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Agenda item 5.

REGIONAL RESEARCH PROGRAMME IN CARDIOVASCULAR DISEASES (CVD)

In this brief paper an attempt is made to review the existing CVD situation in Member Countries of the Region, provide information on the programme activities in CVD proposed for the period 1984-89, and suggest some topics for research in this field, together with some possible mechanisms which may be employed to develop and implement research in the areas identified as priority by the Committee

A large number of research studies have been sponsored in the last decade by the CVD Unit in Geneva, information about them will be presented by a representative of this Unit

Situation analysis

Like most of the developing countries in other Regions, accurate information on the prevalence and incidence of various forms of heart diseases is generally lacking in most countries in the Region Whatever information is available, it is derived from·

a) Special surveys usually conducted to determine prevalence of CVDs in selected population groups, i.e. school children, industrial workers, civil servants, etc

b) Mortality data given in the Annual Reports of the Ministries of Health or in reports of other agencies responsible for health statistics Due to the problems of coverage and validity, there is considerable bias in these figures and in the majority of cases it cannot at present be put to any use

c) Hospital admission and discharge data These are widely available and are often used to demonstrate the increase in the number of cases with heart disease in the community. These data, though diagnostically may be valid, have considerable bias related to provision and availability of services, the catchment area and the population involved

As far as can be ascertained, there are no community-based disease registers. Long term cohort studies to generate reliable incidence data have understandably been lacking in the Region due to the immense expense and organization involved

in undertaking them.

During 1981 an attempt was made to collect information through national experts on the size of the problem posed by the CVDs in a few countries of the Region, i e. Cyprus, Egypt, Israel, Pakistan, Sudan, Tunisia. These reports were supplemented by visits of consultants in two of these countries (Egypt and Pakistan). A summary review of the reports submitted by the national experts, prepared by Professor M.J. Karvonen, WHO Consultant, is given in Annex I.

From these reports it appears that Rheumatic Fever and Rheumatic Heart Disease are still widely prevalent. Hypertension has been reported to be prevalent in 10-20% of adults in different population groups and Ischemic Heart Disease is being seen with increasing frequency and would appear to become, in the coming years, a public health problem of similar dimension as seen in the Western world. Expertise in clinical cardiology is widely available in the Region, together with variable levels of diagnostic and therapeutic facilities. However, skills and interest in cardiovascular epidemiology and community control are almost non-existent.

To supplement the information collected as above and in order to obtain a better idea of the research in CVD carried out in the Region, a MEDLARS search was carried out for articles emanating from the above countries and published during the last 10 years /

The vast majority of the articles mentioned in this search were from one country, covering a broad spectrum of topics relating from the very basic to epidemiology- and community-oriented research. In the other countries, most of the published articles dealt with report of surveys to determine prevalence of Hypertension and Rheumatic Heart Disease in selected population groups. In addition, there were papers describing clinical and pathological data on a series of cases or single case reports. Yet some other articles reported hemodynamic findings or experience with new diagnostic techniques. There were very few studies aimed at clarifying pathogenic mechanisms in various forms of CVDs Except from the one country, there were no reported findings on experiences with control of CVD in the community

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It must of course be realized that the MEDLARS search did not retrieve the information published in the various national journals that are not indexed In addition, there may still be a lot of available information in the form of theses, monographs, etc. which has not been published in medical journals

Regional Programme for CVD, 1984-89

Before discussing the possible research topics, it may be of use to summarize the WHO/EMR programme proposals in CVD for the period 1984-89. A copy of the EMR Medium-Term Programme on CVD is given in Annex II The objective of this programme is to prevent and control CVD in the population, and it aims at fostering national and regional activities, so that by 1989

1 Several countries in the Region, where reliable information on the magnitude of the CVD problem is not yet available, would have made an assessment of the extent of the problem,

2 At least three countries in the Region, where some information is available, community-based control programmes, for either single or multiple CVDs, would be formulated and implementation within the context of existing health services, started, in addition, these countries would have made a fresh assessment of the CVD problem to monitor the trends in CVD morbidity and risk factors, and if possible, mortality

