

# Public education in cancer prevention

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*Life-style is now recognized as a main determinant of cancer risk. Public education is an important component of cancer control programmes and has been shown to be effective in leading to life-style changes. Four basic types of education programmes are reviewed: for increasing the public's awareness of cancer, for changing specific risk behaviour (such as stopping smoking), for learning self-examination skills (such as breast self-examination), and for promoting early cancer detection in the community.*

*To change human behaviour it is best to approach the risk habit through the same forces that develop and sustain the habit. Simply giving information of an association between specific habits and cancer, even if repeated several times, will lead to increased public awareness and encourage some to make a minimal effort to change their behaviour, but in general the new habit does not persist and continuing and intensifying this approach are ineffective. An alternative strategy utilizes socially active forces to support the prevention practice and remove possible barriers to action. For example, an antismoking programme should create a favourable social image of the non-smoker. Although a culturally and socially relevant mass media campaign can influence knowledge and beliefs and induce people to participate in a screening activity, this needs to be supplemented over a period of time by personal contact methods, such as group discussions, telephone conversations and home visits, in order to promote a regular screening habit. Contrary to popular opinion, mass communication methods can be expensive on a per person cost-effectiveness basis because of low participation rates and weakness in sustaining healthy behaviour.*

## CANCER PREVENTION AND LIFE-STYLES

Education of the public in cancer control is necessary because certain life-styles are known to be associated with the onset of cancers in various sites. These cancers can be prevented (primary prevention) and participation in an early detection programme can lead to the discovery of a cancer while it is still curable (secondary prevention). The proven association between cigarette smoking and lung cancer offers the best opportunity for primary cancer prevention. Smoking is also linked with the development of cancers in the upper respiratory tract, mouth, oesophagus and urinary bladder. It has been estimated that about 30% of all cancer deaths in developed countries are due to smoking and that the carcinogenic effect of this habit will be apparent in developing countries in the course of the next decade (47).

Other examples of preventable cancers are:

— *Oral cancer* is known to be related to smoking, betel quid chewing and alcohol consumption, all of

which are prevalent in some developing countries (49); in India this cancer accounts for about 40% of all fatal cancer cases and the Indian Cancer Society has launched campaigns to persuade individuals to quit betel quid chewing and other tobacco habits and adopt proper oral hygiene (14). This cancer is also curable if detected at an early stage.

— *Cervical cancer* screening is organized in many developed countries at national or community level; as the Pap-test is inexpensive and harmless, regular check-ups should be included in national screening programmes and motivation of groups at risk to attend screening sessions is a major task of cancer education (6).

— *Urinary bladder cancer* is a common tumour in several areas of the developing world, especially in countries in North Africa, the Middle East, and South America where schistosomiasis infestation is prevalent. In Egypt, programmes to increase public awareness against this parasitic disease are in progress. In the developed countries the origin of bladder cancer is linked to smoking as well as certain industrial carcinogens and drugs. These risks can be reduced by antismoking campaigns and proper anticancer measures in industry.

— The increased incidence of *malignant melanoma* in

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northern Australia, Scandinavia, England and Israel in fair-skinned populations exposed to excessive amounts of ultraviolet light indicates the importance of skin protection. Programmes to promote public awareness of this possible risk factor were carried out with success in Hawaii (34), Israel (1) and England (43). Early detection campaigns in Queensland (Australia) showed improved cure rates (38).

—Women at risk for *breast cancer* can actively prevent its occurrence either by seeking regular clinical examinations or through learning how to examine their own breasts (breast self-examination or BSE) (23).

These examples show that cancer control also depends on actions people can take to protect their health, e.g., giving up smoking, performing breast self-examinations, having a Pap-test and avoiding over-exposure to the sun. The aim of cancer education is therefore to help people of all ages to follow healthy life-styles and give up habits that increase the risk of cancer.

Over many years a variety of approaches to cancer education have been tried out and evaluated. Four types of public education programmes in cancer prevention are discussed below; they reflect the goals of cancer education in primary and secondary prevention. Some important issues in the organization of cancer education programmes are also reviewed.

#### *Cancer awareness and public information programmes*

The efforts of cancer societies, government bodies and the media are directed towards alerting the public about the known cancer risks. However, as people's reactions to such information depend on their beliefs and attitudes to cancer, this aspect will be examined first.

