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DEVELOPMENT OF HEALTH RESEARCH

This document summarizes the major activities of the regional research promotion and development programme. It outlines some of the activities of the special programmes conducted in the Region by WHO headquarters, as well as various research activities conducted within the framework of WHO technical cooperation programmes. It also presents the observations and recommendations made by the Western Pacific Advisory Committee on Health Research (WPACHR) at its thirteenth session in April 1990.

1. INTRODUCTION

WHO's involvement in health research stems from article 2 (n) of its Constitution, which calls on the Organization "to promote and conduct research in the field of health". The recent reorientation of the WHO research programme has ensured substantial participation by regions and countries. WHO's policy has been to support the building up of national research capabilities, particularly in developing Member States. It has also intensified its efforts to promote effective and efficient systems for health research management, including information support for research. The emphasis is on problem-solving oriented research rather than on basic or fundamental research.

WHO's research programmes generally have two interrelated purposes: to obtain results that are relevant and applicable, and to strengthen the research capacity of the countries themselves. These two purposes are evident in the work of large research programmes such as those concerned with tropical diseases, human reproduction, diarrhoeal diseases or acute respiratory infections, but they also underlie all the research programmes of WHO.

2. MAJOR ACTIVITIES PERFORMED BY THE REGIONAL RESEARCH PROMOTION AND DEVELOPMENT PROGRAMME

2.1 National health research management mechanisms

Effective national organizations for the management of health research are still rare in the developing countries. Focal points to coordinate and manage research activities have been established in Australia, Malaysia, New Zealand, Papua New Guinea, the Philippines, Singapore and Viet Nam. The Medical Training and Research Institute at the Ministry of Health and Medical Services in Solomon Islands acts as the focal point for health research. Plans are being made to revitalize the National Health Research Council in Fiji.

A meeting of Directors of Health Research Councils or Analogous Bodies was held in December 1989. It gave particular consideration to the search for practical solutions to problems in specific management areas and to collaboration in health research management. The problem areas reviewed included the tension between scientific merit and urgent national needs, the application of research findings, and the slow growth of human resources for research. The 12 country reports illustrated the major differences that exist in the extent and type of health research being done and in the way it is managed at the national level. In order to achieve better collaboration between health research councils, direct collaboration among the councils or analogous bodies was encouraged. Such collaboration should use a selective approach based on shared problems and opportunities. The need for better information sharing was stressed. Closer links should be established within countries to ensure the exchange of relevant information between research councils, members of the Western Pacific Advisory Committee on Health Research (WPACHR), and WHO collaborating centres in the country.

2.2 Strengthening of national research capability

Activities to develop human resources were carried out in order to strengthen national research capabilities. They included short courses on research methodology, technical cooperation in the design of research protocols, and the provision of training grants. National workshops on research design and methodology were held in Brunei Darussalam (1989), Papua New Guinea (1989) and China (1990). Twenty-four research training and visiting scientist grants were awarded during this biennium.

The Regional Centre for Research and Training in Tropical Diseases and Nutrition, located at the Institute for Medical Research, Kuala Lumpur, Malaysia, celebrated its tenth anniversary in 1989. During the first ten years of its existence, the Centre has made great progress in strengthening its research and training capabilities. Its increased self-reliance is reflected in the large number of research projects completed and research papers published. By 1989, 47 training courses and workshops had been conducted either at the Centre or at other regional institutions by the staff of the Centre.

2.3 Support for research projects from the Regional Office

Countries have been encouraged to carry out multidisciplinary applied research. Annex 1 shows the 71 research proposals from 11 countries that were supported during this period, and the programme areas they cover.

2.4 Collaborating centres in the Western Pacific Region

As of December 1990 there are 186 WHO collaborating centres in the Region, representing about 17% of the total in the world (Annex 2). The majority are in China, Japan and Australia. The WHO programmes for which there are the most centres are as follows: other communicable diseases; clinical, laboratory and radiological technology; traditional medicine; cardiovascular diseases; and parasitic diseases.

