

WHO CONSULTATION ON AN INTEGRATED PROGRAMME FOR
COMMUNITY HEALTH IN NONCOMMUNICABLE DISEASES - p + c

Report of a meeting

Community Health

Geneva, 16-18 December 1985

CONTENTS

	<u>Page</u>
1. Introduction	4
2. Review of WHO action already undertaken	4
3. Review of scientific basis of integrated control of major noncommunicable diseases	5
3.1. Lifestyles and noncommunicable diseases	5
3.1.1 Smoking	5
3.1.2 Nutrition	6
3.1.3 Obesity	7
3.1.4 Physical activity	8
3.1.5 Alcohol and drug abuse	9
3.2 Interrelationships between chronic diseases, their causes and risk factors	9
4. Operational rationale for integrated major noncommunicable disease prevention and control	12
5. Existing methodologies for noncommunicable disease control	13
5.1 Concept and definition	13
5.2 Objectives and targets	15
5.3 Approaches	15
5.4 Leadership and training of personnel	15
5.5 How to start?	16
5.5.1 Initial stage	16
5.5.2 Selection of community	16
5.5.3 Defining contents of programme	16
5.5.4 Resources	17
5.5.5 Securing societal support	17
5.5.6 Obstacles	17

This document is not issued to the general public, and all rights are reserved by the World Health Organization (WHO). The document may not be reviewed, abstracted, quoted, reproduced or translated, in part or in whole, without the prior written permission of WHO. No part of this document may be stored in a retrieval system or transmitted in any form or by any means - electronic, mechanical or other without the prior written permission of WHO.

Ce document n'est pas destiné à être distribué au grand public et tous les droits y afférents sont réservés par l'Organisation mondiale de la Santé (OMS). Il ne peut être commenté, résumé, cité, reproduit ou traduit, partiellement ou en totalité, sans une autorisation préalable écrite de l'OMS. Aucune partie ne doit être chargée dans un système de recherche documentaire ou diffusée sous quelque forme ou par quelque moyen que ce soit - électronique, mécanique, ou autre - sans une autorisation préalable écrite de l'OMS.

The views expressed in documents by named authors are solely the responsibility of those authors.

Les opinions exprimées dans les documents par des auteurs cités nommément n'engagent que lesdits auteurs.

	<u>Page</u>
5.6 How to build up?	18
5.6.1 Working out the intervention subprogrammes	18
5.6.2 Methodological subprogrammes	19
5.6.2.1 Health education of the public	19
5.6.2.2 Education of health professionals	20
5.6.2.3 Involvement of occupational health services	21
5.6.2.4 Screening	21
5.6.3 Improving the information base	22
5.7 Evaluation	23
5.7.1 Formative evaluation	23
5.7.2 Process evaluation	23
5.7.3 Summative evaluation	23
6. Guidelines for concerted action	24
6.1 WHO action at global, regional and country level	24
6.2 Suggested framework for information exchange and dissemination	25
7. Conclusions	26
8. Recommendations	27

ANNEXES

- Annex I. List of Participants (NCD/IP/85/WP/2)
- Annex II. List of Working Papers (NCD/IP/85/WP/4)

1. INTRODUCTION

The meeting was opened by Dr LU Rushan, Assistant Director-General. He stressed the importance of developing an improved strategy for health promotion in general and in relation to noncommunicable diseases in particular. Noncommunicable Diseases, coronary heart diseases and cancer, are the topmost killers throughout the world. Even in the developing world these two diseases rank third and fourth as causes of death. At the same time, medical costs are escalating, and there is a world-wide lack of resources to deal with illness. Unhealthy life-styles are at the root of the high incidence of many noncommunicable diseases, and as a number of life-style related factors were common to several of these diseases, it should be feasible and more effective to launch a concerted attack rather than grapple with each of them separately. The World Health Assembly had passed Resolution WHA38.30 to foster and support community studies along these lines. Dr LU Rushan concluded by saying the Director-General had decided to increase the 1986 budget in order to stimulate action.

2. Review of WHO action already undertaken

Integrated programmes, directed towards the prevention and control of more than one chronic disease, have for a long time been part of WHO strategy. For instance, it was considered a matter of course that both stroke and coronary heart disease had to be included both in comprehensive cardiovascular programmes, despite the fact that the epidemiology and risk factors of these diseases were only partly overlapping.

However, the explicit concern with an integrated action against noncommunicable diseases as a whole in a more systematic way started with the Dublin Consultation on the links between cardiovascular diseases and other chronic diseases in 1978 (1). Since then, a number of meetings at the global and regional level took place to discuss various aspects of the problem. Some of them, in chronological order, are:

- Geneva, June 1980 (2)
- Zurich, October 1980 (3)
- Kaunas, November 1981 (4)
- Copenhagen, October 1982 (5)
- Geneva, October 1982 (6)
- Copenhagen, June 1983 (7)
- Malta, December 1983 (8)
- Brioni, September 1984 (9)
- Kaunas/Moscow, June-July 1985 (10)

A vast material is available in the working papers, and reports of these meetings. The concept has gradually crystallized; it is described in two brief articles: "An integrated programme for the prevention and control of noncommunicable diseases. A Kaunas report" by Glasunov et al. (11) and "Prevention of Chronic Diseases in the Community - One-Disease versus Multiple-Disease Strategies" by Epstein and Holland (12).

During the same period much work has also been carried out in various countries to a large extent inspired by WHO. Particular mention should be made of the problems connected with screening. The subject is continually being debated, both in connexion with single diseases (e.g. mammography, in searching for breast cancer) and as directed towards several diseases. There are still areas of doubt and disagreement, but consensus has developed on the following points:

- Many risk factors are relevant to more than one chronic disease;
- Conceivably, savings can be made by coordinating the work of various specialized organizations in the community;
- It seems a priori desirable that the various specialized organizations streamline the information given to the public on prevention, and use common terminology;

- As far as possible, delivery of the various services should take place through the existing health services of the country. This will make it difficult, however, to devise a detailed plan applicable to every country.

- Evaluation should be part of every community project, although there may be disagreement on the extent and necessary scientific rigour in the evaluation of any particular project.

In view of the necessarily open-ended structure of any internationally developed plan, it is encouraging to note the support of the health authorities in the various parts of the world. So far, eight European countries have signed a plan of cooperation with the Regional Office for Europe. All nine countries in the South-East Asian Region are willing to implement an integrated noncommunicable diseases programme. In the African Region, Tanzania and Mauritius are ready for the introduction of this type of programme. In the Americas interdisciplinary programmes are under way in Chile, Brazil and certain areas of the United States of America. In the Western Pacific region Fiji and Tonga have been suggested to represent the regional approach in this development.

Against the above background, the objectives of the meeting were

(a) to review and summarize the scientific basis, as well as some existing methodologies, for integrated prevention and control of major noncommunicable diseases; and

(b) to advise on the methods for concerted action.

In the following, the highlights of the working papers presented at the meeting and of the ensuing discussions are given. These are followed by certain guidelines for concerted action and some recommendations on how further to promote the establishment of integrated programmes for community health in noncommunicable diseases.

3. Review of scientific basis of integrated control of major noncommunicable diseases

3.1 Life-styles and noncommunicable diseases

A number of working papers had been prepared, partly discussing the relevant issues by disease category, partly by causative agent. The discussion is briefly summarized under the headings of a few major risk factors.

3.1.1 Smoking

The importance of this exposure needs no elaboration. From available newer evidence, it now seems likely that smoking plays a part in the increasing mortality in many countries from pancreatic cancer. The association between smoking and stroke has until recently been thought of as much less strong than that between smoking and coronary heart diseases. However, the risk of subarachnoid haemorrhage, especially for women on oral contraceptives, has been found to be greatly increased in smokers. Furthermore, in the recent Medical Research Council's trial involving over 17,000 patients with mild to moderate hypertension, smokers had a much higher rate of strokes than non-smokers. The differences due to smoking were much greater than the differences due to treatment.

Smoking may act synergistically with diabetes in producing cardiovascular complications in the elderly.

With regard to the much debated question of passive smoking, reference was made to an unpublished IARC report (13) which noted that although the issue was not finally settled, the reasonable interpretation at present is that passive smoking gives rise to some risk of cancer. The evidence is even stronger that passive smoking is harmful to patients with obstructive lung disease.

The tendency of ex-smokers to put on weight is a constantly recurring phenomenon, which may explain the observation in some cross-sectional studies of a negative association between smoking and blood pressure. The problem should be taken seriously and counteracted in any smoking cessation programme.

This section of the report would be incomplete without some more general considerations of smoking as a major public health hazard, calling for a wide range of coordinated interventions. A recent resolution of the Executive Board of WHO (EB77.R5: Tobacco or Health), has characterized smoking as a "...current pandemic ...which results in the loss of life of at least one million human beings every year, and in illness and suffering for many more". Therefore "tobacco smoking and the use of tobacco in all its forms is incompatible with the attainment of health for all by the year 2000". Smoking control programmes are an urgent priority and should be instituted on a wide societal basis. Such action should include, inter alia, as a minimum:

- (i) effective protection of non-smokers in public places;
- (ii) protection of children and adolescents from the hazard of addiction to tobacco;
- (iii) progressive and steady elimination of the socio-economic factors which favour the maintenance or even progression of tobacco consumption;
- (iv) anti-smoking educational programmes, with active participation of health professionals and the media; and a number of other interventions, integrated into a "global public health approach and action now to combat the tobacco pandemic".