Little is known about the development of a person's attitude to cancer, the critical age period for learning about cancer, the type of learning that should take place and for how long, and the influence on children of early experiences in families with cancer patients and of their parents' reaction towards cancer. In short, how does one learn to cope with cancer as a potential or an actual problem? While some educationists have suggested that cancer education should start at an early stage of the child's development in order to establish positive attitudes towards the disease, more research on this subject is needed.

Schools can promote learning about cancer as a disease and as a life experience. For example, the goals of a cancer education programme in a school in Washington, DC, were to increase the pupils' knowledge about cancer and about health-enhancing

behaviours, develop positive attitudes about cancer, dispel predisposed negative feelings related to myths and misconceptions, influence the lack of specific skills so as to lower the risk for particular cancers, influence negative and uninformed judgements about cancer made by peers and adults, and help teachers to become informed transmitters of cancer education information (2). A study performed among secondary school students aged 15–18 years (mean, 16.6 years) in Singapore showed that such goals have to be set at an age when they can compare and evaluate the information given by the teacher with that gathered from everyday life (26).

The optimal age for introducing the subject at school is determined by the health concepts and practices to be learned. For example, oral hygiene should be taught to primary schoolchildren, and sexual hygiene and the risks from smoking and betel chewing to young adolescents (12 to 15 years old). The emphasis given will vary according to the pupils' age. For example, at primary school, emphasis is on understanding one's body and how to take care of it. At secondary school, the student learns the basic biological aspects of cancer, facts about the risks of cigarette smoking, and how to cope with social pressures from parents, friends or the media. Group pressure, particularly in secondary schools, often leads to deleterious practices such as misuse of drugs, including tobacco and alcohol. Teachers have been reported to prefer to teach cancer prevention themselves provided they receive in-service training and teaching materials for use in the classroom; training courses for teachers on cancer prevention and treatment have led to improvements in their attitudes and knowledge about cancer (31). Cancer education received at school combined with a home assignment, for example on antismoking, resulted in significant attitude changes towards smoking among students and parents (15).

Carefully prepared cancer education programmes in schools have been successful in raising awareness about cancer, in developing positive health habits, and in changing beliefs about cancer (15, 24). However, few schools have a well-planned cancer education programme. A manual containing relevant information for teachers has been prepared by the International Union against Cancer (UICC) to promote such programmes (17).

Most cancer societies consider it their main duty to inform the public about cancer and the methods of prevention. Significant improvements in the beliefs and attitudes of the public concerning cancer prevention and treatment and in their awareness of specific cancer risks have been observed. For example, after 7 years of educating the public the proportion of women who knew that cervical cancer could be prevented rose from 32% to 56% in Manchester

(unpublished observation). Similarly, the awareness of smoking risks among the US public doubled from 40% in 1958 to 80% in 1974 (44). A series of Gallup surveys conducted for the American Cancer Society over a period of 9 years indicated an increase in women's awareness of the Pap-test from 59% in 1961 to 90% in 1970 (25). Awareness about self-examination to detect breast cancer has improved in the USA and is now approximately 95% (27). Similar high levels of awareness (91%) were observed for clinical breast examination. However, only 59% of the respondents had heard of oral cancer screening tests and 56% were aware of proctoscopy as a means to detect colo-rectal cancer (11).

Despite high levels of awareness of common cancer risks and of detection possibilities in industrialized countries, several deficiencies in knowledge and beliefs about cancer remain. For example, cancer incidence was often found to be underestimated (especially colon and rectum cancer). In a recent US study on beliefs and attitudes to cancer, about 30% of the respondents had a pessimistic view of the chances of survival for early treated breast cancer (6). A pessimistic outlook on the curability of cancer among health workers was indicated by a British study of the views of nurses and general practitioners on breast and cervical cancer prognosis; such an outlook may have a negative effect on their role as cancer educators.

A particular problem of cancer awareness and information programmes is how to provide an accessible as well as reliable source of information on cancer for the public. Health workers are an important source of information although in the developing countries doctors are in short supply and mostly practise in urban areas. So that doctors could learn about primary and secondary cancer prevention strategies and about conveying specific messages to the target population, the UICC published a book on how to involve doctors in health education (16); dentists, nurses and other health workers who take care of patients or are involved in teaching require similar instruction. A WHO field study has shown that primary health workers (midwives and public health inspectors) can be trained to reliably detect oral cancer in various stages of development (48). These health workers were trained not only to detect oral cancer but also to inform and educate the community about the risk of tobacco and betel quid chewing and about oral hygiene. Such education led to a reduction in the number of persons with these habits, for example in India (49).

