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# Prevention of Chronic Diseases in the Community—One-Disease Versus Multiple-Disease Strategies

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Traditionally the categorical approach has been adopted towards the study of disease—taking one condition at a time in isolation from other diseases. This has led to great advances in the understanding of the aetiology, treatment and, indeed, prevention of diseases over the years. It has been suggested that a more holistic attitude should be adopted towards both medical care and teaching. However, this falls outside the scope of the present debate. Here we are concerned with the issue of whether it is more effective and efficient to organize preventive programmes in the community in such a way as to deal with conditions like heart disease or diabetes singly and in parallel or to design a programme that provides in 'one package' a co-ordinated set of health measures that hopefully will serve to prevent a series of chronic disorders simultaneously. In this context the epidemiological focus is on the community rather than the individual.

The World Health Organization is now promoting integrated chronic disease programmes along these lines. The development is reminiscent of the 'Multiphasic Care Programmes' which attracted much attention in the decade or two after the Second World War but have since gone into an eclipse. They were based on what appears today to be the rather naive notion that screening and referring those detected to be at preferential risk for preventive medical treatment would take care of the problem. It has proved more difficult than was expected to motivate those responsible for preventive care to provide it in a sustained manner and to motivate those for whom it is intended to follow the advice given. Different methods for screening have now been explored and there has been a trend away from the 'high-risk' approach in favour of a 'mass strategy' for prevention. To some extent these 'integrated programmes' are a revival, in a new guise, of the multiphasic care idea. But much has been learned in the last 10 to 20 years about the need for new approaches toward health promotion, health education and preventive care. Attitudes have become more sober although the hopes remain as high as ever that a major dent in the chronic disease problem at the community level could be within reach if only present scientific knowledge were put into action effectively. The integrated approach is one strategy that deserves serious consideration.

The integrated approach, as it will be called here for lack of a better term at present, has two major facets: the scientific and the logistic. On the scientific level, this approach would be the strategy of choice if the case is proven that several chronic diseases share a number of common causes. However, *even if* such links between the target diseases did not exist, the integration of preventive programmes might be more effective and efficient since it makes better use of available resources both in terms of manpower and funds. Thus, irrespective of other considerations, if the integrated approach proved logistically desirable, this would tip the balance in its favour. Unfortunately there is little information available at present with which to assess the comparative effectiveness of health messages aimed at the maintenance of 'good general health' and those aimed at protection against a particular disease. Preventive programmes usually have been oriented toward specific illness and nearly all current knowledge, with all its gaps, is based on these experiences. Integrated approaches will probably require modified methods of health education adapted to motivation toward new goals.

The possibility that chronic diseases have common causative factors can be addressed in various ways. The most obvious approach is to look for clusters of diseases amongst the same people in the population. This can only be conducted in a community setting where reliable information is available for a multitude of conditions. The Tecumseh Community Study was planned in this fashion and preliminary data, based on the prevalence

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and the coexistence of five chronic conditions did, indeed, indicate some clustering.[1] Additional information, unpublished on account of the small numbers available at the time, suggested that one-third, of the population harboured around two-thirds of the major, chronic disorders in the community. Hinkle and Wolff reported similar findings but did not state which diseases and complaints were included in the analysis.[2] A clustering of chronic disorders was also found in a community study in Jerusalem.[3] All this is in line with the commonplace observation that some people seem to have something wrong with them all the time while, at the other end of the scale, there are others who are 'disgustingly healthy'. A quantitative answer to this question is important and it is to be hoped that the matter will be subjected to systematic study.

Further tentative evidence supporting the hypothesis that chronic diseases have common causes comes from national and international mortality data. An apparently almost linear relationship was found between cardiovascular and non-cardiovascular mortality in the different States in the US.[4] A parallel analysis of international mortality data, covering 25 countries, again demonstrated that countries with low cardiovascular mortality tended to show a lower mortality rate for other causes.[5] The conclusion may be drawn that there are countries or parts of countries which are more 'salubrious' than others, affecting health and disease in a general, all-embracing rather than a categorical fashion. Similar evidence comes from the observation that risk factors for coronary heart disease predict not only death from this disorder but also a number of others, notably cancer and 'all remaining causes'.[6] Most intriguingly, in Alameda County there is a strong relationship between a 'health practice score' and the risk of death from cardiovascular disease, cancer and 'all other causes',[7] suggesting once more that certain overall life styles and habits of daily living protect not only against any one specific disease but against death more generally. A final piece of evidence comes from the striking correlation between fat consumption in different countries and the death rates from both cancer of the colon and the breast.[8] It is likely that there are other environmental links between various types of cancer. Further, and most importantly, the data on dietary fat just cited suggest that a reduction in fat intake might lead to a reduction in the incidence of both coronary heart disease and some forms of cancer.