In conclusion, smoking is worldwide a leading pathogenic factor causing great harm to the health of populations in many ways. Since the smoking epidemic is a result of complex sociologic circumstances, the struggle against smoking habits requires integrated efforts of the health professions and of a number of other sectors of society.

3.1.2 Nutrition

Much additional evidence has accrued in recent years on the relationship between diet, blood lipids and incidence of coronary heart disease. The soundness of the advice on a prudent diet that was promulgated 25 years ago has been confirmed, as in the noteworthy conclusion of the WHO Expert Committee on the Prevention of Coronary Heart Disease (14): "The relationships between habitual diet, blood cholesterol, lipoprotein levels and CHD are well established and judged to be causal." It is noteworthy, however, that the mechanisms by which saturated fats raise cholesterol levels and polyunsaturated fats lower them are still inadequately understood, but this should not stop the action which is needed.

Interesting observations have been made on the effects of mono-unsaturated fatty acids and omega-3 fatty acids, but the implications for dietary advice to the population cannot be assessed as yet.

Recent randomized trials have given adequate evidence in high-risk men that if blood lipids are reduced by diet, with or without drugs, a reduced incidence of ischaemic heart disease ensues. However, such trials have also clearly demonstrated how difficult it is to sustain an anti-atherogenic diet, even in high risk individuals.

The question of immediate epidemiological interest on whether by changing the diet of the younger generation one can prevent the rise in lipids between ages 20 and 40 and thereby eliminate most of the coronary heart disease among the middle-aged, is unlikely ever to be answered by a randomized trial. We shall have to proceed on the combined insights of laboratory science and epidemiology.

There have been two main objections to the attempts to change the population diet in a less atherogenic direction. Can the change lead to an increase in the incidence of gastro-intestinal cancer? Can the change have unforeseen and unfortunate consequences for children, women, and the elderly? The participants considered these questions in some detail. The consensus was that there is little evidence to suggest that the dietary recommendations now given by many national and international bodies would be harmful to any segment of the population, and much to recommend that they are likely to promote better general health than current eating patterns. "To wait indefinitely for the "ideal" diet to prevent or delay vascular disease would be as irresponsible as precipitous, premature advice..."(15). To be on the safe side, high levels of polyunsaturated fats should not be encouraged, even if the evidence linking polyunsaturated fats to cancer is unconvincing.

In all countries where blood lipids and coronary heart disease are a problem, some form of high risk strategy must be developed in conjunction with the population (mass) strategy, in addition to the "population strategy", aiming at lowering the levels of risk of the entire population. Much discussion is going on as to the relative merits of the two strategies and where to draw the line defining "high risk", but there is no doubt that both approaches are complementary and should be implemented simultaneously. It should be mentioned that the definition of "high risk" should take into consideration the combination of risk factors as well.

The theory that sodium intake in probable interaction with potassium intake is the main factor behind the rise in mean population blood pressure between the ages of 20 and 50 has been gaining ground. The advice to reduce the intake of salt in the direction of 5g daily or less (14) seems to be soundly based. However, intervention studies, necessarily of limited duration, have not shown any marked influence on "normal" blood pressure by a reduction of salt intake. Instead, the observation has been made that the amount of composition of dietary fat which reduces serum cholesterol, may also serve to lower the blood pressure.

Many new observations have been made in recent years concerning the relationship between diet and cancer, although the information about specific dietary factors is still incomplete. Diets low in fresh fruit and vegetables increase the risk of stomach cancer and those low in fibre the risk of large bowel cancer. The suggestions are continuing that animal fat is of importance in the etiology of cancers of the colon and prostate, perhaps also of the breast and endometrium. The intake of vitamin A (or congeners) and serve to reduce the incidence of lung cancer, keeping cigarette consumption constant.

The relationship of trace elements to cardiovascular and cancer morbidity is being extensively studied. However, it will take a long time to disentangle the effects of any single element. Controlled supplementation trials will be necessary, but should be internationally coordinated.

In conclusion, nutrition is a major factor causally related to cardiovascular diseases, various forms of cancer, and certain metabolic disorders. The quality and quantity of nutrients ingested obviously depends on many factors inherent to the social and physical environment; the achievement of changes aiming at a balanced and "prudent" diet in the population calls for integrated intervention and persistent efforts.

3.1.3 Obesity

Obesity is a problem to be considered in conjunction with nutrition and physical activity. Overweight is a major risk factor for diabetes in middle-aged and elderly persons in many populations, and there is ample evidence from the two world wars that caloric deprivation, if severe enough, is associated with a dramatic reduction in incidence of this type of diabetes. So far, overweight has been a weak predictor of coronary heart disease and stroke, in spite of the correlation between overweight and both blood pressure and blood lipids. The "androgenic" type of obesity may turn out to be a better disease predictor than the usual combinations of weight and height. Further studies incorporating the waist-girth index will clarify the issue.

For endometrial cancer, gall bladder cancer, and possibly also breast cancer in postmenopausal women obesity is a risk factor, but the interplay of hormones, intake of animal fat, and overweight may be complex.

In observational studies the association between a weight-height index and mortality is J-shaped, an association which is not limited to the first few years of the observation period. Lung diseases are particularly strongly associated with leanness. However, there is no evidence to suggest that attempts to prevent or reduce overweight have contributed to a dangerous leanness.

In conclusion, excessive obesity is a multiple risk factor. Intervention to diminish the prevalence of obesity in the population requires coordinated intervention with eating habits and physical activity.

3.1.4 Physical activity

Most of the discussion in scientific fora has centered on the causality of the consistently observed negative association between leisure physical activity and coronary heart disease. The issue of selection versus protection can be addressed in several ways, none of them entirely satisfactory. Particularly relevant are the observations in the Harvard College Alumni study. Contemporary activity in adult life appeared independent of activity during college in predicting a lower risk of heart attack. A reasonable interpretation is that physical activity early in life is neither necessary nor sufficient to achieve cardiac benefits from activity in later life.

The experience from attempts to secure long-term adherence to a vigorous physical activity programme has not been encouraging. It is therefore appropriate that the type and intensity of activity to be introduced in a national programme should be reconsidered. It is not known at what point in life and for how long one needs to be physically active, nor is the question settled of how vigorous the exercise would have to be. Brisk walking 3-4 times a day may be a realistic goal. The difference in incidence potentially related to habitual exercise may be greatest for persons who are older, obese or hypertensive.

It is very difficult to disentangle the effect of activity per se from the effect mediated through blood pressure, diet and cigarette smoking. Here, as elsewhere in chronic disease epidemiology, adjustments for imprecisely measured co-variables have only limited validity. However, it may well be that the larger part of the effect is independent of the effect on the other known risk factors for coronary heart disease.

The other side of the coin is the concern that vigorous activity may precipitate sudden cardiac arrest. However, from the data at present available, it would appear that among persons in the upper levels of habitual vigorous activity the transient increase in risk during activity is outweighed by the decrease in risk related to the level of habitual activity. Their overall risk of primary cardiac arrest, therefore, is probably lower than for persons with lower levels of habitual activity(16).

It is possible that habitual physical activity may prevent the onset of, and have a place in the treatment of, non-insulin dependent diabetes, not necessarily only by the effect on overweight. Other conditions where activity may be beneficial include osteoporosis and urolithiasis. Even if vigorous activity should turn out to be essential for an effect on the incidence of coronary heart disease - over and above any effect mediated through dietary changes - a more modest activity may still be helpful in connexion with other diseases.

Physical fitness is not synonymous with habitual physical activity. Indeed, it is sometimes claimed that they are almost independent and both predictive of heart attacks. Further study of this question may be worthwhile.

Physical activity entails some risk of accidents and of various forms of musculo-skeletal disorders, most of which are relatively benign and can be avoided by proper instruction.

In conclusion, physical activity, too, is an aspect of contemporary life-style that merits interdisciplinary attention because of the potential benefits for the health of populations.

3.1.5 Alcohol and drug abuse

In many parts of the world alcohol intake and drug abuse are on the increase, and the mortality from cirrhosis of the liver is rising sharply.

Much has been made in recent years of the J-shaped association between alcohol intake and the incidence and mortality from coronary heart disease, possible mediated through HDL-cholesterol. Whatever the explanation may turn out to be, it has made it more difficult to persuade the public of the imminence of the alcohol danger.

On the other hand, the association of heavy alcohol intake with blood pressure level and the incidence of stroke is well established. The interaction between alcohol and tobacco products in the etiology of some cancers may be in the form of multiplicative relative risks.

Much more important, however, than the effect on the incidence of somatic diseases - whether these effects be wholly or only partly detrimental - are the social effects of alcohol, including the increase in risks of accidents, suicides and homicides. The same holds for drug abuse. Consequently, any integrated programme must take a position on this problem.

It is much more difficult to suggest a line of action that is likely to do some good. Countries exist where alcohol (and of course psychoactive drugs) is outlawed, with severe penalties for breaking the law. There can be no question that in such countries the intoxication problem, although not absent, is relatively slight. The implications for other countries may not be clear, or if clear, not acceptable. We may here have to do with a condition where the medical model, holding out treatment and disability benefits, is particularly counterproductive to preventive efforts.