Cancer societies, government bodies and health agencies have refined their approach to public information—posters, books, TV programmes and radio talks, for example, have improved in quality—and they now make use of methods and techniques used in

marketing. Industry's pro-smoking advertising is counteracted by well-researched advertisements promoting a desirable social image of non-smokers. Alternative approaches to information about cancer have been tested, such as a telephone-based cancer information service (CIS) for large geographical areas with free, accessible and authoritative information about cancer, which has been in operation in the USA since 1975 and has been a valuable adjunct to health education in schools, education of patients in clinics, and other forms of cancer education in the community (30). Public response to the system has been high. However, a user survey showed that the callers (cancer patients, members of their family or other members of the community) were better educated and of higher social class than the population as a whole; high-risk groups such as the urban poor were less likely to use the service. The CIS system answers specific questions from users and seems to contribute to a more effective use of health care services in 61% of the cases. CIS also appears to influence positive health practice since 15% of the callers reportedly changed their smoking habits.

Industrial workers have been alerted and informed about known and suspected carcinogens as part of risk-reduction programmes in their place of work, but information on the specific effects of such programmes is not yet available. A variety of approaches have been used such as direct mailing of information to work sites, fact sheets, press releases and counselling by visiting nurses (4, 39); the reaction of employers and employees was favourable.

#### *Changing risk behaviour: the example of stopping smoking*

The single most important risk behaviour leading to cancer is tobacco (nicotine) consumption and WHO has given a high priority to programmes discouraging smoking, betel quid chewing and other tobacco habits (47). Since the facts about smoking and lung cancer became known about 30 years ago, cancer societies have launched antismoking campaigns, e.g., in Australia, Finland, Norway, and the USA, among which the American Cancer Society's programme has a particularly broad scope (22). In Finland, following efforts by the Finnish Cancer Society, the number of smokers among young people declined from 32% to 25% within a 5-year period (9). A Gallup survey conducted in Norway showed similar results (33). Studies from Australia and the United Kingdom demonstrated that doctors have given up smoking in large numbers and their death rates have fallen correspondingly (8). In certain countries antismoking campaigns are considered to be the government's task and are reinforced by law such as the Tobacco Act of Norway or Finland. In the USSR

and most east European countries cancer education programmes are part of the national health care plans. In some countries (Hungary, Yugoslavia) the government supports antismoking programmes initiated by cancer societies.

Early antismoking programmes focused on the smoker, although from a public health perspective the most sensible strategy for controlling cigarette smoking is to prevent people from starting to smoke. Intensive antismoking campaigns are generally given credit not for reducing the number of people who smoke, but for establishing the social image of smoking and for making people willing to stop smoking. For example, in North America and Europe social support for smoking among teenagers is decreasing. In 1975, 55% of high school seniors in the USA felt their friends would disapprove of their smoking one pack of cigarettes a day; in 1980, 74% felt that way (44). The greater prevalence of negative attitudes about smoking among teenagers is partly due to 20 years of media campaigns and educational programmes about the harmful effects of smoking. In contrast, in the developing countries more people are taking up the smoking habit which is strongly promoted through aggressive advertising by tobacco companies.

Much research has been conducted on smoking cessation. Reviews indicate that most smokers stop without formal treatment and that a considerable discrepancy exists between awareness of smoking risk and stopping smoking. There is little definitive evidence concerning the most effective cessation strategy, and recidivism or failure to remain a non-smoker is a major problem. Behavioural methods are now popular because of the small number of people who stop smoking as a result of large-scale anti-smoking campaigns; initial success rates of behaviour modification programmes are 70-80%, but one-year cessation rates tend to stabilize around 20-30% (3).

Cessation programmes are of three types, based on aversion, self-control and pharmacological strategies. With regard to their effectiveness, all three show a similar pattern: spectacular immediate success, rapid decrease of cessation rates until the third month, and levelling off of the cessation rate till the end of the first year. The similar success rate with a wide variety of methods suggests a common underlying factor rather than a specific effect of any particular intervention technique (3).