A national meeting of the heads of the WHO collaborating centres in Japan was held in December 1989. The participants discussed the roles of the centres, exchanged information on their experience and explored possibilities for future collaboration between the centres.

The second national meeting for the directors of WHO collaborating centres in China was held in April 1990. The topics discussed included application for research grants, methods of management and evaluation for collaborating centres, and health for all by the year 2000.

3. ACTIVITIES CARRIED OUT BY HEADQUARTERS' SPECIAL PROGRAMMES IN THE REGION

3.1 Special Programme of Research, Development and Research Training in Human Reproduction (HRP)

The activities of this Special Programme in the Region may be categorized as (1) research in human reproduction, and (2) strengthening of institutions and resources for

research. During this reporting period, a sum of US\$4 262 082 was provided by HRP, of which 42.5% went to research projects. The majority of the current studies are related to the safety and efficacy of fertility-regulating methods, especially the regulation of male fertility, and post-ovulatory methods for fertility regulation.

Three collaborating centres as well as thirteen other centres received support. In addition, 54 research training grants were awarded.

3.2 Special Programme for Research and Training in Tropical Diseases (TDR)

The Special Programme contributed a total of US\$4 817 946 to various activities within the Region during 1989 and 1990 (Annex 3). The main fields covered were vector biology and control, malaria, filariasis and leprosy. Approximately 44% of that amount was allocated to institution strengthening and training activities, the balance being used for research projects.

In accordance with the objective of establishing a global network of institutions participating in the collaborative research and training activities of this Special Programme, ten institutions have been strengthened: four in China; three in Malaysia; and one each in the Philippines, Singapore and Viet Nam. Currently receiving long-term support are 12 institutions in China, Papua New Guinea and the Philippines. They are doing research on malaria, schistosomiasis, filariasis and leishmaniasis.

4. RESEARCH ACTIVITIES WITHIN WHO'S PROGRAMME OF TECHNICAL COOPERATION

4.1 Health systems research and development

The fifth session of the WPACHR Sub-Committee on Health Systems Research was held in Manila from 27 to 29 June 1990. The Sub-Committee drew attention to a number of health development issues which should be given priority in the selection of projects. These include (1) the impact on health services of the changing patterns of health; (2) the integration of the traditional hospital into community life and institutions through the "hospital without walls" concept; (3) the expanding role of managed care institutions; (4) providing improved information to the public in support of self-reliance in health decision-making; and (5) improving the effectiveness of the district health system.

The health systems research programme has been collaborating in two major research projects. The first is a comprehensive district health system development project using one county in the Republic of Korea as the field site. The general objective of this project is to derive principles and models for improving the effectiveness of district health systems to provide health care. After an initial period of awareness-building and collecting baseline information, the project recently passed a major milestone, by achieving an effective functional integration of the various health units in the county. This was done with a programme coordination model for involving these units and staff in the various aspects and components of specific health programmes. A second important feature of this project is the development of the field site as a laboratory for training medical students.

The second major project is the midwife utilization study in the Philippines. The rural midwife is the principal frontline public sector health worker, particularly for the rural areas. This project involved a national survey of midwives to recommend ways to improve the effectiveness of service carried out by these workers. The report of this activity showed that for the majority of workers, the degree of performance is directly related to the quality of supervision and support that is provided. However, it also highlighted the importance of the minority who work effectively without supervision.

4.2 Primary health care

Two developmental activities on teaching primary health care in the Republic of Korea were completed and evaluated in May and December 1990 respectively. As a result, new legislation for the school health programme was introduced in 1990. The recommendations put forward for the integrated teaching of primary health care in the basic nursing curriculum are being considered by the Government.

Urban primary health care development projects in Taegu, Republic of Korea, and Harbin, China, are progressing well, and a computerized health information system development in support of primary health care at the subdistrict level is in progress. The main focus of the activities of the Shanghai Hongkou District Health Bureau and Beijing Dongcheng District Health Bureau has been the development of a management information system on primary health care in the urban setting.