It may not be amiss, under this heading, to mention the recent flare-up of interest in the effects of coffee. There is some evidence that intake of coffee, as prepared in some areas, is associated with an increase of total serum cholesterol, irrespective of smoking or intake of alcohol. There is as yet no agreement on the implications. Perhaps the message can only be, here as elsewhere, that prudence is commendable.

In conclusion, alcohol and drug abuse have major ill-effects on the health of populations. These effects are primarily social ones; the problem reaches far beyond the medical domain and calls for integrated societal action.

3.2 Interrelationships between chronic diseases, their causes and risk factors

There is evidence from a number of sources that there exists a general susceptibility toward chronic diseases, over and beyond specific causes for the individual condition. The reasons for such susceptibility are presumably both genetic and environmental. Geographical comparisons have shown that at least in some countries there is a close correlation between mortality from cardiovascular and non-cardiovascular diseases. Close studies of individuals in a community have shown a tendency for major illnesses to cluster in certain individuals, with as much as two-thirds of the major illnesses being observed in about a third of the population.

The psychosocial environment has an influence which almost certainly transcends disease specificity. As an example one might mention a follow-up study of civil servants in London, indicating that the social class gradient known to exist for heart disease, is paralleled for all other major causes of death. The social class differences, observed in this and similar studies, may not entirely be explained by differences in well-known risk factors, such as serum cholesterol, blood pressure and smoking.

Such findings strongly imply that certain preventive measures will exert a favourable effect, not only on one disease but simultaneously on the several conditions which are linked. Scientific questions on pathogenesis can be by-passed to some extent by asking directly whether people following sensible daily living habits develop less disease. In the Alameda County Study (17) it was found that a "Health Practices Index" correlated inversely and strongly not only with mortality from heart disease but also with cancer mortality and mortality from all other causes; those who scored high on this index were simply healthier and lived longer.

Admittedly, these are observational studies, and selection bias is difficult to exclude. To remove doubt it is necessary to turn to controlled intervention studies. Such studies should be monitored for as many disease endpoints as possible.

While food needs may differ depending on age, sex, physical activity, etc., and indeed between developed and developing countries, remarkable consensus now exists on what is the optimal diet for the health of humans. Granted, the roles of specific components of the diet in the etiology of coronary heart disease, hypertension, some forms of cancer, non-insulin dependent diabetes, cerebrovascular disease, dental caries, osteoporosis, etc. have not yet been fully defined by epidemiological research. Nevertheless, sufficient data now exist to make responsible recommendations based on currently available scientific information - recommendations which cannot cause harm to the health of individuals. Several nations as well as the 1984 WHO Expert Committee on Community Prevention and Control of Cardiovascular Diseases have made dietary recommendations that are remarkably similar, as can be seen from the following table:

Scientific nutrition guideline	Expert Group					
	WHO(1984) (18)	USA (19)	Sweden (20)	Australia (21)	Fed.R. Germany (22)	UK (23)
1. Choose a nutritious diet from a variety of foods	+	+	NS	+	+	NS
2. Maintain desirable weight	+	+	+	+	+	+
3. Avoid eating too much fat	+	+	+	+	+	+
4. Reduce sugar consumption	+	+	+	+	+	+
5. Reduce salt consumption	+	+	+	+	+	+
6. Increase dietary fibre consumption	+	+	+	+	+	+
7. Reduce alcohol consumption	+	+	+	+	+	+

NS: No specific mention, but inferred in body of report.

Such recommendations should form one of the cornerstones of national programmes that emphasize the integrated approach to prevention and control of noncommunicable diseases. It should be possible to adapt these to ensure that the needs of all sectors of the community, including the aged, young and underprivileged, should receive a diet that ensures adequate intake of energy, protein, minerals and vitamins.

The integrated approach not only implies common risk factor strategies or rationalization of health care resources to prevent and control, it also implies the search for strategies, e.g. life style change, that can have an impact on reducing the risk factors for a number of noncommunicable diseases using a common strategy. The approach is also especially appropriate for those subjects in the community who have attributes, such as family history of cardiovascular disease, which put them at high risk.

While the nutritional guidelines cited here might appear only to be appropriate for developed countries, they basically represent the main elements of the traditional diet of many developing countries. As the diet in these latter countries appears to be shifting towards a "Western" style one, the recommendations may serve as a warning that the overall health of communities in developing countries (particularly noncommunicable diseases) is inextricably linked to nutrition, as well as to other life style and behavioural factors.

In the physical environment, air pollution has multiple effects: on obstructive lung disease, secondarily on cardiac functions, and probably also on cancer. Soil trace elements may be of importance for more than one disease, as suggested by the recent findings of associations of selenium with both cancer and heart disease.

The distinction between communicable and noncommunicable diseases may be in the process of waning. Certain forms of cancer - Burkitt's lymphoma, Kaposi's sarcoma, hepatocellular cancer, possibly also cervical cancer - have been found to be caused by infection. Some cases of insulin-dependent diabetes are likely to be of infectious

origin. Slow virus diseases, like Creutzfeldt-Jakob's disease, may masquerade as degenerative conditions. Immunology has for some years been exploding, establishing, for example, HLA associations for diseases as diverse as ankylosing spondylitis, diabetes and multiple sclerosis.

In addition to the scientific basis there are sound logistic reasons for the integration of chronic disease programmes. Calling upon the same people at different times in the cause of preventing heart disease, cancer, diabetes and so on will both outwear their patience and constitute a waste of resources. There is also the need for a mechanism to iron out any differences of opinion concerning the message to be delivered, for example on diet. Terminology, too, ought to be agreed upon, so that terms such as primary prevention, incidence, relative risk and attributable risk be used consistently by cancer people and cardiovascular people alike.

The integration of chronic disease control programmes must be viewed on a national, regional and community level. It is probably true to say that there are few countries where the health administration, even at the national level, has been strengthened sufficiently to keep track of the rapid developments in chronic disease epidemiology, let alone put them in a position to assume leadership. A Division of Chronic Disease Control is suggested, in charge of primary and secondary prevention (however defined) of chronic disease. Disease-oriented sections will be essential.

Any such organizational structure will require the advice of experts in community medicine, social sciences and clinical medicine. In particular, involvement of the medical faculties of the universities will be of mutual benefit.

Integrated and categorical programmes should not be looked upon as mutually exclusive. On the contrary, given an agreed-upon common general programme, research and action in specific disease areas may be more confidently assessed and supported.

4. Operational rationale for integrated major noncommunicable disease prevention and control

As mentioned, an integrated and comprehensive programme is expected to be more efficient than a mere conglomerate of various actions. This implies integration of different preventive measures at different levels and involving, in addition to various fields of health care, a number of sectors of society; also, it implies integration of primary preventive measures with therapeutic and secondary preventive actions. As an example, integrated multi-level preventive action could include items as follows:

- Obligatory school health examinations, with appropriate funding and evaluation.
- Health surveys, accompanied by promotion of awareness of risk, by informing communities and individuals (via the general practitioner) on the levels of major risk factors.
- Provision by health insurance companies of incentives for prevention.
- Establishment of risk factor control clinics.
- Lending of support to health behaviour by the media, societal leaders, toy industry.
- Reduction of fat, cholesterol and salt content of foods, by influencing food industry and trade.
- Regulations aimed at reducing the tar yield of cigarettes.
- Action to reduce the alcohol content of beverages.
- Legislation to increase tax on tobacco and alcoholic beverages.
- Legislation to prohibit advertising of tobacco and alcohol.
- Administrative setting of admissible limits to the fat content of dairy and meat products.
- Legislation on compulsory wearing of seat belts, and mandatory loss of driving license for drunken driving.
- Provision of funds for preventive activities from health care budget.

One of the responsibilities of an integrated programme is concern about environmental hazards, such as air and soil pollution. Adequate monitoring systems are needed and their findings should be related to health statistics.

Carefully evaluated community programmes form an important link between basic laboratory and clinical research on the one hand, and large scale application of public health programmes in society on the other hand. Evaluation can thus diminish uncertainty concerning the effectiveness of such action, and provide information about meaningful uses of resources and unforeseen consequences of this kind of activity. Such a community programme thus forms a "pilot", "demonstration" or "model" programme.

A key feature of a community-based demonstration programme is that the intervention is conceived and carried out as a planned and systematic programme according to a detailed protocol. The programme contents depend on existing medical, epidemiological and behavioural knowledge, applied to a particular community. Evaluation includes both monitoring and formative evaluation to guide the programme, and comprehensive summative evaluation to assess the overall results.

Once the medical/epidemiological model with the choice of risk factors has been agreed upon, the intervention still needs some strategy choices. The high-risk strategy ("clinical" or "focussed" approach) aims at individuals with high risk factor levels to reduce risk by counselling and, if necessary, treatment. The population strategy (mass strategy, public health approach) aims at modifying the risk factor profile of the entire population by means of community-wide efforts to promote healthy life styles.

Needless to say, the two strategies are complementary. But it should be remembered that for cardiovascular diseases, as well as for lung cancer and non-insulin dependent diabetes, it has been clearly shown that although an individual's disease risk may rise rapidly with increasing risk factor level, high-risk individuals constitute only a limited or, depending on the definition of "high risk", even small proportion of the total incidence in the community. Most cases arise from the great majority of the population that do not have extreme risk factor values. Accordingly, some form of mass strategy must be incorporated in every programme.