In order to achieve the above objective and target, the major emphasis of the programme will be in training cardiologists and public health-oriented physicians in relevant CVD epidemiology and community control skills Support will be provided for planning and implementing epidemiological studies and pilot projects for their control

Possible topics for research in CVD in the Region

In view of the CVD situation in the Region and the proposed WHO programme activities in this field in the coming years, it is suggested that the main emphasis of research should aim at facilitating the planning and implementation of community-based prevention and control programmes In addition, support may

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also be provided, where necessary institutional facilities and expertise exist, for research into the aetiology, pathogenesis and treatment of major CVDs.

The top priority for the several countries in the Region, where little or no data is available on the status of CVDs in the community, is to promote and support limited and well-designed epidemiological studies to generate the necessary information for defining the problem posed by CVDs. This information can then also be utilized for planning health care programmes and facilities for patients suffering from CVDs.

As would be noted from the Regional CVD Programme Statement, it is proposed to hold national workshops in CVD epidemiology and community control, in countries where some work on defining the problems has already been done, and there is an expressed interest in further developing prevention and control activities against CVDs During these workshops it is intended that the participants will formulate and draw up protocols for some studies (mostly epidemiologically oriented and aimed developing community-based prevention and control programmes), which would be feasible within the existing health services framework of the country and could be carried out with support from national resources and/or WHO.

Apart from studies which may be generated at these workshops, the following research topics merit attention·

- Estimation of salt intake in different age and population groups and its role in pathogenesis of Hypertension,
- Development and testing of standard programmes for the detection, treatment and follow-up of patients suffering from Hypertension in primary health care settings,
- Social and behavioural studies to improve compliance with anti-hypertensive treatment;
- Studies on dietary intake of fats by different social and economic groups and the effect of these fats on various fractions of blood lipids,
- Definition of risk factors for Ischaemic Heart Diseases,
- Studies on Thrombogenesis
- Precursors of atherosclerosis and Hypertension in children

The Committee members may wish to add to this list and suggest some order of priority They may also indicate topics which in their opinion would be relevant to several countries in the Region, in other words, would be suitable for an intercountry study with a common protocol.

Our experience has so far shown that most investigators in the Region experience difficulty in formulating well-designed research projects. One way of assisting in this connection is to develop protocols during the proposed national workshops mentioned above Another way would be to prepare centrally within the Organization some model protocols which could be offered to potential investigators for being carried out, should they be interested in so doing.

In order to provide the necessary leardership role in countries where several research studies are being planned, an appropriate institute or department of cardiology will be selected in consultation with national authorities, and provided sustained support to fulfil this role This strengthening will be mostly in the field of epidemiology and community control and to a much lesser extent in the purely clinical and basic sciences areas.

The WHO mechanism of fellowship, research grants and research training awards and other modes of technical collaboration will be utilized to support the various activities proposed under this programme.

SUMMARY OF COUNTRY REPORTS ON CARDIOVASCULAR DISEASES

CYPRUS (Dr V Kalbian, Nicosia)

Cardiovascular diseases (CVD) appear as an acutely increasing health problem, with a more than 50% rise in Government hospital admissions from 1976 to 1979. The rise concerns particularly Ischaemic Heart Disease(IHD), specially among the younger middle-aged. No epidemiological studies on CVD have been carried out. However, the clinical impression is, that while IHD and Hypertension (HT) are common, acute rheumatic fever or Rheumatic Heart Disease (RHT) have become rare. Cardiomyopathies are diagnosed with modern methods, but evidently are no major problem.

A community-based pilot programme for the control of RF and RHD was in operation with WHO support since 1972, and its results were published in 1981. As a new venture, a clinic for HT was in 1981 opened in the Nicosia General Hospital.

Altogether eight cardiologists work in Government hospitals. While medical manpower is sufficient, specialized diagnostic and treatment facilities are limited. No cardiac surgery is performed, and the necessary pre-operative laboratory studies (catheterization, coronary angio) exist. Only one of the four Government hospitals has an intensive care unit.