The review of the activities to develop district health systems based on primary health care in six countries revealed various stages of development. The common feature in all the projects was the effort to develop a management information system at various levels of district health systems. UNDP provided the funds for these projects. Studies on morbidity trends and the development of indicators in primary health care implementation were also carried out in these six countries.

A study of the different approaches to home nursing services for care of the elderly is in progress in Japan. A field trial of services for discharged patients in urban areas is being developed in relation to the home nursing service model.

Three WHO collaborating centres for nursing development are in the process of compiling primary health care nursing resource data. They are Cumberland College of Health Sciences in Australia, the University of the Philippines College of Nursing in the Philippines and Yonsei University College of Nursing in the Republic of Korea.

4.3 Nursing

A "Nursing research inventory" project was begun in 1990. It aims to develop an inventory to assess nursing research in the Region and to identify issues requiring such research. The findings of this study will be used to prepare a background paper for the WPACHR meeting scheduled in 1992 and in planning WHO activities in this area.

4.4 Health education

In Shanghai, health education activities were conducted to support two health programmes, on breast cancer and diarrhoeal diseases. The impact of these activities was evaluated. The preliminary assessment was encouraging. The intervention was more effective than previous knowledge-attitude-practice experiments, especially in inducing positive changes in practice.

Another study on the effectiveness of health education support for health programmes is in progress in both the north and the south of Viet Nam.

4.5 Nutrition

The implementation of a study on the assessment of anaemia among pregnant women and preschoolers in Fiji has been delayed by problems with sampling methodology and the late arrival of haemoglobinometers. However, interviewing and blood-taking are being carried out in one health centre.

4.6 Oral health

A field trial of a community-based preventive programme for periodontal disease has been going on in Tonga since 1987. This programme was developed by the Dental Research Unit in New Zealand, which is a WHO collaborating centre, and evaluated in 1989. The trial showed that improved oral hygiene, together with calculus removal, produced significantly better periodontal health than improved oral hygiene only.

Prototype equipment which has low capital cost, is easy to maintain, and does not sacrifice quality of performance, was developed at the Department of Conservative Dentistry, University of Otago, New Zealand (a WHO collaborating centre). The equipment is now available commercially and is used for training purposes by middle and low-level operators.

Research on caries-related microorganisms to identify features and components associated with pathogenicity is continuing at the Institute of Dental Research, Sydney, Australia (a WHO collaborating centre). The role of oral streptococci in endocarditis and candida in denture stomatitis is also being studied.

In China, research on the effects of "tea" drinking and toothbrushing with fluoride paste among children continued at the Institute of Stomatology, Beijing Medical University (a WHO collaborating centre). The three-year study on the use of sealants on early pit and fissure caries was concluded. The sealants were found to be most effective in arresting these early carious lesions.

4.7 Accident prevention

An epidemiological study on road traffic accidents was completed in five cities in China. It drew attention to the lack of programmes for prevention and treatment of injuries, and stressed the urgent need to strengthen emergency services for the victims of road accidents.

The Road Accident Research Unit, University of Adelaide, Australia, which is a WHO collaborating centre, completed the comparative study of motorcycle accidents in collaboration with centres in Kuala Lumpur, Malaysia, Singapore, and Suita, Japan. The study was undertaken because motorcycle accidents are the most common cause of serious injuries in developing countries. The results showed that riders with only a learner's permit had the highest risk of injury, followed by those in their first year of riding. This clearly indicated that better training for motorcyclists was needed.

A comparative study on the role of alcohol consumption in casualties surveyed the samples from emergency departments in Suva, Fiji, and Port Moresby, Papua New Guinea. The outcome of the study showed that domestic disputes and assaults were the main causes of injury. Both centres found that alcohol played a major role in causing these injuries. Injuries

caused by excessive alcohol consumption are taking up a large amount of the time of trained medical personnel, who are already scarce in the developing countries.

4.8 Tobacco or health

A study on smoking behaviour in medical staff and teachers in Chong Wen district, Beijing, is under way. Brochures on smoking cessation and cancer prevention have been published. Meetings were convened with the school principals and doctors, as well as with hospital directors and administration office chiefs. The results of the smoking survey are now being analysed.