Thus there is evidence that some chronic diseases cluster in the same people, that there is a correlation between their rates of death, that some risk factors and habits enhance or protect against them and that certain environmental influences, notably diet, may likewise favour or retard their occurrence. It would be fair to say, however, that the case for the existence of links between chronic diseases on account of common causes, implying that some environmental influences might prevent more than one chronic disease at a time, is still fragmentary and at best, suggestive. Nevertheless, the evidence is sufficiently compelling to be taken seriously, and further work will probably reinforce this view.

As stated earlier the case for the integrated approach does not stand or fall with the links hypothesis. Prevention programmes are justified. Programmes that attack one condition may influence individuals to adopt better life styles in other ways as well and an integrated programme permits managerial unification of a set of preventive and other activities that may lead to the prevention and control of chronic disease.

The integrated programme launched by WHO is described in a recent issue of the *Journal of Chronic Disease*.[9] The general objective is to improve the health of total communities through a broadly structured programme that can be integrated into the normal health services and will improve preventive activities on a broad front. More specifically the programme aims to develop a new approach to health promotion and its implementation through existing health and social services. New methods of health education and its management will be developed to improve knowledge and encourage changes in attitudes and behaviour that give rise to health problems. Hence the programme will attempt to provide support and guidance to the community in exercising its responsibility for the overall health of its members. The incidence of chronic diseases will be monitored in relation to changing life styles, and measures will be taken to ensure that there are adequate information systems, incorporated as far as possible into the existing health services framework, for the collection, recording and storage of information relevant to the evaluation of the long-term achievements of the programme. Finally the programme aims to elaborate ways of incorporating integrated programmes of prevention and control into primary health care.

The requirements for prevention differ from society to society. So far WHO has only developed a strategic framework and participating centres are being asked to use this as a guideline for preparing proposals that can be compared and evaluated. The conditions included in any integrated programme will depend on the prevalence of particular diseases and risk factors in the community, although it is necessary to intervene against some risk factors before they and the disease they are related to assume major proportions in a particular country. The health care service structure, the social and economic costs to the community of identified health problems and of interventions against risk factors, and the extent of the benefit known to accrue from changing risk factors will also bear on the content and organization of specific programmes.

Four countries—Finland, Thailand, the Lithuanian SSR and Yugoslavia—have so far submitted outline proposal for programmes to WHO. Each of these countries has a different background both in structure of health services and the health problems to be faced. The types of 'chronic conditions' being addressed in the various programmes in one or more of these countries include cardiovascular and cerebrovascular disease, cancer, occupational diseases, diabetes, gastrointestinal diseases, such as peptic ulcer, liver cirrhosis, chronic rheumatic diseases, chronic non-specific respiratory diseases, caries and periodontal diseases, allergic diseases and accidents. The major risk factors which are being attacked relate to smoking and dietary habits, obesity, stress, alcohol consumption, the environment, occupation, and communal and physical activities, all of which are commonly implicated in most of the conditions listed above.

Various types of intervention activities are planned, including those implemented through health services, particular for primary health care. Primary health care workers, for example, will be trained to identify and to control different risk factors such as hypertension and diabetes. Interventions through health education will include presentations of material, through the media of newspapers, radio, television etc, intended to put over the main objectives of the programme. The final element will be general community activities such as those described so well for the North Karelia project in Finland.[10] These programmes are dependent on numerous inter-related activities which take place in the doctor's surgery, in the community, the work place, schools, churches, the home and even in hospitals. A great degree of co-ordination will be attempted between the various parts of society to direct attention towards general health promotion rather than towards the narrow satisfaction of individual goals. Hence governments, sports personalities, actors and other respected individuals who have an important influence on the behaviour of the community will have important roles in these programmes.

Attempts will also be made to link decisions at central and local governmental levels to avoid conflict and to ensure that policies take account of health effects as well as financial and trading interests.

Chronic, non-communicable diseases are an extremely important problem throughout the world. In developing countries the situation is even more dramatic than in developed ones. Although they have not yet fully conquered communicable diseases these countries already face an increasing threat from chronic diseases. This means that there is an urgent need for the formulation of long-term national health strategies, encompassing a broader approach to preventing and controlling chronic disease at the community level. The WHO programme is still in its early stages. It is exciting in its concept and if successful in achieving its objectives may present models for further action in more countries.

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