A comprehensive national plan for the control, training and research in the field of CVD is considered important. A WHO-sponsored study tour abroad for a senior cardiologist in charge of the National Plan would be necessary.

CVDs are a leading cause of death in Cyprus. The hospital system is well-developed and evidently adequate for the clinical care of most CVD patients. Plans are being elaborated for the introduction of an integrated health care scheme to replace the present partial and uncoordinated schemes of the public and private sectors and for up-grading the primary health care.

The lack of an university has obviously limited health research. Outside support and participation in international training and research activities will therefore be continuously opportune

EGYPT (Professor Mohamed Khairy Abdel Dayem, Cairo, also Dr Martti J.Karvonen, WHO Consultant)

Professor Dayem has provided a critical review of Egyptian studies on CVD epidemiology (42 pages, 54 references). Heart disease is the second cause of mortality in males with 18.7% , and the third in females with 15.5% of deaths (1980).

The incidence rate of RF is assessed at about 1/100 000/year. In school-children the prevalence in most communities probably is from 2 to 4/1 000. For those aged 15 to 24, a figure of 5.6/1 000 has been published. Below the age of 5 and beyond 25 years no prevalence data are available. A minimum of 80 000 young persons thus need secondary prophylaxis and continuous medical supervision. The total population from 5 to 15 years, 11.4 million, also need a school-based programme for the early detection and treatment of streptococcal disease.

The prevalence of HT above the age of 35 varies between 10% and 20% in different population groups. A total of 1.5 million hypertensives thus need to be detected, treated and followed-up.

Data for the prevalence of IHD are few and vary considerably for different populations, among men above 35 from 1.0% to 3.7%. On this basis, the number of patients with definite IHD is assessed at 90 000. Incidence studies have not been carried out.

The prevalence of Cardiomyopathy is unknown.

The school health services provide a country-wide programme for the control of streptococcal infections, RF and RHD. No systematic evaluation of the operation and effectiveness of the programme or of its local variations has been conducted. No community-based control programmes of HT or IHD have been launched. An anti-smoking campaign, however, is in progress.

Egypt has some highly developed clinical facilities for CVD, but they are sufficient to serve only a small portion of the total patient load. There are nine Medical Schools. Two levels of specialization in cardiology are available:

(1) Master's Degree with one year research and two years training and study in a Medical School
(2) Doctor's Degree with a minimum of two years research and extensive clinical experience and theoretical knowledge The present membership of the Egyptian Society of Cardiology is 188. Several possibilities for continuing education have been arranged. They may, however, still not reach the majority of doctors working outside the main centres. Coordination of the training activities is provided for by the Ministry of Health and the Society for Cardiology. The coordination of researeh belongs to the Academy of Scientific Research and Technology.

A list of suggestions for WHO collaboration includes:

- training and education in CVD epidemiology
- up-grading school health service infrastructure
- studies on risk factors (diet, salt, gouza smoking)
- community-based HT control programme
- recruiting and training nurses, technicians and other paramedical personnel
- development of Medical School curricula in social and preventive aspects.

Egypt has three major cardiovascular problems of which IHD appears to be rapidly increasing. More epidemiological data would obviously be needed, but the development of community-based control programmes should not be therefore delayed. The country has some mature epidemiological expertise, and plans for expanding it by special courses in cardiovascular epidemiology are already being made. Both the rural and urban health centres and the school health services provide channels into which community-based control programmes can be introduced as pilot projects or later country-wide.

ISRAEL (Professor Jan J.Kellerman, Tel Hashomer)

IHD is still the major problem although the mortality has shown a slightly falling trend since four years. Figures for morbidity are not available Incidence of RHD is also decreasing; cardiomyopathies are diagnosed increasingly, but have not yet been subject to systematic community-based studies. The

report lists 22 cardiology departments/institutes, with their services, facilities and research interests. Abstracts for eight important community-based studies are included. The teaching hospitals of the four Medical Schools are involved in education and training of cardiology for health professions

Although no national coordination mechanisms provide guidelines for training, research and prevention of CVD, a wide spectrum has been covered. Research on the "natural laboratory" of different ethnic groups has resulted in studies of international interest and recognition . However, the lack of intervention studies is deplored.