A study on the economic consequences of smoking in the Republic of Korea is also being supported.

4.9 Workers' health

Six institutions in China, Japan and the Republic of Korea are participating in "multicentre collaborative research on early diagnosis and treatment of pneumoconiosis with special reference to the application of bronchofibroscopy". A final project review meeting is planned for October 1991.

Valuable baseline data of occupational health hazards, occupational diseases and available occupational health services were provided in the following projects: (1) two epidemiological surveys on occupational hearing loss (China, Viet Nam); (2) a survey on occupational diseases in selected industries in Metro Manila (Philippines); (3) a survey on occupational health services in support of primary health care (Republic of Korea); and (4) a project on screening for impairments in anthracosis (Republic of Korea).

A meeting of the Regional Working Group on Occupational Health was held in Manila from 11 to 15 March 1991. It recommended two research priority areas: (1) prevention and control of pesticide poisoning in agriculture; and (2) occupational health in small-scale industries.

4.10 Health of the elderly

A study on the social roles in an elderly population in a province of the Philippines is progressing satisfactorily with data collection well under way. The background demographic data has already been collected as part of a larger study and a more in-depth analysis of determinants will start once the data on carers have been collected.

In Fiji, a study on the "attitudes and concerns of the carers of the elderly" is progressing well but is slightly behind schedule owing to the sudden departure of student interviewers, requiring the selection and training of new ones. Data on the sample villages and neighbourhoods have, however, continued to be collected, with good cooperation from the subjects.

The cost-benefit analysis of a health intervention programme directed towards improving the health of the elderly is being undertaken in the Republic of Korea.

4.11 Psychosocial and behavioural factors

An intercountry project on "the health-seeking behaviour of mentally ill patients and their families in Asia" was initiated in the cities of Changsha, Chengdu, Kuala Lumpur, Manila, Seoul

and Tokyo. The aim is to identify the existing support used by mental patients in Asian countries.

4.12 Alcohol and drug abuse

Methamphetamine and organic solvents have become the major drugs of abuse in the Philippines. A survey on organic solvent abuse revealed that inhalation is commonly practised by homeless and otherwise deprived children. These abusers were initiated when they were ten years old or younger, and the most common effects they experience are numbness and the absence of hunger.

Five research institutions in China were involved in a collaborative survey on alcohol dependence and alcoholism. The focus was on social and economic minority groups. In general, the number of drinkers in China is still low, but relatively high numbers were found among Korean minorities and blue collar workers.

A collaborative study on the use of the patch test to screen flushers is progressing with the involvement of researchers at the Shanghai Mental Health Centre, China, and the National Alcohol Institute, Kurihama, Japan. Results have shown that the percentage of the population with low aldehyde dehydrogenase is very similar in both cities.

4.13 Mental and neurological disorders

The Shanghai Mental Health Centre, China (WHO collaborating centre), is conducting a national multicentre study on the feasibility of making widespread use of a rehabilitation and family education support programme for schizophrenics living in the community.

The first research project in mental health to be undertaken in the Lao People's Democratic Republic is entitled "Follow-up and prevention of relapse for patients leaving the psychiatric unit". Its aim is to determine the elements and interventions which can prevent or slow down the relapses of schizophrenic patients. Results will assist the psychiatric unit in its rehabilitation programme.

4.14 Environmental health

A study entitled "Epidemiology of chronic respiratory symptoms and illnesses among jeepney drivers and commuters exposed to vehicular emissions in Metro Manila, Philippines" is currently being supported. Preliminary results indicate a measurable relationship between pollution exposure levels and pulmonary function test results.

The report on the results will be provided to appropriate officials such as policy-makers, health administrators and scientists. Forums such as the Government's Interagency Committee on Environmental Health will be used to publicize the results.

Highlights of research activities of the Western Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS)

(1) Community water supply and sanitation

In Kiribati and the Lao People's Democratic Republic, pilot projects on the design and construction of latrines were carried out. In this connection, guidelines for future latrine construction projects are being developed.