5. Existing methodologies for noncommunicable disease control

The simplest example would be a national health education campaign, with input from all major disease-specific groups. Interview surveys before and after the campaign can measure the changes in public knowledge and attitudes. If the surveys are large enough, the changes effected by the programme can be studied in relation to education, occupation, place of residence, etc. If adequate sales statistics are available, it may be possible to observe a break in the curve for cigarettes, butter, whole milk, etc.

At the other extreme is a programme establishing a permanent record for each individual in the target group, measuring a large set of risk factors at various ages, noting the intervention activities directed towards the individual or his group, and following the individual through all his hospitalizations with diagnostic codes, through disability, if any, to death with notes on certified and revised causes of death. A number of controlled trials, some of them long-term, will be built into the programme. Needless to say, only approximations to such an effort on a national scale exist as yet.

The meeting discussed a suggestion for action, somewhere in between the two extremes mentioned above, on the basis of a position paper prepared by the Division of Noncommunicable Diseases.

5.1 Concept and definition

The meeting endorsed the definition of an integrated programme for the prevention and control of noncommunicable diseases given by the Kaunas report (4). It was pointed out that "integration" may be interpreted in different ways. One risk factor may be relevant for several diseases, and the attack on the factor may be integrated across disease boundaries (Fig.1). Alternatively, one might integrate action against several risk factors considered important for a single disease (Fig.2). More commonly, an integrated programme is understood to entail several risk factors and several diseases (Fig. 3). But integration also refers to a balanced programme of health promotion, detection of asymptomatic risk or disease, diagnosis and treatment of overt disease, and rehabilitation. Finally, the activities on various levels or in various sectors of the health care system (hospitals, occupational health service, practising physicians) may be described as well or less well integrated.

Models of the Integrated Programme for Community Health in Noncommunicable Diseases

Fig. 1: One risk factor (RF) - Group of diseases (D)
(e.g. Smoking - Noncommunicable Diseases)

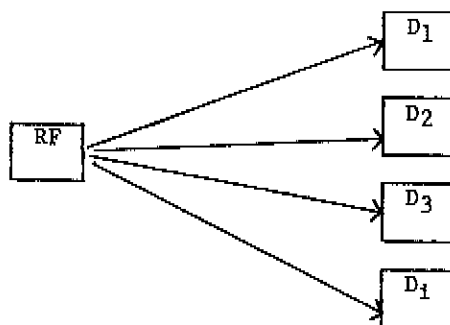


Fig. 2: Group of risk factors - one disease
(e.g. life styles - CHD)

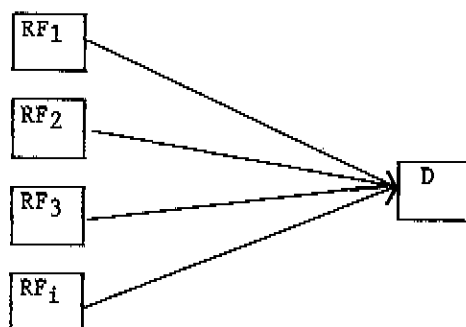
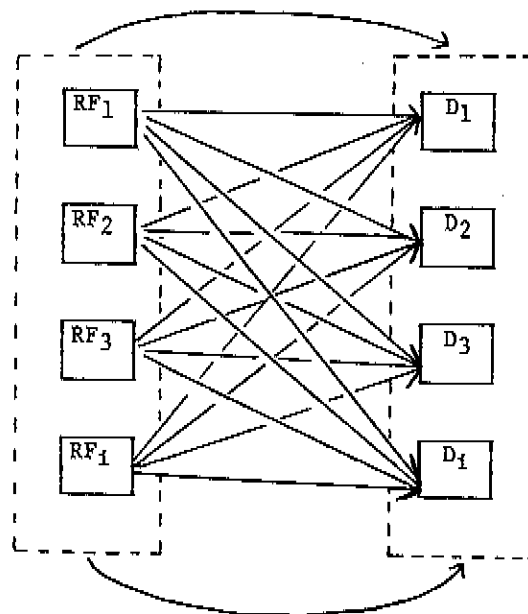


Fig. 3: Group of risk factors - group of diseases



Independently from the model selected for the integrated programme, programme elaboration proceeds through several stages: (i) formulating the problem; (ii) studying the problem; (iii) listing the objectives, criteria and expected results; (iv) defining alternative approaches; (v) evaluating and selecting the alternatives; (vi) elaborating a set of individual subprogrammes according to each objective; (vii) elaborating the plan for realization of individual subprogrammes and preparation of an overall programme protocol; (viii) realization of the programmes; (ix) programme evaluation. The elaboration of a programme requires methodological support, information and resources.

5.2 Objectives and targets

The meeting endorsed the general objectives of integrated programmes, as stated in the Kaunas report (4). The primacy of health promotion was emphasized. The long-term objectives are to reduce the incidence and mortality rates and increase well-being - "To die young as late as possible". Short-term objectives are to reduce the risk factor levels.

The specific targets must necessarily vary to some extent according to the circumstances of the community. The goals for fat intake, mean serum cholesterol and salt intake set by the 1982 WHO Expert Committee on the Prevention of Coronary Heart Disease (14) should be achievable in all countries, although at different times in the future. Frequently, the time allowed to reach a target will also have to be set differently for different regions or for different subgroups of the community.

Examples of a wide variety of targets, together with suggested solutions, can be found in the document "Targets for health for all", issued by the WHO Regional Office for Europe (24).

Of course, in countries with very low levels of certain risk factors, the targets should be stated in terms of avoiding an increase. Primordial prevention is a concept particularly relevant for many developing countries.

Targets should be realistic. If not attained, the public health movement will be discredited.

5.3 Approaches

In the field of coronary heart disease the WHO Expert Committee Report of 1982 (14) was followed by the EURO Report on Primary Prevention of Coronary Heart Disease (25) and a new Expert Committee Report on Community Prevention and Control of Cardiovascular Diseases (18), as well as by various national documents, such as the Canterbury workshop report of 1983 (26). These reports give advice on how to put the recommendations concerning coronary heart disease into practice. However, the implementation of a programme for integration of several noncommunicable diseases is probably still best looked upon as a research undertaking. This implies that resources must be available for planning, methods development, pilot studies and evaluation.

5.4 Leadership and training of personnel

Initiation depends upon the existence of health activists and interested research workers, as well as support from the health administration. Although the emphasis will be on health promotion, great care should be taken not to antagonize the medical corps involved in curative (therapeutic) medicine. If incentives can be provided, active cooperation may be obtained from many practitioners. Some countries are by now well supplied with medical graduates, many of whom may be ready to change direction from therapeutic medicine to health promotion - even if they are not as yet trained to do so.

Many medical schools have in the past decade greatly expanded the curriculum in preventive medicine and other aspects of community medicine. However, it will not necessarily be easy to make good behaviourists out of doctors. Allied health professions

may be more promising for the recruiting of successful health promoters. In some countries public health nurses are trained for this task, but their duties are manifold. Their time may be taken up with mother and child health work or - less fortunately - with providing home nursing care.

The school is a major focal point for health education. Adequate training should be given to teachers, to impart to them the appropriate skills to promote healthy behaviour in children. Medical writers or media experts are very valuable, given suitable training. Attempts have been made to offer one-year university courses in non-curative medicine to students aiming at such a career.

Lay persons - health volunteers - are essential to any health promotion campaign. Their instruction and supervision require much thought and effort. The extent of their responsibilities should be carefully circumscribed.

5.5 How to start?

5.5.1 Initial stage

Presumably, the project will be initiated by a project leader. If the project is to be set up as a research enterprise, he or she may be designated "Principal investigator". Another, more neutral term would be "Programme coordinator".

The project leader will convene a steering committee to discuss the project in general terms. Assessment of need for the project should be sought but a formal and extensive survey should not be done until the project is ready to proceed.

5.5.2 Selection of community

It is rarely feasible, nor desirable, to make a random selection of an area. The community must be ready to go along - there must be cooperative politicians and administrators, as well as adequate financial resources available.

Nevertheless, it should be borne in mind that a selection according to these criteria limits the generalizations that can be made. The poorer communities, with the worst life style habits, may not be able to muster the necessary initiative and resources. If the summative evaluation is to be made by comparison with a reference community, it will be necessary to measure background variables in both areas, so that differences can be adjusted for in the analysis. In any case, the ultimate goal should be generalization to the country as a whole, if the evaluation turns out to be satisfactory.

The Steering Committee will commission a health situation report ("Community Diagnosis") of the selected community.

In the Kaunas report (4) it is suggested that the size of the community might vary from several tens of thousands to a few hundred thousand inhabitants. However, the size of a community is intimately connected with the design of the project. If a scientific summative evaluation is not considered feasible the programme might cover an entire country.

5.5.3 Defining contents of programme

Health promotion should always be the kingpin of the programme. This would encompass:

- Smoking elimination
- Nutrition
- Weight control
- Physical activity
- Alcohol restriction
- Drug abuse restriction
- Environmental and regulatory changes

Depending on the local situation, very varied additions may be made to this list. For instance, if suitable field teams can be made available, early diagnosis and risk identification may be considered for conditions such as coronary heart disease, stroke and diabetes. Dedicated funding may make it possible to include special screening modalities, such as mammography, provided these are considered useful and can be fitted into the programme.

University affiliation should be sought and could result in numerous suggestions for epidemiological studies and controlled prophylactic trials.