Israel is one of the countries with the highest IHD mortality rates in the world. It can present a fine record of research in CVD, including several community-based studies. Health services are delivered by two parallel providers, the Ministry of Health and the Sick Fund of the General Federation of Labour, which creates a bureaucratic maze, with duplication of services, poor coordination and planning, and may have contributed to the lack of split intervention projects. However, comprehensive programmes for IHD and other atherosclerotic diseases are now seen as a priority, and health education and preventive health measures against heart diseases are included among the health goals for the coming 5 - 10 years

PAKISTAN (Major-General Shaukat Ali Syed, Karachi
also Professor A.G. Shaper, WHO Consultant)

The National Institute for Cardiovascular Diseases in Karachi has conducted epidemiological studies on risk factors of IHD, on RF and RHD, blood pressure and HT, as well as clinical studies and studies on rehabilitation. No community-based control programme is presently in progress.

RHD remains rampant, and increasing numbers are seeking treatment. HT appears to be about equally prevalent as in Western countries, but both higher and lower rates have also been published among special populations In a large case-control study of IHD, family history, smoking, HT, serum cholesterol and uric acid, as well as blood sugar were significantly associated with myocardial

infarction; multiple risk factors were common.

In addition to the National Institute, major centres for cardiology exist in Rawalpindi and in Lahore. All three are also doing heart surgery. Specialization in cardiology is organized.

The National Institute provides guidelines for training and research in collaboration with the Pakistan Cardiological Society.

Support from WHO is considered important for:

- RHD prevention programmes
- a national study of CVD epidemiology
- visiting scholarships to medical and paramedical staff of leading institutions
- training of clinical epidemiologists.

Pakistan faces the problem of RHD, HT and now increasingly also of IHD. The situation in Pakistan is in many respects different from that in the Mediterranean countries; on the other hand, experiences to be gained through pilot programmes in Pakistan might be transferable also to other countries in similar conditions. Previous experience in the planning and management of epidemiological studies and of community-based programmes exists, but outside support is also necessary

SUDAN (Dr Ahmed Abdel Aziz Yacoub,
Dr Omer El Bagir, Khartoum)

In a study of cardiac cases examined in Khartoum, 1957-60, almost a half had HT, one quarter RHD, 13% IHD, 6% syphilitic aortitis, 4% congenital heart diseases, 3% endocardial fibrosis and 2% pulmonary heart disease. Over the years 1976-80 the distribution of visits to the health clinics are available. Diagnosis of HT increased in five years from 67 000 to 98 000, RHD remained stable at 65 000 - 62 000, and IHD rose from 10 000 to 17 000. Congenital heart disease was diagnosed among infants younger than one year annually from 13 000 to 18 000 cases

No cardiovascular epidemiological studies or special programmes were reported.

Sudan is still facing many health problems typical for an underdeveloped country. Statistics from the Government health clinics provide some indication of the relative frequency of different diseases. For obtaining more substantial information on the epidemiology of CVD, an ad hoc survey would evidently be necessary. The country has three Medical Schools, which might be able to provide personnel for such a survey. The existing network of primary health services should benefit from a pilot project on CVD management at the community level.

TUNISIA (Prof. agr. M.Taktak and Prof.M.Ben Ismail, Tunis)

RF and RHD have been the subject of extensive clinical, biomedical and epidemiological studies in Tunisia; large series of patients have been analyzed and the results reported. The results of valvular operations have been devoted particular interest. RHD still constitutes about half of the load of cardiology departments.

HT has also been the subject of several epidemiological, clinical and biomedical studies. IHD was rare until fifteen years ago, but is now increasing among all social classes.

No community-based control programmes for CVD have been organized. Screening of cases occurs, however, through prescribed health checks at admission to schools, universities, etc.

Hospitals in Tunisia have altogether thirteen cardiovascular departments and three departments of cardiovascular surgery, with 34 cardiologists and 7 cardiovascular surgeons.