A study on women's participation in the monitoring and improvement of drinking water quality in Jintan County in China was completed. The study was to encourage the involvement of women in monitoring and protecting water quality in order to reduce waterborne diseases.

In the Federated States of Micronesia, a study is being carried out on the effect of water-sealed toilets on groundwater quality in atolls. The results of the study will be used to develop guidelines for the siting of latrines in relation to wells in order to reduce the risk of drinking water contamination.

A field method to test the bacteriological quality of drinking water supplies in rural areas of developing countries is nearing completion. The method is suitable for use in areas where laboratory facilities are not available.

(2) Environmental health in rural and urban development and housing

Two applied studies are in progress in China. One is on co-composting municipal refuse and dewatered sewage sludge. The results of the study will be used to deal with urban environmental health problems arising from the increasing amount of municipal refuse and sewage sludge in the country. The other is an applied study to develop guidelines for environmental planning to improve the effectiveness of environmental health programmes.

In Malaysia, a study on risk assessment for a petroleum-based industrial area was implemented to document the expected health risks from the development of this type of industry.

(3) Control of environmental health hazards

To assess the potential health impacts of air pollution, research on a low-cost monitor is being done by the Sydney State Pollution Control Commission.

A study to audit and calibrate air pollution monitoring equipment in China, Malaysia and the Philippines was implemented to improve the quality of air quality monitoring data.

In China, where fluorosis affects millions of people, two studies were carried out: one on human exposure to fluoride pollution and the other on knowledge, attitudes, behaviour and practices related to endemic fluorosis. These studies should lead to the formulation of intervention strategies to reduce the incidence of fluorosis.

(4) Food safety

PEPAS and the New Zealand Department of Scientific and Industrial Research are developing a compendium of rapid analytical tests for chemical contaminants and pathogenic organisms in food. This will provide the basis for producing on-site test kits to be used by food inspectors.

An applied study was carried out in Malaysia to identify food handling practices associated with the risk of foodborne diseases, and a similar study was done in Viet Nam. These studies will lead to development of methods to minimize health risks from consuming unsafe food.

4.15 Traditional medicine

The establishment of an acupuncture literature analysis and retrieval system has been supported in China. This database will store a bibliography of more than 12 000 titles from more than 500 journals published in China and abroad between 1984 and 1988. More than 60% of the citations, including the abstracts, have been entered.

A survey of medicinal plants in the Lao People's Democratic Republic has been conducted in 11 provinces. Two hundred and fifty-four species belonging to 58 families have been identified.

4.16 Disease vector control

Operational research and training projects on the use of pyrethroid-impregnated mosquito nets to control malaria vectors took place in the Lao People's Democratic Republic, Malaysia, Papua New Guinea and Vanuatu. The nets are dipped in a diluted solution of permethrin or deltamethrin, dried and hung in houses. Applied systematically, this technique has reduced vector densities and the incidence of malaria cases by 70% or more at community level. Impregnated mosquito nets are being used on a large operational scale in several countries. Other projects include permethrin-treated curtains for dengue vector control in Viet Nam, and ecology and control of scrub typhus vectors in the Republic of Korea. These last two projects have not yet been completed, but it is anticipated that the findings can be used in a practical manner to reduce the risk of contracting vectorborne diseases.

4.17 Malaria

A limited number of operational research studies have taken place. Two simple and economic methods are being tested for monitoring *in vivo* *P. falciparum* sensitivity to drugs. Anopheline mosquito speciation and behaviour are receiving attention in the search for new avenues of malaria control. Field testing of educational materials has been extensively carried out. The effectiveness of some biological methods of control and the use of pyrethroid-treated mosquito nets have all received attention in the Region. The production and testing of derivatives of the natural antimalaria drug, qinghaosu, is being carried out in China and Viet Nam. In addition, the Special Programme for Research and Training in Tropical Diseases has continued to support research activities in a number of countries.