Currently, antismoking programmes are focusing attention on measures to support those who have stopped smoking, e.g., by creating clubs for ex-smokers, promoting the non-smokers' image, and making more smoke-free areas in public places. Antismoking programmes have mostly abandoned the moralizing and fear-provoking approaches designed to discourage smokers in their habit;

instead, resources are invested in programmes to prevent the onset of smoking among young people, in counter-advertising to neutralize the tobacco industry's publicity campaigns, and in measures to support the ex-smoker. Indeed, given the present high level of public awareness about the harmful effects of tobacco in developed countries, conventional anti-smoking campaigns based on persuading the smoker to stop make little sense. Antismoking programmes are also based on a multifactor strategy, i.e., the same programme will include approaches aimed at the individual, his social and physical environment, and long-term follow-up support; these approaches account, for example, for a 40% smoking cessation rate after 5 years in the Multiple Risk Factor Interventions Programme (19).

Further evidence of the effectiveness of a more broadly based antismoking strategy comes from a community-wide cardiovascular disease risk-reduction intervention study in North Karelia, Finland. In the North Karelia community, smoking decreased significantly over a 5-year period compared with a control area. The reduction in smoking as well as other risk factors could not be attributed to any single factor, but it was felt that the re-organization of the preventive services (including the training of local public health nurses to assume greater responsibilities in education, counselling and follow-up care) and the organization of community support through family members, the press, and industry leaders were probably the most effective aspects of the programme (28).

In summary, antismoking programmes focus on preventing the onset of smoking habits. With respect to changing adult smokers, greater reliance is placed on a multifactor approach whereby more attention is paid to maintaining nonsmoking behaviour.

#### *Early cancer detection: learning self-examination skills*

Persons at risk can participate actively in cancer detection through learning a particular skill, e.g., self-examination of the breasts (BSE), the oral cavity and the face for early cancers and use of the occult blood test by older persons to detect colo-rectal cancer.

Awareness and actual practice of BSE has risen over the years. According to a US survey, 83% of women practised it at least once (27); figures for other countries are not available but we can assume that cultural differences (e.g., value attributed to the body, or feelings of shame) have an influence. Two problems stand out as regards BSE: the regularity and the correctness of the practice. The percentage of women in the USA reporting regular practice each month is 18% and has remained the same over the

years (25). Lack of knowledge of the value of the practice as a detection method for cancer and low confidence in personal ability to do self-examinations are consistently associated with low BSE rates.

Most women practising BSE were not doing it correctly and did not take the 5 minutes as recommended (27). This points to the need for women, including young girls, to learn what they can do for themselves and how they must do it; the family physician can be helpful in this respect (5, 21). BSE knowledge and skills can be successfully taught to schoolgirls given an appropriate course and a dedicated teacher (24). A study in Australia reported that leaflets on BSE distributed in doctors' offices stimulated women to practise BSE: 11% more women were practising it after the leaflets were distributed but there is no information on the correctness and continuity of the practice (18).

A study in the USA has shown that the skill of detecting early signs of oral cancer or lesions with a malignant potential can be mastered by lay persons and applied to themselves through a self-examination technique. At a large fair 485 persons were taught how to examine the face and various parts of the oral cavity; follow-up data from 89 persons showed that about half of them continued oral/facial self-examination 3 months after the instruction at the fair (7).

#### *Early cancer detection in groups at risk*

Early cancer detection will not influence cancer incidence but may reduce cancer mortality. For various cancers (cervical, oral and colo-rectal, for example) early detection methods are available for groups at risk, some of which can be reliably applied on a community-wide basis. Educational programmes have been developed to encourage groups at risk to seek a screening test at particular intervals for specific cancers. For example, sexually active women are encouraged to have regular Pap-tests till the age of 65 years.