In addition to the training of cardiologists in the Tunisian hospitals, the Faculty of Medicine in Tunis also organizes the training of specialists for nutrition education against the risks of CVD. Societé Tunisienne de Cardiologie plays a key role in research policy and continuing education.

RHD is still considered a serious problem and its control through case detection and follow-up has the highest priority for a national project. Systematic screening programmes for the control of HT and IHD are regarded as important. Anti-smoking programmes and nutritional education should also be launched. The social and occupational rehabilitation of patients with CVD should be developed.

In recent years the health status of the population has markedly improved. Clinical cardiology appears to be on a high level with a wide spectrum of research activities. Traditionally, the health care delivery has been more oriented towards cure than prevention. However, the health plan for 1977-81 envisaged development of integrated family health care in the rural areas. The intention is gradually to transform rural and urban district dispensaries into basic preventive health care centres. The implementation of preventive policy will be entrusted to the regional health centres; they will also be responsible for school health services. This organizational structure would evidently make a comprehensive cardiovascular community programme feasible and a fitting means for attaining the objectives indicated in the country report.

OTHER COUNTRIES OF THE REGION

Country reports were not asked from all the Member Countries. Economic standards in them show a very wide range, with up to hundredfold differences in per capita national income. The affluent Members will obviously soon face an epidemic of IHD of similar magnitude, from which the industrialized countries now are suffering. Several Members still have a burden of RHD as a backlog of the past, and all certainly have HT. It lies in the best interests of affluent countries to develop resources for epidemiological studies of CVDs and for their comprehensive control programmes, as experiences are accruing from different parts of the world.

Member Countries with meager economical resources and short of trained manpower cannot presently consider CVD as their first health priority. However, the extent of the problem and means to cope with it deserve to be solved in some of them. Prevention at a cheap cost can make expensive treatment unnecessary - and also give much greater health benefits.

EMR MEDIUM-TERM PROGRAMME, 1984-89

13 16 Prevention and Control of Cardiovascular Diseases (CVD)

1. Introduction and Policy Basis

The WHO long-term programme for Prevention and Control of CVDs was prepared in 1976 in response to the Resolution WHA29.49. It was presented and approved by the WHA in 1979

On the basis of the long-term programme proposals, the MTP for the period 1979-83 was formulated. The MTP for the period covering the 7th GPW, 1984-89, is based on the proposals developed earlier and which are still valid. It aims at promoting the development and implementation of epidemiology-based strategies for the Prevention and Control of CVD in Member Countries

2. Situation Analysis

Most countries in the Region have yet to fully appreciate the extent to which CVDs are responsible for the overall mortality and morbidity. A major factor responsible for this is the lack of reliable statistics/ data on the prevalence and incidence of various forms of heart diseases.

Even in countries where an attempt has been made to generate such data, it has not led to the development of pragmatic programmes for prevention and control and allocation of resources for this purpose.

The regional CVD activities had so far included provision of fellowships, consultancy services and equipment for tertial care facilities. Three countries in the Region have participated in the WHO-sponsored cooperative project for the control of Rheumatic Fever (RF) and Rheumatic Heart Disease (RHD) However, following the termination of this project in 1979, no country-wide programmes to combat these diseases have been developed as a result of the experience gained in participating in the WHO project.

Recently a survey has been undertaken to collect information on national CVD resources in several countries of the Region In addition, consultants had visited two of these countries to assess the situation and to draw up

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proposals for possible WHO collaboration in the field of CVD in the coming years From these reports it appears that RF and RHD are still widely prevalent Hypertension (HT) has been reported to be prevalent in 10-20% of adults in different population groups and Ischaemic Heart Disease (IHD) is being seen with increasing frequency and would appear to become, in the coming years, a public health problem of similar dimensions as seen in the Western world. Expertise in clinical cardiology is widely available in the Region, together with variable levels of diagnostic and therapeutic facilities. However, skills and interest in CV epidemiology and community control are almost non-existent.

3. Objectives

The objective is to prevent and control CVD in the population.