Suggestions for inclusion in the programme should be carefully sifted. For instance, the inclusion of geriatric services is perfectly logical according to the definition of integrated programmes. Yet, it may not be fruitful to incorporate them in the initial phases of a programme.

The intervention methods to be used must be decided upon in general terms at this stage.

5.5.4 Resources

An inventory of community resources should be prepared. This includes: resource personnel (professional and lay), institutions, money.

Always underestimated is the need for personnel to design and monitor the data collection and analyze the findings.

Funding is a fundamental and universal problem. If this obstacle cannot be overcome, the project will get nowhere. In the initial phases of a programme some external funding may well be necessary. Gradually, however, endogenous community financing must take over.

If the programme offers sufficient opportunities for scientific studies, considerable external funding may be obtained from universities and foundations.

5.5.5 Securing societal support

Cooperation of the key leaders of the intervention community (and reference community, if any) must be sought. Cooperation should not be sought in a blind fashion, but should follow an informal survey that identifies community opinion leaders, power structure and decision-making modes. Initial recruiting therefore requires considerable preliminary knowledge, obtained relatively unobtrusively (27). Within the reference community, key leaders must approve of a programme which will have only very limited immediate benefits for their area.

Major institutions, such as hospitals, must approve of plans that require access to data necessary for evaluation of the programme. If screening is introduced, it is of course necessary to obtain agreement on findings which make follow-up necessary, and on follow-up procedures.

5.5.6 Obstacles

Obstacles and constraints to health promotion programmes will be met with (28). They may include:

- Short-term costs versus long-term benefits. The saliency of the programme may be low within the population of the community.
- Public illusions of immortality.
- Lack of awareness of the medical profession.
- Limited academic interest.

- Communities are complex and changing systems. People move in and out, thus diluting the impact of planned social change.
- Difficulty of reaching low social classes. The causal chain in a community system is longer and harder to trace than it is in a clinical research study on volunteers. The penetration of educational inputs is a problem.
- Random events (such as unemployment related to failure of a particular industry).
- Economic interests of healing (drug companies, hospitals, physicians) and no funding from usual health care providers.
- Antagonism of vested commercial interests.
- No measurable individual effect, which may mean little philanthropic support.

Nevertheless, the reports from the Stanford Three-Community Study and Five-City Project (29,30), the North Karelia Project (31) and the Kaunas Project (32) show that such obstacles can be overcome in different political settings, and that the costs can be contained at a very reasonable level.

5.6 How to build up?

5.6.1 Working out the intervention subprogrammes

The Steering Committee should be enlarged by technical experts from various fields in order to elaborate the various targets of the community intervention. In the area of nutrition in a developed country, for instance, detailed plans might be made of how to achieve the following targets formulated earlier (2):

- (a) Energy intake should be adapted to the need for energy. This means that overweight individuals should endeavour to lose weight. This does not mean that those of normal weight should decrease their intake of energy. Low energy users should, on the contrary, increase their physical activity and therewith their energy intake.
- (b) Protein intake ought to remain unchanged at the present level.
- (c) The intake of fat should be decreased by a quantity equivalent to 5 per cent of energy by the year 1990 and thereafter continuously reduced, so that by the year 2000 approximately 30 per cent of the energy intake is fat. A certain increase in the ratio between polyunsaturated and saturated fatty acids is desirable.
- (d) The intake of refined sugars should be decreased by an amount equivalent to 3 per cent of energy by the year 1990.
- (e) The intake of starch should be increased in order to replace the energy lost through a decrease in fat and sugar intake. This increase would correspond to 8 per cent of energy or about 60 g per person per day by the year 1990. Thereafter, the consumption of starch should be continued so that by the year 2000 the intake of starch will be equivalent to 45-50 per cent of energy.
- (f) The intake of dietary fibre should be increased by 7-8 g/day by the year 1990 and thereafter by such an amount that the intake of dietary fibre by the year 2000 is 30-35 g/day.

(g) The intake of salt should be decreased by 1-2 g/day by the year 1990 and thereafter by such an amount that the average salt intake is not more than 7-8 g/day by the year 2000.

(h) The consumption of alcohol should be limited.

Such targets should be accompanied by practical recommendations, for instance on how to achieve the decrease in fat intake (20).

Similar, detailed plans should be elaborated, not only for elimination of smoking and promotion of physical activity, but for how to detect and treat chronic diseases, like diabetes, hypertension, angina pectoris. The plans must be adopted not only to the health situation of the community but also to some extent to the medical traditions. In some countries there is greater reluctance than in others to resort to drugs for dealing with serum cholesterol or blood pressure above the mean.

5.6.2 Methodological subprogrammes

5.6.2.1 Health education of the public

It is a very complex task to permanently influence health related life styles in large numbers of people (28,33). It can seldom be accomplished by simple, external measures. Instead, a comprehensive determined action and strong community involvement is needed, preferably in a favourable social setting. Since the task of influencing people's behaviour is in the domain of social and behavioural sciences, a major problem has been the lack of unifying theory that could guide our way. Action oriented people often feel frustrated because they feel that these sciences are unable to tell them what they should do. However, some of the principles formulated within the social and behavioural sciences appear to be sound and may be useful in implementing community health programmes. Four theoretical, somewhat overlapping, frameworks for behavioural change are: (33)

The behaviour change approach. This approach emphasizes that planning should include the following key steps to help individuals to modify their behaviour:

- Improved preventive services to help people to identify their risk factors and to provide appropriate attention and services.
- Information to educate people about the relationship between their behaviour and their health.
- Persuasion to motivate people and to promote the intention to adopt the health alternative.
- Training to increase the skills of self-management and environmental controls, and to initiate necessary action.
- Social support to help people maintain the initial action.
- Environmental change to create the opportunities for health actions and improve unfavourable conditions.
- Community organization to mobilize community support for broad-ranged action.

Great emphasis should be placed on teaching practical skills for change, such as smoking cessation techniques and ways of buying and cooking healthier foods.

The communication-behaviour change approach. A project communicates its message through mass media to the population, in addition to its direct communication to various community leaders. The Stanford and North Karelia projects have collaborated in developing a model that recognizes the various steps of behavioural change, from exposure and attention, through comprehension and persuasion, to action and maintenance of new behaviours. Furthermore, the model takes into account the factors that relate to the communicated message on the one hand and to the community-related factors on the other, as they influence the various steps of behavioural change.

The innovation-diffusion approach. This theory classifies people on the basis of their innovativeness: early adopters, early majority, late majority, or laggards. The social structure has several norms (system effects) that have a strong influence on the rate of diffusion. Early adopters and a great diffusion rate are more likely to occur in modern rather than traditional community norms. The early adopters usually have the greatest social influence and are thus in a key position to speed up a wider adoption of the innovation. An agent of change is a professional who attempts to influence this innovation-decision process. Three main types of innovation decisions have been suggested: (a) Optional decisions (made individually); (b) Collective decisions (made by consensus); and (c) Authority decisions (made by a superordinate power).

The community organization approach. Broad-ranged changes in the community can ultimately only be achieved through the existing community structures. Every community has a complex network that exercises great influence over individual behaviour and life style. The community organization approach emphasizes efforts to influence individuals by changing organizations to meet the needs.

For every project the principles of persuasion and the role of the change agent are of central importance. The impact depends largely on the degree to which the existing community organizations find the proposed actions to fit their particular needs. It is therefore important for success in community self-development that the programme offer incentives for the proposed collaboration.

5.6.2.2 Education of health professionals

Health workers include physicians as well as nurses, nutritionists and technicians. Only the continuing education of physicians is considered here. It is important, however, that all professional groups be given equal standing. Frequently, it will be possible to arrange joint educational programmes.

The physicians concerned may be general practitioners, internists, or occupational physicians. Here, they will be considered as one educational group.

The objectives of the education programme are to make the practising physicians:

- understand the goals and the operational rationale of the project;

- exercise a health-educational influence of the lay population;
- able to identify high risk individuals, before the onset of clinical manifestations, and obtain a reduction of their risk factors.
- carry out long-term treatment of chronic conditions;
- cooperate in the evaluation of the programme.

As a first step, an exhaustive list of all physicians in the project area needs to be prepared.

The following teaching media are proposed for the practising physicians:

- initial circular letters, addressed individually to each of the physicians concerned, for establishing the first contact;
- an information bulletin or newsletter, produced periodically by the Project Centre. This bulletin should be mailed to all physicians listed;
- the holding of special courses, including theoretical lectures by university professors and experts, as well as discussion groups and practical exercises;
- carefully prepared articles in local newspapers and magazines;
- preparation of a practical manual for the prevention and control of major noncommunicable diseases, including the definitions of basic epidemiological concepts. The manual should be distributed free to all physicians in the area. It should be frequently updated and used as a basic text in the courses suggested above;

5.6.2.3 Involvement of occupational health services

Experience from Belgium shows that this can be a profitable enterprise. However, one should not rely completely on occupational doctors, who vary much in their interest in and understanding of health promotion. In the Belgian part of the WHO factory study a special crew went around to the various worksites. A modified risk profile and a reduced mortality was achieved in the intervention work sites.

In Stanford a community-wide effort was made to introduce individual and environmental change programmes into workplaces. Self-help material is provided on weight loss, exercise, nutrition and smoking. Special programmes are offered based on incentives, such as weight loss contests and quit smoking lotteries. When a worksite agrees to participate in the programme they are required to nominate one coordinator for every fifty employees. These worksite health coordinators are then trained for their tasks.

