of other members of the primary care team

While an individual based approach would result in a minor reduction in overall cancer risk in the population, interventions relating to smoking cessation, alcohol reduction, or dietary change demand to some extent a strategy focused on individual people. Such a strategy could promote individual health education in primary care and would be complementary to the population approach.

If the organisation of health promotion in primary care is to be effective the participation of general practitioners is essential. Several barriers prevent such participation (box 7). The motivation of general practitioners is important in determining their effectiveness in implementing and sustaining health promotion activities. An additional barrier to effective health promotion is a lack of knowledge among general practitioners about particular preventive activities or a poor understanding of the skills and methods required to offer health promotion and encourage changes in behaviour. To surmount this will require modifications to both undergraduate and continuing medical education.

These barriers need to be overcome if general practitioners are to improve their potential effectiveness in preventive activities. Primary care facilitators and district health promotion departments should help to provide the necessary training, support, and resources. The requirements of and payment for the 1993 health promotion bands should provide an incen-

tive for primary care teams to participate in a range of health promotion activities, including smoking cessation and alcohol reduction. In accordance with the *Health of the Nation* strategy, this health promotion package for primary care, aimed at modifying cardiovascular risk factors among high risk groups and the population as a whole, is now being put into place. This is based on multifactorial risk factor assessment and lifestyle intervention. Whether this health promotion package, which encourages an opportunistic approach to screening the population, will achieve useful reductions in risk is doubtful. Two recent studies call into question the wisdom of trying to change too many risk factors at once, suggesting that advice to stop smoking may be more effective when it is not diluted by other health promotion messages.

Strategies for helping patients to change behaviour

The pursuit of effective methods for negotiating change in behaviour is relevant to many health care consultations, including those entailing the care of patients with chronic conditions affected by behaviours such as smoking, drinking, and eating.

Health care professionals are given little or no training in how to promote behaviour changes. Giving advice forms the basis of most discussions on behaviour change. While brief interventions for behaviours such as smoking and heavy drinking have been shown to be effective, the size of the effects have been small: success rates of 5-10% are not uncommon. Giving simple lifestyle advice to as many patients as possible, as is being advocated in the new health promotion package for primary care, may be ineffective unless the methods used and training in their use are properly evaluated. Patients are not uniformly committed to receiving advice, especially if it is unsolicited and not clearly related to the presenting problem. Commonly, unsolicited advice from doctors is met with resistance from patients.

There is some evidence that the practitioner's consulting behaviour can affect the degree of resistance which emerges, and the subsequent outcome. A patient's motivation to change can be enhanced by using a negotiating method in which the patient, not the practitioner, articulates the benefits and costs entailed. Another useful concept, based on addiction research, is that of readiness to change, which is based on the stages of change model (table II). This is relevant to the negotiation of behaviour change in medical consultations.

- If patients are not ready for action, they will resist advice (hence the limited effectiveness of simple advice)
- A decision to change behaviour is a process not a discrete event
- Interventions can be tailored to suit the degree of readiness to change of individual patients.

Only a third, at most, of smokers and heavy drinkers are ready to change. Practitioners need to be trained to deal with ambivalence in a constructive way. An alternative approach is not to divide patients into

TABLE II—Stages of change with appropriate action*¹¹

Stage	Action
Not interested: precontemplators	Give information
Uncertain about prospect: contemplators	Give opportunity to weigh up pros and cons of changing behaviour
Ready to change: preparation	Discuss how to proceed with changing behaviour
Action	
Maintenance	

*Adapted from Prochaska and DiClemente¹⁰ and Rollnick *et al*¹¹

Box 8—Criteria for screening*

- Is the condition an important health problem?
- Is there a recognisable early stage?
- Is treatment at an early stage more beneficial than at a later stage?
- Is there a suitable test?
- Is the test acceptable to the population?
- Are there adequate facilities for diagnosis and treatment?
- What are the costs and benefits?
- Which subgroups should be screened?
- How often should screening take place?

*Adapted from Wilson and Jungner¹²

groups but to train practitioners to respond in a more flexible and continuous way to their judgments about patients' readiness to change (motivational interviewing).