Studies of participation rates for various cancers in the United Kingdom and the USA indicate a general upward trend in the number of persons seeking early cancer detection. Participation in screening for cervical and breast cancer has increased over the past 25 years and various data put the once-only participation rates at about 50% for clinical breast cancer examination, and 75% for the Pap-test. Rates for oral and colo-rectal cancers are lower, respectively 28% and 17% (11). Once-only participation rates in cancer screening are misleading as participation on a regular basis is much lower. For example, a screening programme at the Health Insurance Plan in New York showed that of the women screened initially, 60% returned for three additional screenings that

were offered and 28% returned for one visit (10). A survey by the American Cancer Society in 1975 showed, against a background of high awareness of BSE (95%), that 75% of the women had done BSE on one occasion and 24% did it once a month (11). This indicates that cancer education succeeds very well in raising awareness and stimulating participation, but it still has to instil regular screening habits among groups at risk.

The reasons for lack of participation in cancer detection measures have been investigated. Virtually all studies for various cancer sites show that non-participants are less educated, have a lower income, and are older than participants. Since these features are associated with a higher risk for various cancers, lack of participation presents a serious challenge to cancer education programmes. On the other hand, the beliefs about specific cancers and about early detection show no consistent influence on participation rates. For example, no relation has been found between beliefs about breast examination and performance of BSE, but non-participation in cervical cancer screening is related to low responses on the value of early detection and in the efficacy of cancer treatment (25). Other variables affecting participation rates in different studies are: knowledge of the cancer and its symptoms, the accessibility of screening services, the acceptance of the screening test, and the attitudes of health workers. The importance of an accessible screening service and positive attitudes of health workers to participation is commonly acknowledged. However, data are not consistent and more research is needed.

Cancer screening programmes in the past relied on messages provoking fear to encourage participation in cancer screening. Studies have consistently shown that promotion of fear, without informing the public about easy means of action or without sufficient resources for cancer screening, is counterproductive (12).

Why do people fail to seek prompt medical attention when informed of suspicious findings as a result of a screening test? Greenwald et al. (13) showed that having a personal family physician decreases delay; also, knowing about available health care resources in the community helps. Fear of cancer and a critical attitude of the public towards the health care system exerts a delaying effect. Physicians can influence delay by the way in which they communicate with patients, e.g., by failing to be reassuring and practical and by not indicating when and why the patient has to seek care.

Increasing the participation of high-risk groups in cancer screening may be considered in terms of: How to reach high-risk groups? How to motivate and convince people to act on their knowledge? And how to instil a preventive habit. Reaching high-risk groups

with cancer messages should be looked at in the light of the type of cancer risk and the people involved, their culture, language, beliefs and communication habits. For example, the existence of several languages in some developing countries presents a barrier to understanding cancer messages. Illiteracy is another difficulty and messages should also be presented graphically. Ethnic differences play a role in acceptance of cancer messages as was shown in studies in New Zealand (35) and Hawaii (42). Religion and beliefs interfere with cancer messages. For example, screening programmes for cervical and breast cancer should seek advice from local health professionals in developing messages and activities because of existing taboos concerning the female body and sexuality.

Communication habits and access to media differ in various societies, both in terms of intensity of exposure to news and in types of media used. Persons with low income and low education generally have less access to modern media than people with a higher socioeconomic profile. Other media should be explored (markets, festivals, and intergroup communication).

Cancer programmes have used a variety of approaches to increase the reach of their message, for example by using radio spots, poster advertising, mailing, invitation cards to attend clinics, home visits by health or social worker, newspaper stories, well-known speakers, discussions on cancer prevention in community groups, and so on. The use of these different approaches in a limited period such as a "cancer week" is quite common. However, one should not expect this strategy to elicit preventive health behaviour on a permanent basis, and the number of persons screened as a result of such efforts is small (25). A "cancer week" is a general information strategy to raise public awareness about cancer and to raise funds for cancer research and services.

It is commonly accepted that cancer campaigns have been successful in increasing the awareness of the public about cancer and probably accounts for participation in cancer prevention. Mendelsohn (29) observed the role of mass communication in cancer control and suggested that the effects of the mass media were in the first place indirect. They influence foremost the knowledge and beliefs of the public over a period of time; their direct effect on screening habits is less pronounced. Convincing people to participate in cancer screening is helped by personal contact such as individualized mailings, telephone conversations, group discussions and home visits. These approaches are indicated when examinations have to be repeated as in breast or cervical cancer screenings. The importance of individual contacts to convince people to follow through with cancer

screening after a first initial visit has been demonstrated in several studies (10, 37). Even simple reminders by letter or telephone may be effective.