Hopefully, in the future it will be possible to make industry management take a greater interest in health promotion programmes, if only for economic reasons.

5.6.2.4 Screening

It has been customary to draw a distinction between screening and epidemiological surveys. However, any large-scale community operation is expensive and should meet as many objectives as possible. Screening for early disease stages or for detection of high risk could be used both for

retrospective and cross sectional epidemiological studies. Follow-up with respect to clinical disease and mortality will give information on local absolute and relative risks at various risk factor levels. Also, any epidemiological survey taking blood samples or measuring blood pressure will result in findings which should lead to follow-up and possible treatment. In a reasonably comprehensive integrated programme surveys of populations risk factor levels will almost certainly be required. It will then in any case be necessary to work out and obtain general agreement on cut-off points and follow-up procedures. Accordingly, in integrated programmes we are likely to meet with undertakings where it is arguable whether the emphasis is on the detection of high risk or on the collection of epidemiological information. A combined survey/screening represents an opportunity to impart health information to the public. Of course, the letter of invitation should be scrupulously honest. The objectives should be spelled out, including any plans for long-term morbidity and mortality follow-up. No promises of individual benefits should be made which can not be defended on the basis of expert opinion in the local medical community. After completion of the examination, the subjects might be presented with some specially designed information material on health promotion.

Present uses of the various types of screening are reviewed in (34). Expert opinion is generally critical as to what can be achieved in the way of reducing morbidity and mortality by means of early diagnosis through screening. Even in the few conditions where such benefits are considered likely, recommendations for implementation often refer only to selected groups, not to the total population. Among such selected groups one might mention persons with a family history suggesting a genetically determined disease, such as familial hypercholesterolaemia.

Multiple screening (the application of several tests on the same occasion to screen for different conditions) makes intuitive sense in an integrated programme for noncommunicable diseases. No doubt, work will continue to test out and evaluate community surveys/screenings for the combined results in terms of epidemiological information, health promotion, and reduced morbidity and mortality by means of early diagnosis.

5.6.3 Improving the information base

An overview of types and sources of data is given in Annex 2.7 to the Kaunas report (4). Generally, there are two types of data needed: Information about health and information on each step in the execution of the programme. An information management system should be designed by highly skilled experts.

As the project proceeds, revisions of and additions to the protocol become necessary. Complete documentation of the details of the operation is cumbersome to provide, but is essential for the continuing evaluation of the project and also for others who want to benefit from the experience.

Usually, a long-term programme covering a large area will be dependent on already existing sources for data on morbidity and mortality. Hardly any country makes full use of the potential information to be extracted from death certificates. Systematic queries of all deaths below the age of 70 would much improve statistics on causes of death and co-existing chronic conditions. However, such improvement requires a long-term national effort. Some care should be exercised so that activities generated by the integrated programme do not create artefactual breaks in trends for the intervention area.

If the situation is favourable, one might consider setting up special morbidity registers for the intervention and reference areas. Potentially, this can give a much more accurate picture of the morbidity time trends than what can be deduced about incidence on the basis of mortality statistics. It should be realized however, that the necessary quality control of the register may become very expensive if the areas are large, with many reporting institutions. In areas where the MONICA cardiovascular project has been successfully launched, expansion to other chronic diseases deserves consideration.

5.7 Evaluation

The border between research and routine application of scientific principles in community medicine is continuously shifting. Even if an integrated programme is not primarily directed towards research, today's standards require that at least some form of evaluation be made. The Kaunas report (4) contains some comments on evaluation. More detailed discussions can be found in references (28,30,31,35).

5.7.1 Formative evaluation

This is an essential component of any programme. It provides data about the experience with the various programme components and thus helps to develop ("formulate") the programme. For example, prior to broadcasting a television programme, one must know whether the content is understandable and relevant, and whether the content is likely to stimulate action. After the broadcast, audience size and impact should be estimated.

Formative research uses largely familiar methods, such as personal and telephone surveys of as representative samples as possible of the population. Such methods rarely provide rigorous data, since they must rely largely on self-report. However, when evaluating questionnaires or laboratory methods, test-retest and inter-tester reliability should be estimated with strict designs.

5.7.2 Process evaluation

Process evaluation is included in order to understand what works on whom and why. It is based on assessment of the performance of the different programme components and achievement of different interim objectives over time. A detailed set of practical objectives to be reached at specified times must be developed with the plan of action. Process evaluation should be linked with the ongoing formative evaluation of the various programme components.

5.7.3 Summative evaluation

This is a final evaluation to determine whether and to what extent the programme has achieved its objectives, and at what costs. Usually it is performed by an expert group external to the Steering Committee of the project. National programmes are difficult to evaluate, although tentative conclusions can sometimes be reached by comparing trends with those of neighbouring countries.

An ambitious goal is to demonstrate the effect of the programme in terms of morbidity and mortality rates. The standard of comparison can be the national rates or the rates in some suitable reference area. Comparisons should be made as detailed as possible and also for conditions not covered by the project, in order to discover unforeseen consequences. Demonstration of beneficial effects on chronic noncommunicable diseases should be accompanied by evidence that no untoward effect can be seen in the infant mortality trend.

Some risk factors, such as smoking and serum cholesterol, are so closely associated with disease that it will frequently be satisfactory to assess effects in terms of risk factor reduction. It is usually impractical to get comparable survey

data from a representative national sample, so that one or more comparable reference area can be useful. Of course, the longer the duration of the project, the greater the chance that a reference area, originally considered comparable, will deviate in its characteristics so as to be of doubtful relevance. In the intervention area itself it should be possible to analyze the risk factor changes by sex, age, marital status, education and occupation. Sometimes it will be possible to define subgroups of the population which can be assumed to have been exposed to different intensities of health promotion activities. If so, a dose-response relationship should be sought between activity and risk factor change.

Societal level indicators should always be utilized. They vary in type from sales statistics for tobacco and butter to number of participants in mass sporting events. In a sense the data are objective, but their validity as indicators of physical health improvement may be questionable. Refinement of such indicators, and whenever possible assessment of their validity, is an important research objective.

6. Guidelines for concerted action

The experience accumulated so far in the development of an Integrated Programme for Community Health in Noncommunicable Diseases at the global, regional and national levels has clearly demonstrated a large variety of interests and methodologies. In brief, the concept of integration is attractive from the logistics, economy of resources and, to a large extent, scientific points of view, but requires further development and operational testing, since there is a lack of experience in implementing such integrated programmes. On the other hand, several components of a programme, such as smoking control or high blood pressure control do not require substantial further research and make more aggressive implementation at the national level desirable. This is why different countries or centres will emphasize different programme components, within the context of their overall research and action programmes, depending on their interests and experiences.

6.1 WHO action at global, regional and country level

One of the important tasks for WHO is to continue its global advocacy role in introducing this innovative, health promotive and disease preventive approach for implementation through primary health care infrastructures. Periodical reviews of existing knowledge in the causation of major noncommunicable diseases and of health intervention technologies, and dissemination of this information to interested parties, as well as an exchange of experience would contribute to the fulfilment of this role. Much has already been done in this respect and will further be done.

On the other hand there is a need for more research to be carried out in a cooperative manner. In this connexion WHO's intention to have a core group of countries/centres representing all WHO regions and working together following a standard protocol should be welcomed. This protocol should contain the necessary minimum requirement for programme planning, designing, core information collection and its use for the programme evaluation. The participants noted with satisfaction that integrated approaches being discussed within the past few years under an overall stimulating role of WHO have been taken up by some Regional Offices and countries, and adapted to regional interests, strategies and targets for Health for All.

For example, a number of Member States within the European Region have been actively collaborating in developing Country-wide Integrated Noncommunicable Diseases Interventions (CINDI) based on existing knowledge of multiple disease causation and methodologies in multiple community interventions. The framework for intercountry cooperation, data collection and programme evaluation has been developed and adopted (10). A group of countries within the Region of the Americas has embarked on an Integrated Regional Monitoring of Health Services Performance (MORE) project aimed at improved utilization of existing health services for the prevention and control of priority noncommunicable diseases in an integrated manner (36). Some countries within the Region of South-East

Asia have expressed their interest in developing an integrated family health programme where the concept of an integrated approach through life-style modifications and full use of primary health care structures went far beyond the prevention and control of priority noncommunicable diseases; through family education and community participation even some areas of communicable diseases were covered (37). Similarly, in some countries in the African Region (e.g. Tanzania) an attempt is being made to incorporate and integrate priority noncommunicable diseases prevention and control components into a programme of District Health Planning and Management for Primary Health Care (38). Some countries from the Eastern Mediterranean and Western Pacific Regions have expressed their interest in participating in a global Integrated Programme for Community Health in Noncommunicable Diseases being developed through the initiative of WHO headquarters, adopting the proposed core protocol for the cooperative programme to local interests, needs and priorities.

The meeting felt that regional/country initiatives should be continued and supported from the global level of providing necessary expertise and assistance when suggested. However, it was also felt that in addition to this global advocacy role, WHO should embark on a more formal cooperative research and action programme at the global level, as the action requested by the resolution WHA 38.30. For this purpose a programme protocol should be developed containing minimum requirements for the programme planning, designing, data collection and evaluation. With this in mind a core group of countries/centres representing as much as possible all Regions should be recruited for more forward participation in a cooperative programme. Keeping in mind heterogeneity of interests, priorities and facilities of the potential participating countries/centres, the core protocol should be flexible enough to meet the needs of those participating, possibly from the very beginning, adopting it to the situations of developed and developing countries, the mechanism for exchange and dissemination of experiences and information should be developed by WHO starting with the necessary training of health personnel involved in planning, designing and executing the cooperative programme and regular meetings of principal investigators/project directors.