4. Targets

The MTP for 1984-89 will foster national and regional activities, so that by 1989

a) several countries in the Region, where reliable information on the magnitude of the CVD problem is not yet available, would have made an assessment of the extent of the problem,

b.) at least three countries in the Region, where some information is available, community-based control programmes, for either single or multiple CVDs, would be formulated and implementation within the context of existing health services, started; in addition, these countries would have been a fresh assessment of the CVD problem to monitor the trends in CVD morbidity and risk factors, and if possible, mortality

5. Approaches

The major thrust of the programme during this period will be on training cardiologists and other public health-oriented physicians in epidemiological skills appropriate to CVD and other NCDs, through organizing training courses and selecting a few physicians in each country for advanced training in chronic diseases epidemiology

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Promotional visits by WHO staff and consultants will be made to selected countries in the Region for assessing the CVD problem and to highlighten the need for developing CVD control programmes.

Collaboration will be extended to countries in developing innovative and community-based CVD prevention and control programmes well integrated within the health services.

Research which will facilitate the implementation of such control programmes will be promoted and developed. Where facilities exist, and subject to availability of resources, research in such areas as thrombogenesis, will be supported.

6. Programme Management and Resources

At the Regional Office the RA/NCD will be responsible for implementing and coordinating the various activities mentioned herein and will work very closely with the CVD Unit in the Geneva Office. A Regional Scientific Working/Advisory Group will be established and meet at least bi-annually to review the programme and suggest future initiatives.

Potential collaborators will be identified in several countries of the Region who will then be involved in implementing the various apidemiological and control studies.

The programme will be financed from the Regular Budget of WHO and WHO funds will be utilized for technical collaboration, including grants of modest sums to promote and initiate national research and training activities.

7. Evaluation and Indicators

The projects supported under this programme will be monitored and evaluated through regular progress reports, meetings of investigators and the Regional CVD Advisory Group and periodic site visits by WHO staff members and consultants

At this stage of programme development in the field of CVD within the EM Member States, it may not be possible to demonstrate any changes by 1989 in the morbidity and mortality patterns or in the risk factors

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associated with CVD. However, an attempt will be made to generate requisite information within each sponsored project to monitor and evaluate its impact.

8. Linkage

The CVD prevention and control activities will be integrated with existing health services, and where feasible, in close connection with those directed against other non-communicable diseases, notably diabetes mellitus and chronic chest diseases.

Due to the nature of programme activities described below, close links will be maintained with the units within the Organization responsible for PHC, HMD and control of smoking and research promotion and development.

9. Activities

Activities to be carried out in this programme area will be related to the stud of epidemiology of CVD and its prevention and control, research, exchange of information and coordination and training.

Collaboration will be extended to countries for assessing the extent of CVD and in utilizing the information generated for planning prevention and control activities at the community level. To meet these objectives, national training courses in epidemiology and control of CVD will be held in at least one country during each biennium. The dissemination and utilization of epidemiological findings already available, will be promoted for developing community-based control programmes. Member States, where training courses in CVD epidemiology have been held, will be encouraged to establish full-time positions for chronic diseases epidemiologies and the Organization will provide support for their further training.

Training of front-line workers in CVD prevention and control methods, including the development of relevant learning material for this purpose, will be encouraged

In order to exchange information on ongoing activities activities in this field and to advise on future activities, a Regional Scientific Group on CVDs

will be constituted and will meet once during each biennium In collaboration with the relevant non-governmental organizations, information on recent advances in epidemiology and prevention and control of CVDs will be collected and transmitted to interested scientists in the Region

9.1 EPIDEMIOLOGY

Objective: Collaboration with countries in assessing the extent of the problem of CVD, and in utilizing the information generated for planning prevention and control activities at the community level

Target By 1989, a) baseline epidemiological studies should have been initiated in 3-4 countries, where reliable information on the magnitude of CVDs is not yet available, b) In 2-3 countries, where some epidemiological data is already available, a fresh assessment to detect trends in CVD morbidity and mortality, should have been made.