Difficulties in access to the screening services, appointments that clash with working hours, and family obligations are factors that may prevent participation. Studies in the United Kingdom attest to the importance of organizing screening services that are accessible for working women (45). Cancer prevention programmes generally strive to create a pleasant environment for the people coming for cancer screening. Regular participation in cancer screening of persons at risk does not require a continuous large-scale campaign but rather a culturally and socially relevant media programme supplemented over a period of time by personal contact methods. In addition, accessible and acceptable screening services should be available. The extent to which regular participation can be improved at the first screening visit, the role of health workers in patients' follow-up, and the cost of personal contact methods applied on a community basis need further study.

#### ORGANIZATION OF CANCER EDUCATION PROGRAMMES

Cancer education programmes in fact do change people's awareness, attitudes and practices concerning various cancer risks, but few details on how the results were obtained have been reported. Nevertheless, there has been advance in knowledge about the principles and about the procedure of work in developing a cancer education programme. Some of these are discussed below.

##### (a) *Changing habits*

Habits to prevent cancer, such as stopping smoking or regularly examining one's breasts or having a Papanicolaou test, are promoted in cancer education programmes. Kegeles & Grady (25) identified two approaches. The first assumes that receiving cancer-related information will lead persons at risk to change their attitudes and to practise appropriate cancer prevention. Programmes based on this approach have had an impact in increasing public awareness about cancer and, when intensively applied, in persuading the people at risk to make an effort at least once; the new habits do not persist, however, and continuing and intensifying this approach will not help.

The second approach is more effective in this respect because it utilizes socially active forces to support the prevention practice and remove possible barriers to action. For example, antismoking programmes should create a favourable social image for the non-smoker (and the opposite for the smoker),

should counteract the effects of cigarette advertising, and should provide opportunities for people who want to quit the smoking habit. Similarly a cervical cancer screening programme should seek social approval for the screening activities, organize accessible and acceptable screening services, and find ways to encourage those who attended once to come again.

*(b) Developing appropriate messages*

A primary concern of cancer education programmes is the presentation of correct facts. Unfortunately this is not simple in view of the rapid development of new knowledge and the uncertain status of some preventive practices as regards cancer incidence and mortality. From an educational point of view there is an additional concern which is how to present an attractive and convincing message to the public.

One way is the "closed door" approach where qualified scientists compose the message to be subsequently delivered to the target group. This method has now been replaced by approaches consisting in writing down the key ideas to be communicated and developing them further at local level with the help of informed health workers, persons from the target populations, and others who can shed some light on the cultural images, sensibilities, and vocabulary of the target group.

This message-development and pretesting approach has been formalized in specific procedures by the U.S. Office of Cancer Communication of the National Cancer Institute in order to pretest the effectiveness of various cancer messages presented in different forms (32). The procedures range from a standardized appraisal of the comprehension level of written texts of pamphlets, on-the-spot surveys of the reactions of people to messages, detailed personal interviews concerning the appropriateness of the messages, radio and TV message evaluation procedures with invited groups, and discussion sessions on message presentation by people who are in close contact with the culture and life-style of the target group. The aim of the different procedures is the same. It consists in gathering target audience reactions to messages and message presentation before these are produced in final form. The reactions indicate whether the messages are understood and whether the proposed presentation is credible, personally relevant and appropriate (for example, use of a bare-breasted model to teach BSE) (36).

*(c) Selecting media for communication and learning*

Because of their visibility and range of influence both the written and electronic mass media have often

been selected as the main method of cancer education programmes. However, the choice of a communication method should be made taking into account the objectives of the programme. For example, motivating women to practise BSE month after month is different from persuading teenagers to resist pressures to start smoking. In practice, several media can be effectively combined as has been demonstrated in the North Karelia study (28). Combining various methods for dealing with a cancer problem requires familiarity with the main strengths and weaknesses of each method. For example, mass communication methods are effective in raising awareness about cancer risks, informing the public about correct facts on cancer, and creating a positive climate of opinion about the curability of cancer. The mass media are also effective in setting the stage for other interventions such as a discussion on cancer in community groups and talks in the doctor's office, which may have a "trigger" function for persons who are ready to act.