The mechanism of transition from community studies to action should be built into each individual programme. The meeting felt that community studies and national action programmes are complementary rather than competing or mutually exclusive.

6.2 Suggested framework for information exchange and dissemination.

In support of interested countries and regional strategies the WHO should continue its global advocacy role stimulating research and action to promote health by preventing major noncommunicable diseases in populations. Among the important functions of WHO action at the global level in promoting the development of the integrated Programme for Community Health in NCD's are:

- (a) periodical reviews of existing knowledge in the causation of major noncommunicable diseases, crystallization and dissemination of it to the Member States;
- (b) periodical reviews of existing methodologies for community-based interventions;
- (c) promotion of education and training of health personnel in health promotive and disease preventive strategies;
- (d) promotion of integration of priority noncommunicable disease prevention and control into primary health care infrastructures.

In this respect, an urgent action by WHO would be welcome in organizing a consensus meeting on balanced nutrition with respect to major noncommunicable diseases and initiating an international training course for health personnel involved in integrated prevention and control of noncommunicable diseases. In both of these activities, a careful coordination and active participation of various programmes within the WHO and at the national level would be essential.

It was considered of importance that in addition to the existing Steering Group for the Integrated Programme, the establishment of a Global Technical Advisory Committee for Integrated programme of Community Health in Noncommunicable Diseases is considered by WHO which together with the Regional Advisers for NCD's meets regularly on an annual or at least biennial basis to review the progress in programme implementation and further orientation. The Division of Noncommunicable Diseases should undertake a coordinating role for global programme and Regional Advisers for NCD's stimulate and strengthen the implementation of regional programmes providing necessary linkage and mechanism for the exchange of experience with global programmes.

As indicated earlier the participating countries/centres are expected to establish local structures for programme planning, designing and execution and identify respective focal points for programme implementation and collaboration with WHO. On its part, WHO initiates an action in drafting a core protocol, manual of operations, undertakes an initiative in defining training needs for those involved in programme development, provides necessary expertise and consultant assistance to the countries/centres, priority given to the potential members of a global core group and provides the mechanism for the regular meetings of principal investigators for information and experience exchange.

The plan of action developed by the WHO secretariat should be distributed to the participants of this Consultation, members of the Steering Group and Principal Investigators when identified. It was also felt that a Newsletter highlighting the progress in the development of an Integrated Programme for Community Health in NCD's would greatly help the dissemination of initiatives undertaken in NCD prevention and control. It was also felt that a continuous working contact with MONICA investigators would considerably help to maintain research interests and collaboration in chronic disease research and action programmes.

7. Conclusions

(i) The meeting came to the conclusion that epidemiological evidence of the causative relationships between a number of life style and environment related risk factors and major noncommunicable diseases provides enough scientific basis to advocate actions for community-based health intervention focused to promote health, to prevent and control such chronic conditions like cardiovascular diseases, some cancers, diabetes mellitus and chronic respiratory diseases.

(ii) Moreover, the existing knowledge indicates that there exists a general susceptibility to major noncommunicable diseases, over and beyond specific causes for the individual diseases pointing out that this general susceptibility should be tackled at the individual and community levels in an integrated manner.

(iii) On the other hand the meeting recognized that more research is needed to fill in the gaps in our knowledge especially on operational aspects of integrated community health interventions supported by appropriate epidemiological, fundamental, clinical and social research like the necessity to reach concensus on a balanced nutrition in respect of a group of major noncommunicable diseases.

(iv) In this connexion the common feeling was that WHO's role in stimulating the development of Integrated programme for Community Health in Noncommunicable Diseases is to provide necessary expertise and inputs in designing these programmes in such a way that through research and development exercise the necessary actions could be taken at the national or community levels to promote health and to prevent major noncommunicable diseases supported by research projects aimed at collection of necessary information to fill in the gaps in one's knowledge. The balance between the action and research would definitely depend on national/local priorities, needs, facilities and interests.

(v) To promote and strengthen the transition from concept to action, from community based research to public health it was felt that WHO should continue its global advocacy role in developing integrated approaches for the prevention and control of major noncommunicable disease through primary health care by convening consensus meetings on the standardization of the methods to be applied in designing and implementing integrated programmes, identifying common risks involved in the development of noncommunicable diseases and interventions needed for efficient prevention and control of major noncommunicable diseases. On the other hand, it was strongly felt that many methodological questions should be addressed through a cooperative research and development project where core group of centres/countries could collaborate in designing and implementing their Integrated Programmes for Community Health in Noncommunicable Diseases, following a jointly agreed core protocol. WHO's role would be to provide the necessary expertise and milieu for the coordination of such a cooperative programme and the mechanisms for exchange of information and experiences.

8. Recommendations

Having reviewed the available evidence of commonalities of NCD risk factors and of the respective intervention methods, the participants of the Consultation are endorsing the concept of an integrated approach to community health promotion, as defined in previous WHO documents. In order to stimulate transition from concept to action, the following recommendations are being made:

- The Report of this Consultation should be sent to the responsible agencies of WHO Member States, emphasizing the need for, and the rationale and potential feasibility of integrated community health promotion programmes.
- It also should be pointed out that community health programmes and nation-wide programmes are complementary approaches to a common goal, the prevention and improved control of chronic noncommunicable diseases in entire populations.
- Although guidelines for the setting up and carrying out of integrated community programmes are provided in this report, the instruments to be used in such programmes need considerably to be improved. To this effect, consensus meetings of experts from a variety of disciplines should be convened on a number of subject matters, primarily concerning an optimal nutrition profile in societies where noncommunicable diseases prevention and control is of high priority.

It is felt that there is need for developing, at present, integrated community chronic disease control programmes in addition to those already in operation, in order to acquire more practical experience in this domain. However, where possible, such programmes should contain elements of operational, health care oriented research as well. Demonstration projects in selected countries should be of benefit.

- With the aim of furthering these activities, WHO should periodically convene meetings of project leaders (investigators), for information exchange and stimulation of the involvement of further participants.
- A Core Group of project leaders should be formed, with the main task of reporting on practical experience from the field, a sine qua non complement to the theoretical considerations constituting the conceptual framework of integrated community health promotion programmes.
- In collaboration with the Regional Offices, a medium-term plan should be set up for the systematical elaboration of more detailed guidelines for specific subprogrammes, still sufficiently flexible for implementation in different societal and health care settings.
- When requested by centres involved in such programmes WHO should provide consultants and facilitate an exchange of visitors among the centres.

- All advances in the field of integrated community health promotion should be reviewed periodically by WHO; these reviews should be disseminated to all interested parties.
- Within WHO, efforts in noncommunicable chronic disease containment should be integrated as well. As an example, it is recommended to use, wherever appropriate, the methodology of MONICA programme and the opportunities of population-based activities it may offer. It is recommended therefore that the Steering Committees of the two projects meet and discuss issues of common interest.
- WHO should monitor the development of programmes already in operation and derive from them any experience or methodology applicable in other centres as well.

REFERENCES

1. Consultation on Study of the Links Between Cardiovascular Diseases and Other Chronic Diseases, Dublin, 26-27 June 1978, ICP/CVD 020(1).
2. Report of a WHO Consultation on an Integrated Noncommunicable Disease Prevention and Control Programme, Geneva, 16-19 June 1980, NCD/OND/80.1.
3. Prevention and Control of Chronic Noncommunicable Diseases. Report on a WHO Working Group, Zurich, 23-25 October 1980, ICP/CVD 020(2).
4. An Integrated Programme for the Prevention and Control of Noncommunicable Diseases. Report of a meeting (WHO Headquarters Geneva and Regional Office for Europe, Kaunas, Lithuanian SSR, USSR, 16-20 November 1981, NCD/82.2.
5. Working Group on the Joint HQ/EURO Country-wide Programme on Integrated Noncommunicable Disease Prevention and Control. Report on a WHO Meeting, Copenhagen, 4-8 October 1982, ICP/CVD 018(8).
6. The Steering Group Meeting on an Integrated Noncommunicable Diseases Prevention and Control Programme, Report of a meeting held in WHO Headquarters, Geneva, 25-28 October 1982, NCD/83.1.
7. Meeting of Principal Investigators of the Country-wide Integrated Programme for the Prevention of Noncommunicable Diseases. Report of a WHO Meeting, Copenhagen, 20-21 June 1983, ICP/CVD 018 (12).
8. The Second Steering Group Meeting on an Integrated Noncommunicable Diseases Prevention and Control Programme. Report of a meeting held in Malta, 5-8 December 1983, NCD/84.1.
9. Country-wide Integrated Programme for the Prevention of Noncommunicable Diseases. Report on a Meeting of Principal Investigators. Brioni, Yugoslavia, 4-7 September 1984, ICP/NCD/003/m02.
10. Meeting of Principal Investigators of the Country-wide Integrated Programme for the Prevention of Noncommunicable Diseases, Moscow/Kaunas, 27 June - 2 July 1985. ICP/NCD 003m06(S).
11. Glasunov, I.S., et al: An integrated programme for the prevention and control of noncommunicable diseases. A Kaunas report. J. Chron. Dis., Vol. 36, 419-426, 1983.
12. Epstein, F.H., and Holland, W.W.: Prevention of Chronic Diseases in the Community - One-Disease Versus Multiple-Disease Strategies. Int.J.Epid., Vol. 12, 135-137, 1983.
13. IARC Monographs on Evaluation of the Carcinogenic Risk of Chemicals to Humans: Tobacco Smoking. Vol. 38, p.314, IARC, Lyon, France, 1986.
14. WHO Technical Report Series No. 678, 1982, Prevention of coronary heart disease, WHO Expert Committee.
15. LaRosa, J.C. Lipids and the risk of chronic diseases: What should be the advice to the community? Working paper NCD/IP/85/WP/9, Geneva 1985.
16. Siskovick, D.S.: Physical activity and the risk of major noncommunicable diseases. Working paper NCD/IP/85/WP/11, Geneva, 1985.
17. Wingard, D.L.: A multivariate analysis of health-related practices. A nine-year follow-up of the Alameda Country study. Am-J.Epid., Vol 116. 765-775, 1982.