Screening for cancer

The purpose of screening for early detection of cancer is to interrupt the natural course of the development of the cancer and thereby prevent it from progressing to a more advanced stage and ultimately to death.

Before any new screening procedure is introduced several criteria should be satisfied (box 8). An analysis should also be undertaken to establish whether the potential benefit of the test or procedure outweighs the risk of harm and the costs involved (box 9).

Box 9—Benefits and disadvantages of screening

Benefits

- Improved prognosis for some cases detected by screening
- Less radical treatment for some early cases
- Reassurance for those with negative test results

Disadvantages

- Longer morbidity for cases whose prognosis is unaltered
- Overtreatment of questionable abnormalities
- False reassurance for those with false negative results
- Anxiety and sometimes morbidity for those with false positive results
- Unnecessary medical intervention for those with false positive results
- Hazard of screening test
- Resource costs: diversion of scarce resources to screening programme

Cancer screening should not be undertaken unless a reduction in mortality has been shown, preferably in randomised controlled trials, and it is known to be worth the costs both to individual people and to the health service. Screening needs also to be sustainable in terms of recruitment of subjects, the quality of the procedures undertaken, and the feasibility of follow up. The factors influencing the effectiveness of a cancer screening programme are the participation of the target population, the sensitivity and specificity of the screening test, the frequency of routine screening, the adequacy of follow up of those with abnormal results, and the effectiveness of treatment of those with cancers.

Health promotion and screening in primary care: a note of caution

The uncritical advocacy of health promotion, in which any intervention is justified on the grounds that it might prevent illness or promote good health, is not scientifically sustainable. Health promotion is not, in itself, self evidently valuable. It must be proved to be effective. Programmes are often instituted that are not based on the results of rigorous research, and insufficient consideration is given to the scientific and political implications of the intervention. Many proposed interventions are derived from the observations of medical science. Although they may be intuitively attractive, few lifestyle interventions are confidently and scientifically known to be effective in preventing illness.

There is considerable concern about the efficacy, cost effectiveness, and feasibility of many health checks and screening activities. Advice from general practitioners to stop smoking and reduce alcohol consumption is heeded by at least some patients. Authoritative guidance on dietary management in primary care is absent because of lack of research. There is strong empirical evidence supporting cervical screening and breast screening by mammography in women aged 50 and over. On the other hand, the efficacy of faecal occult blood testing for colorectal cancer, screening for prostate and ovarian cancers, screening for melanoma, and breast and testicular self examination is far less certain, and mass screening cannot be justified on current evidence. Screening has the potential to do more harm than good. The ethical imperative, therefore, is to ensure that the benefit to each patient from screening is likely to outweigh the harm. Insisting on unnecessary, unproved, and possibly unethical procedures is likely to bring screening into disrepute and prejudice the more worthwhile screening activities. Evidence suggests that facilitating procedures of unproved effectiveness is as easy as facilitating those of proved effectiveness. Inappropriate messages based on scientifically unproved evidence serves only to erode the public's trust in the credibility and value of health education in the long term. This may serve to encourage scepticism towards even well founded health education messages such as the need to stop smoking.

The key question is not whether interventions in primary care work but rather how effective they are compared with other forms of health promotion, particularly population based strategies aimed at, for example, changing patterns of eating, drinking, and smoking. The approach to the whole population through primary care is not going to produce large reductions in risk. On the basis of the existing evidence, there may be no justification for the ritualistic collection of risk factors when the public health benefits are marginal. Other options include focusing limited

primary care resources on patients at high risk. Practice nurses, for example, may be more effectively used with patients at established high risk.

The present enthusiasm for introducing health checks in primary care needs to be regarded with caution. Any health promotion measure must be subjected to rigorous scientific evaluation and serious critical appraisal before it is introduced. Knowledge of activities of proved value, together with the necessary skills to implement them, must be disseminated to primary care teams if health promotion activities are to be effective. In the area of cancer prevention, in terms of both cost effectiveness and importance to public health, screening for the smoking habit and advice on stopping smoking should undoubtedly have first priority.

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