4.18 Parasitic diseases

Schistosomiasis is an important health problem in mountainous areas of China. About 80 000 cases occur in mountainous areas of Yunnan and Sichuan provinces, which account for about 10% of the total cases in the country. To help develop a feasible and effective control strategy, a research grant has been awarded to the Institute of Parasitic Diseases in Shanghai to conduct an epidemiological study among 2208 inhabitants in Zhonghe Township, Weishan County, Yunnan. The majority of these inhabitants belong to the Yi ethnic group. A preliminary investigation has shown that the average schistosomiasis prevalence rate was 23.25%. In one village the rate was as high as 58%. A final report of the study will be submitted later in 1991 and will provide information on chemotherapy and detection of schistosome eggs in stool samples of humans and domestic animals. Attention will also be given to possible measures to change sanitary habits of the human population to minimize contamination of the environment and spread of infection. Support was also provided to the Institute of Parasitic Diseases in Hangzhou to study the epidemiology and control of hookworm and other soil-transmitted helminthiasis among farmers in selected areas in Zhejiang province.

4.19 Diarrhoeal diseases

Fourteen activities were supported during this reporting period. Research priority areas of the studies included, rotavirus, rehydration therapy, interruption of transmission, and *Shigella* species. With regard to research strengthening, two individuals received training grants, while two institutions received support for strengthening.

4.20 Acute respiratory infections

Health systems research on the control of acute respiratory infections has been conducted in China, Fiji, Papua New Guinea, the Philippines and Viet Nam to study the feasibility of the WHO standard case management programme at peripheral level. All projects showed an improvement in clinical practice with regard to proper diagnosis and a reduction in the unnecessary use of antibiotics for cough and cold. Mortality has been monitored by household survey in China and Viet Nam, which showed a trend towards reduction. Results also indicated that supervision is as important as training itself, to improve clinical practice and maintain the improvement.

4.21 Tuberculosis

In China, research is being done to discover new anti-tuberculosis drugs which can provide shorter but effective treatment regimens.

4.22 Leprosy

In China, French Polynesia, the Philippines and the Republic of Korea, studies were conducted on the detection of anti-phenolic glycolipid I (PGL-I) antibodies or PGL-I antigens in both sera and tissues. In the Philippines, positive contacts of leprosy patients were detected in the population studied. This should lead to the development of a serological tool for the diagnosis of the disease, which can be used to monitor treatment and prevent some cases of relapse.

Other studies are focused on the relation of the PGL-I antigens in the sera and tissues to the viability of the leprosy bacteria and on detecting antineural antibodies which may have greater sensitivity for the diagnosis of the disease.

4.23 AIDS

During the reporting period, a sum of \$99 292 was provided to support four research projects on the following: the application of capture-recapture methodologies for estimating the size of subgroups particularly at risk of HIV infection; indirect methods for enumerating groups particularly at risk of HIV infection in an urban environment; an interregional HIV test performance evaluation programme; and the evaluation of diagnostic assays for HTLV-I infection.

4.24 Other communicable diseases

(1) Haemorrhagic fever with renal syndrome

The following results were obtained from a limited human trial study of the formalin-inactivated suckling rat brain vaccine in 456 volunteers in the Republic of Korea: (a) the vaccine is safe, with minimal side effects; (b) subcutaneous inoculation of the vaccine is better

than intramuscular inoculation for production of antibodies against Hantaan virus in man; (c) the optimal immunogenic dose of the vaccine is 5120 ELISA units per ml; (d) administration of two doses of vaccine subcutaneously at one month interval produced 99% seroconversion among 336 vaccinees as measured by indirect immunofluorescence; (e) the protective role of immunofluorescent antibodies to Hantaan virus in man is unknown; and (f) there is evidence that three doses of subcutaneous vaccination at days 0, 21 and 51 produce good neutralizing antibodies against Hantaan virus.

In China, an inactivated cell culture vaccine against haemorrhagic fever with renal syndrome is being developed. The titre of the current candidate vaccine will be improved by examining virus replication in other cells, and other methods of inactivation. In addition, immune responses to different Hantavirus isolates or strains will be tested; cell-mediated immunity studies will be initiated; safety trials to investigate limited reactogenicity will be conducted; and the number of volunteers will be expanded to obtain better data on immunogenicity.