On the other hand, mass communication methods yield low participation rates. Contrary to popular opinion, these methods turn out to be expensive on a cost-effectiveness (per person) basis in view of the low participation rates and the lack of impact on sustaining such preventive behaviour over a long period. Methods based on work in groups are well suited for the learning of skills, such as BSE; while changes occurring after group work are spectacular, maintaining the practice is the problem. For example, once-only self-examination may reach 80% but drops to 20% for regular month-by-month practice (25). Promising approaches to group work in cancer include the use of trained lay volunteers and cured cancer patients. This approach based on such intermediaries requires development and training of non-health workers as a resource for cancer education programmes. The approach may be applied in the community (using trained lay persons who work with existing community groups), in schools (after training of teachers in cancer education) and in the workplace, and removes some of the practical restrictions on the group method, i.e., the high cost per person per contact.

Personal contact methods through visits, telephone calls and personal written messages are very helpful to convince infrequent users about the value of cancer screening services and to obtain regularity in prevention practices. The more personal the approach the greater the effect. For example, to convince women to have a Pap-test done, home visits by nurses are more effective than personally addressed postcards. However, individualized approaches in smoking cessation programmes have not been very successful. An approach combining different individual or group smoking cessation techniques with

community or social methods is currently recommended (44).

The above three main types of educational methods have additional features which make them more or less pertinent and attractive. For example, mass media help to establish credibility of the sponsoring institution, while personal contact and group methods capitalize on the warmth and understanding of the communicator, provide an opportunity to ask questions and express fears, and encourage individuals to act together rather than try something new alone. Also, user preference for the communication method is important.

#### *Organization and training*

For the prevention of certain cancers cooperation with industrial management is required, e.g., for protecting asbestos workers or employees at a vinyl chloride plant. Family planning services may also be a way to reach risk groups for hereditary or semi-hereditary cancers (retinoblastoma, medullary thyroid cancer, polyposis, etc.), and the specific risk of liver cancer associated with hepatitis B infection (40) is best dealt with in a medical or nursing curriculum.

Large-scale cancer information programmes need assistance from newspapers, magazines and other news media. An analysis in the USA of newspaper coverage of cancer showed that an active approach to channelling information to the press was required to avoid fragmented and disputable coverage. Information specialists should act as intermediaries between scientists and reporters to improve the accuracy of the news coverage. In addition, many national cancer societies have a specific store of messages available for use by health professionals, teachers and journalists. Exchange among cancer societies has recently been promoted by the UICC through the publication of a catalogue listing 400 films and slide sets used in cancer control worldwide (20).

Alternative methods for large-scale dissemination of information have been tried. The role of a telephone system to make correct information on cancer widely available has been explored through the Cancer Information Service established by the U.S. National Cancer Institute (41). Phone-in procedures to TV and radio shows are other recent and popular methods.

All persons who are responsible for communicating cancer messages should be an example to others. Health workers who attend screening programmes and who do not smoke are more likely to find people following their example. Little success can be expected from a campaign led by a heavy smoker or by a woman not willing to perform her

own breast self-examination regularly. Preparation of health workers in cancer education is not part of basic or postgraduate training. Therefore, the UICC has developed training programmes for doctors and school teachers and published two manuals: one on how to involve doctors and the other on how to involve school teachers in health education about cancer (16, 17).

#### *Evaluating cancer education programmes*

Although the ultimate aim of cancer education is to reduce cancer incidence and mortality, the parameters for evaluation of cancer education programmes are the life-style and practices related to cancer incidence and mortality, or other more specific goals such as improving the level of information of the public or of patient groups, dispelling misconceptions and fears, and inducing preventive actions and skills. Reviews of cancer education programmes show that, after receiving continuous cancer education, the public is better informed and more aware of different cancer risks. It is thus possible to change smoking habits and influence the conditions which make it more difficult for the young to start. BSE can be learned and women can be encouraged to seek a Pap-test. For evaluation various designs have been used ranging from single measurements (taken before and after the education programme), through experimental and control group comparisons, to time-series of observations before, during and after the programme. Since cancer education is based on community intervention, a major question is whether the observed changes in knowledge, attitudes and practices of the public can be attributed to the education programme or whether confounding variables were at work. These variables can be controlled by using particular evaluation designs (46).