18. WHO Technical Report Series No. 732. Expert Committee on Community Prevention and Control of Cardiovascular Diseases, WHO, Geneva, 1986.
19. US Department of Agriculture, US Department of Health and Human Services: Dietary Guidelines for Americans. 1985.
20. The Food Committee of 1983. A Swedish report on diet and health. Uppsala, Sweden, 1985.
21. Australian Government Publishing Service: Dietary Guidelines for Australians, Canberra 1982.
22. Nutrition Society, Federal German Republic: Ten guidelines for sensible nutrition. Ten arguments for enjoyable eating and drinking. 1985.
23. The Health Education Council. Proposals for nutritional guidelines for health education in Britain. A discussion paper. NACNE 1983.
24. WHO Regional Office for Europe: Targets for Health for All.
25. WHO Regional Office for Europe: Primary prevention of coronary heart disease. Report of a WHO meeting. EURO Reports and Studies 98, Copenhagen, 1985.
26. Coronary Heart Disease Prevention. Plans for Action. Report of the Canterbury Conference. London, Pitman, 1984.
27. Farquhar J.W.: Community Education for Health in Noncommunicable Diseases. Working paper NCD/IP/85/WP/20, Geneva, 1985.
28. Farquhar J.W., et al: Community Applications of Behavioral Medicine. Chapter 11 in Gentry W.D.(ed.): Handbook of behavioral medicine. New York, Guilford Press 1984.
29. Farquhar J.W., et al: Community education for cardiovascular health. Lancet i, 1192-1195, 1977.
30. Farquhar, J.W., et al: The Stanford five-city project: Design and methods. Am.J.Epid. Vol. 122, 323-334, 1985.
31. Puska, P. et al: The community-based strategy to prevent coronary heart disease: Conclusions from the ten years of the North Karelia project. An.Rev.Public Health, Vol. 6, 147-193.
32. Glasunov, I., et al: Kaunas-Rotterdam Intervention Study, Elsevier, Amsterdam 1981.
33. Puska, P.: Operational rationale for integrated chronic disease control. Working paper NCD/IP/85/WP/24, Geneva, 1985.
34. Strasser, T.: Role of screening and related procedures in a community programme of integrated prevention and control of chronic disease control. Working paper NCD/IP/85/WP/19, Geneva, 1985.
35. Puska, P., et al: The North Karelia Project: Evaluation of a Comprehensive Community Programme for Control of Cardiovascular Diseases in North Karelia, Finland 1972-1977, WHO/EURO, Copenhagen 1981.
36. Final Report of the Working Group on Chronic Diseases (MORE Project), 6-18 June 1983, Washington. Unpublished AMRO document:
37. World Health Organization, Executive Board, 75th Session, Geneva, 9-24 January 1985. Summary Records, p. 296.
38. Prevention and Control of Noncommunicable Diseases as Part of District Planning and Management for Primary Health Care: Report of a WHO/NCD team to Tanzania and Regional Office for Africa (internal WHO document, Geneva, NCD).



WORLD HEALTH ORGANIZATION
ORGANISATION MONDIALE DE LA SANTÉ

NCD/IP/86.1

ANNEX I

NCD/IP/85/WP/2
ENGLISH ONLY

WHO CONSULTATION ON AN INTEGRATED
PROGRAMME FOR COMMUNITY HEALTH
IN NONCOMMUNICABLE DISEASES

16-18 December 1985, Geneva

PROVISIONAL LIST OF PARTICIPANTS

Temporary Advisers

Professor F.H. EPSTEIN
Institute for Social and
Preventive Medicine
University of Zurich
Gloriastrasse 32
8006 Zurich
Switzerland

Dr M. KORNITZER
Laboratoire d'Epidémiologie et de
Médecine Sociale
Campus Erasme CP.590
808 Route de Lennik
1070 Brussels
Belgium

Dr C. LENFANT
Director
National Heart, Lung and Blood
Institute
National Institutes of Health
Bethesda, Maryland 20205
USA

Professor E.N. SHIGAN
Central Institute of Advanced
Medical Training
Academy of Medical Sciences of the USSR
Moscow
USSR

Professor K. WESTLUND
National Mass Radiography Service
P.O. Box 8155 - DEP
Oslo 1
Norway

Dr E.L. WYNDER
President and Medical Director
American Health Foundation
320 East 43rd Street
New York, New York 10019
USA

Professor P. ZIMMET
The Royal Southern Memorial Hospital
P.O. Box 185
Caulfield South, 3162, Victoria
Australie

WHO Secretariat

Dr J. COHEN, DGO
Dr LU Rushan, ADG
Dr V.J. GRABAUSKAS, Director, NCD
Dr E.A. LEPARSKI, Director, DCC, EURO
Dr D.E. BARMES, Chief, ORH
Dr S. BOTHIG, Chief, CVD
Mr J.E. DOWD, HST/ESM
Dr M. EL BATAWI, Chief, OCH
Professor J.W. FARQUHAR, Stanford, Cal., Temporary Adviser
Dr A. JABLENSKY, MNH
Dr G. LAMM, Heidelberg, Temporary Adviser
Dr K. MANTON, Durham, N.C., Temporary Adviser
Dr R. MASIRONI, NCD/SMO
Dr M.P. MITROFANOV, NCD/OND
Dr D.M. PARKIN, Epidemiologist, IARC
Dr J. STJERNSWARD, Chief, CAN
Dr T. STRASSER, WHO Consultant, NCD



WORLD HEALTH ORGANIZATION
ORGANISATION MONDIALE DE LA SANTE

NCD/IP/86.1

ANNEX II

NCD/IP/85/WP/4
ENGLISH ONLY

WHO CONSULTATION ON AN INTEGRATED
PROGRAMME FOR COMMUNITY HEALTH
IN NONCOMMUNICABLE DISEASES

16-18 December 1985, Geneva

LIST OF WORKING PAPERS

1. Provisional agenda
2. List of participants
3. Programme of work
4. List of working papers
5. List of background documents
6. From concept to action (a divisional position paper)
7. Smoking related diseases and strategies to combat the smoking epidemic - Dr K. Ball
8. Diet and chronic diseases: a potential for coordinated action - Dr M. Kornitzer
9. Lipids and the risk of chronic diseases: what should be the advice to the community -
Dr J.C. LaRosa
10. Obesity, hypertension, carbohydrate disorders and risk of chronic disease:
epidemiological evidence for concerted public health action - Professor P. Zimmet and
Dr H. King
11. Physical activity and risk of major noncommunicable diseases - Dr D.S. Siscovick
- 12.
13. Environmental and social factors and risk of noncommunicable diseases -
Dr C. du V. Florey and Dr O. Lloyd
14. Alcohol, drug abuse and risk of chronic disease - Dr D. Kozarevic
15. Interfaces between chronic diseases, their causes and risk factors -
Professor F.H. Epstein
16. Aging interaction with risk factors and risk of noncommunicable diseases -
Dr K.G. Manton
17. Chronic disease precursors in childhood: rationale for a child health programme -
Dr D. Tamir
18. Health information basis for preventive programmes in noncommunicable diseases -
Professor K. Westlund

The issue of this document does not constitute formal publication. It should not be reviewed, abstracted, quoted or translated without the agreement of the World Health Organization. Authors alone are responsible for views expressed in signed articles.

Ce document ne constitue pas une publication. Il ne doit faire l'objet d'aucun compte rendu ou résumé ni d'aucune citation ou traduction sans l'autorisation de l'Organisation mondiale de la Santé. Les opinions exprimées dans les articles signés n'engagent que leurs auteurs.

19. Role of screening in chronic disease prevention and control - Dr T. Strasser
20. Community education for health in noncommunicable diseases - Professor J.W. Farquhar
21. Community programmes for respiratory health - Dr C. Lenfant
22. Lifestyle and cancer - Dr C.S. Muir and Dr D.M. Parkin
23. Rationale for community action to prevent cancer and other chronic diseases -
Dr E.L. Wynder
24. Operational rationale for integrated chronic disease control - Professor P. Puska
25. Programming methods in designing programmes for the prevention and control of
noncommunicable diseases - Professor E.N. Shigan
26. Practical steps in developing a strategy for comprehensive chronic disease prevention
and control - Dr G. Lamm

= = =