(2) Japanese encephalitis

Research indicated that C-terminal one-third of Japanese encephalitis virus E protein carries denaturation-resistant neutralizing and protective epitope(s). The possibility of using this gene product as a candidate for the second generation Japanese encephalitis vaccine was discussed.

A live attenuated Japanese encephalitis vaccine has been developed in China and administered to about 500 000 children. However, the genetic background of the attenuation phenotype is not known. Therefore, a study on the molecular mechanism of the viral attenuation is under way. In addition, infectious cDNA clones are being constructed to identify the genome region that influences the attenuation phenotype of the virus.

(3) Dengue fever and dengue haemorrhagic fever

During the study, "Molecular characterization of dengue viruses leading to possible development of vaccine", a method to identify critical epitopes, specific for each serotype of dengue virus, was developed. This brings researchers closer to a rapid diagnostic test. The preparation of specific cDNA probes for each serotype of dengue virus will contribute to the development of an extremely sensitive and specific diagnostic test. This progress will provide the basis for the development of a dengue vaccine in the near future using the cDNA recombinant technique.

(4) Hepatitis

In a study to determine the protective efficacy of the Chinese hepatitis B plasma vaccine, the 30-10-10 g dose schedule provided the most economical and effective results. This schedule has been recommended for the babies of women infected with the hepatitis B virus. For the neonates of HBeAg-positive mothers, the first dose should be 30 g and given within 24 hours of birth; however, three 10 g doses are optimal for the neonates of non-carrier mothers. The use of pepsin and urea to inactivate the vaccine is unlikely to reduce the efficacy of the vaccine, but the shelf-life of vaccine treated with pepsin may be shortened.

4.25 Cardiovascular diseases

A study on the epidemiology and prevention of rheumatic fever and rheumatic heart disease is being carried out in Guangdong province, China.

4.26 Other noncommunicable diseases

Two research projects are being supported: a study on the knowledge, attitudes and practices related to selected noncommunicable diseases in the Republic of Korea, and a follow-up study of the incidence and prophylaxis of bronchial asthma in a population of bronchial hyperresponsiveness in China.

5. OBSERVATIONS AND RECOMMENDATIONS MADE BY THE WESTERN PACIFIC ADVISORY COMMITTEE ON HEALTH RESEARCH (WPACHR) AT ITS THIRTEENTH SESSION IN 1990

At its thirteenth session, held in Manila in 1990, the Western Pacific Advisory Committee on Health Research made the following observations and recommendations, arranged by subject.

5.1 WPACHR

Noted with satisfaction the action taken by the Secretariat in relation to the major recommendations made by WPACHR at its twelfth session and noted the progress made in strengthening national research capabilities in member countries through the provision of individual research training awards, research design and methodology workshops and research grants.

5.2 Global Advisory Committee on Health Research

(1) *Noted* the report of the Global Advisory Committee on Health Research on its twenty-ninth session in 1988 and the actions taken by the Committee since that time, in particular research on future changes and their impact on health, research on nutrition, injuries, diabetes and health promotion and the importance of ethical aspects of health research.

(2) *Noted* with satisfaction that the subject for technical discussions of the Forty-third World Health Assembly was health research and that these discussions resulted in strong endorsement by the World Health Assembly of the role of health research as a strategy for health for all.

5.3 Special Programme of Research, Development and Research Training in Human Reproduction

(1) *Noted* the positive outcome of the external evaluation of the impact of the Special Programme of Research, Development and Research Training in Human Reproduction, and recommended that the Programme be encouraged to play a more active role in introducing newer reproductive health technologies in the countries of the Region.

(2) *Endorsed* in general the current mandate and strategies of the Programme, especially its activities in strengthening the capacities of countries of the Region to carry out research of national relevance in the field of reproductive health.

5.4 Special Programme for Research and Training in Tropical Diseases

(1) *Expressed* appreciation for the continuing favourable impact of the Special Programme for Research and Training in Tropical Diseases on countries in the Region, particularly in the area of strengthening national research capabilities in tropical diseases research, including training of potential research leaders.