Another question is whether the effects of a cancer education programme may be ascribed to any specific part of the programme. Other matters to be considered are: were the health workers motivated when talking about cervical cancer screening? Were the materials appropriate? Was the programme timed at receptive periods of the target group? And finally the evaluation of how adequately different parts of the cancer education programme have been carried out. This is done by comparing the different programme components with accepted standards of educational practice. For example, have the programme objectives been stated in measurable educational terms? Has knowledge about the target group been collected? Have the messages been pretested? Was the communication strategy selected in accordance with the stated objectives? Were the persons who were used as intermediate links in the communication pro-



cess informed, motivated or trained? Was community support obtained?

#### CONCLUSION

Education is an effective tool for modifying life-styles and thereby reducing cancer risks. However, an effective education programme requires considerable

planning, pretesting, and variation in strategy depending on the specific cultural and social situation and whether one wishes to influence knowledge and beliefs or to teach skills and healthy life-style habits. Since human behaviour is increasingly recognized as a major determinant of health, the role of public education and the conduct of effective education programmes take on greater importance for ensuring the health of the population.

#### RÉSUMÉ

##### ÉDUCATION DU PUBLIC ET PRÉVENTION DU CANCER

L'éducation du public joue un rôle important dans la lutte contre le cancer du fait que certaines habitudes de vie (le tabagisme, par exemple) sont étroitement liées à l'apparition de certains cancers et que la participation individuelle à des programmes de dépistage précoce peut permettre de déceler des cancers à un stade où ils sont encore guérissables. Il existe quatre types fondamentaux de programmes d'éducation du public pour la prévention du cancer. Le premier a pour objet d'alerter le public et vise à le sensibiliser aux risques de cancer connus et aux méthodes de prévention. L'idéal est d'aborder certains sujets dès l'école primaire ou secondaire. Le second type de programme vise à modifier un comportement à risque particulier, tel que l'usage du tabac. Les programmes anti-tabac actuels reposent essentiellement sur des mesures visant à établir l'abstinence tabagique comme norme culturelle, à prévenir l'usage du tabac et à aider les personnes qui ont cessé de fumer; on a pratiquement renoncé à essayer de faire peur aux gens ou aux approches moralisatrices car ces mesures n'ont aucun effet. Un troisième type de programme d'éducation repose sur l'apprentissage des techniques d'auto-examen, telles que l'auto-examen des seins. Quant au quatrième type de programme, il consiste à encourager les groupes à risque à se soumettre à des épreuves de dépistage. Or s'il est vrai qu'une campagne d'information culturellement et socialement bien ciblée est susceptible d'influencer les attitudes et les croyances et de convaincre les gens de participer à des activités de dépistage, cet effort doit être complété pendant un certain temps par le contact individuel au moyen de méthodes telles que les discussions de groupe, les conversations téléphoniques et les visites à domicile, de manière à faire prendre l'habitude aux gens de

se soumettre régulièrement à des dépistages.

Si l'on veut modifier un comportement humain, il vaut mieux combattre l'habitude en cause par les forces mêmes qui contribuent à la faire se développer. On a longtemps pensé que d'informer les gens sur l'association entre certaines habitudes particulières et le cancer conduirait les personnes exposées à modifier leur comportement et à opter pour une prévention appropriée; appliquées de façon intensive, ces activités permettent en effet d'accroître la prise de conscience dans le public et d'encourager certaines personnes à faire un effort, au moins une fois. Mais, en général, ce changement de comportement n'est pas définitif et l'on aura beau poursuivre et intensifier l'action, rien n'y fera. Une seconde approche plus efficace consiste donc à utiliser les forces sociales positives pour appuyer les efforts de prévention et faire disparaître les obstacles possibles. Ainsi, un programme anti-tabac devra s'efforcer de donner une image sociale valorisante du non-fumeur (et l'inverse pour le fumeur).

Contrairement à ce que l'on pourrait croire, les méthodes de communication de masse peuvent se révéler très peu rentables, en raison du faible taux de participation et des problèmes rencontrés pour faire adopter définitivement un comportement sain. Les méthodes de contact individuel peuvent être d'un grand secours; en général, plus l'approche est personnelle, plus l'on a de résultats. De plus en plus, l'on s'aperçoit que le comportement humain est l'un des principaux déterminants de la santé; aussi l'éducation du public et, pour ce faire, des programmes d'éducation efficaces, devront-ils revêtir une importance croissante si l'on veut avoir une population en bonne santé.

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