Activities	1984-85	1986-87	1988-89
- Plan and sponsor one national training course in CVD/NCD epidemiology every year	✓	✓	✓
- Provide technical collaboration in formulating CVD epidemiological studies, and in following up their implementation	✓	✓	✓
- Ensure dissemination and utilization of epidemiological findings for developing community control programmes	✓	✓	✓
- Promote the establishment of full-time position of CVD epidemiologist in countries where the above training courses have been held and epidemiological studies undertaken		✓	✓
- Provide fellowship for long-term training of the incumbents	✓	✓	✓
- Review the various epidemiological studies and compile a report on the overall situation in the Region			✓

9 2 PREVENTION AND CONTROL

Objective: To develop, test and implement methodologies for CVD Prevention and Control, at the primary health care level

Target: By 1989 4-6 countries would have developed methodologies/plans for prevention and control of CVDs at the community level, and initiated studies

Activities	1984-85	1986-87	1988-89
- Through STC visits to selected countries, identify national resources for implementing community-based prevention and control programmes and collaborating in planning of such programmes	✓	✓	✓
- Support the implementation of these programmes. At least one or two such national programmes should be initiated during each of the biennia	✓	✓	✓
- Promote the training of frontline workers in CVD prevention and control methods, and help develop guidelines for monitoring and evaluating performance of health personnel in this area	✓	✓	✓
- Based on the experience gained, collaborate in developing country- and culture-specific health education programmes		✓	✓
- Develop guidelines in integrating CVD prevention and control activities at the primary health care level		✓	✓

9.3 RESEARCH

Objectives: a) To promote and support research directly linked with the implementation of prevention and control programmes, as well as that related to the aetiology and pathogenesis of major CVDs, b) To strengthen research capabilities in certain countries for undertaking the above-mentioned type of research.

Target By 1989, countries collaborating with WHO/EMRO in CVD activities should have identified their research priorities, and initiated related research studies.

Activities	1984-85	1986-87	1988-89
- Collaborate with nationals in identifying research areas connected with the planning and implementation of control programmes and in developing protocols for research studies	✓	✓	✓
- Provide financial support through award of research grants for implementation of research studies	✓	✓	✓
- Where needed, provide research training grants to promising scientists for acquiring new skills and techniques	✓	✓	✓
- Develop mechanisms for reviewing recent technological advances in the diagnosis, treatment and prevention of common CVDs, with a view to assess the feasibility of their application in the countries of the Region		✓	✓

9 4 FXCHANGF OF INFORMATION AND COORDINATION

Objective: To improve dissemination and exchange of information between WHO member states, Institutions and individuals for prevention and control of CVD

Target Development of an effective mechanism for regular exchange of information on activities and recent advances in the field of prevention and control of CVD.

Activities	1984-85	1986-87	1988-89
- Hold at least one meeting, every two years of the Regional Scientific/Advisory Group on cardiovascular diseases which will also be attended by Principal Investigators of the various WHO supported epidemiological and control projects.	✓	✓	✓
- Identify and update regularly list of potential collaobrating institutions/ centres and investigators and provide to them regularly WHO documents and results of various studies partly or wholly supported by WHO.	✓	✓	✓
- Periodically commission state of the art reviews in the field of Preventive Cardiology and disseminate them.	✓	✓	✓
- In collaboration with NGOs collect and disseminate selected information on recent advances in research related to epidemiology and prevention and control of CVDs.	✓	✓	✓

9.5 TRAINING

Objective To promote and facilitate training of physicians and other health personnel, specially those involved in primary health care, in skills needed for prevention and control of CVD at the community level.

Targets By 1989, a sufficient number of health personnel should have been trained in CVDs epidemiology and in prevention and control methods, in those countries collaborating with WHO in these areas

Activities	1984-85	1986-87	1988-89
- Organization of courses/workshops in CVD epidemiology and in planning implementation and evaluation of community CVD control programmes	✓	✓	✓
- Preparation of manuals, guidelines and other educational material for various levels of health personnel, as well as for the public		✓	✓
- Provision of long-term fellowship for training in NCD/CVD epidemiology	✓	✓	✓
- Support visits by investigators engaged in epidemiological and control studies to other centres in the Region	✓	✓	✓