(2) *Endorsed* in general the current mandate and strategies of the Programme, especially its activities in strengthening the capacities of countries of the Region to carry out research of national relevance in the field of tropical diseases (particularly malaria), in collaboration with other WHO divisions.

5.5 Diarrhoeal diseases control programme

Recommended that in view of the continuing prevalence of diarrhoeal diseases in some countries of the Region, the research component of the programme of the Western Pacific Regional Office be continued as part of its ongoing activity, with special attention to research at country level, and that its progress be reviewed at the next meeting of the WPACHR.

5.6 Health systems research

(1) *Noted* the report from a recent meeting of the Sub-Committee on Health Systems Research and endorsed the recommendations of the Sub-Committee, particularly the need for greater emphasis on the experience and information exchange component of the programme and the need for better use of WHO collaborating centres in this regard.

(2) *Noted* with satisfaction the progress made by the Sub-Committee in identifying priority health development issues which will provide a clearer focus for specific activities within the Programme.

(3) *Agreed* with the Sub-Committee that the issue of equity should be an overriding concern in all such health development activities and that some priority for research should be given to the changing role of hospitals and of health care workers.

(4) *Recommended* that methodologies be developed for research on emerging issues in health development, for example in standard setting for quality assurance in health care delivery programmes.

5.7 Regional Centre for Research and Training in Tropical Diseases and Nutrition

(1) *Noted* with satisfaction the progress made by the WHO Regional Centre for Research and Training in Tropical Diseases and Nutrition.

(2) *Recommended*, now that ten years has passed since the establishment of the Centre, that a task force be convened to review the work programme and future plans of the Centre with particular reference to its role in collaborative research.

5.8 Health Research Councils or Analogous Bodies

(1) *Noted* and endorsed the recommendations arising from a meeting of directors of health research councils or analogous bodies in December 1989.

(2) *Recommended* that a subregional meeting on health research management be held in Fiji, to assist with re-establishment of a national health research committee in conjunction with new developments within the Fiji School of Medicine.

5.9 Environmental health programme

(1) *Noted* the urgency and wide range of issues concerned with environmental health, especially in urban slums and the risks to health associated with modernization and industrialization of countries in the Region.

(2) *Recommended* the establishment of a new WPACHR sub-committee on environmental health to promote research on the future impact of environmental change on health and health-care, and the prevention issues that are related to them. The work of the Sub-Committee on Occupational Health will become part of the responsibility of the proposed environmental health sub-committee.

(3) *Recommended* that studies in environmental health include: (a) development of appropriate technology for resolving sanitation problems of rapidly industrializing urban communities; (b) environmental epidemiology for monitoring health effects of environmental pollution; and (c) behavioural studies to improve effectiveness of environmental health education programmes.

(4) *Recommended* the establishment of a new WPACHR sub-committee on health impact of modernization and industrialization to promote research on health-care and prevention issues relating to these changes.

(5) *Recommended* that studies of the impact on health-care of modernization and industrialization include: (a) socioeconomic, behavioural and nutritional determinants; (b) risk factors for noncommunicable diseases; (c) issues relating to aging of populations; (d) accidents and injuries; (e) preventive strategies.

5.10 Accident and injury prevention

Recommended that encouragement should be given to the programme of research on accident and injury prevention in the Western Pacific Region, including studies of behavioural factors in traffic accidents, and that the scope of the programme be widened to include injury from other causes, e.g. domestic and agricultural.

5.11 Evaluation

Noted with satisfaction the action of the secretary in preparing a review of grants and awards made by the Research Promotion and Development unit over the past nine years, which was helpful in determining the value of the programme and directions for the future.

5.12 Health promotion

(1) *Recommended* that a sub-committee on health promotion and behavioural aspects of health should be established and that its responsibility include the work of the previous Sub-Committee on Health Behaviour Research. This sub-committee should seek to coordinate relevant research on behavioural and promotional aspects of other special subject programmes, as well as initiate and support studies on methodological problems, especially those that occur in poor and remote communities.

(2) *Recommended* that Member States consider new ways to finance the development of research on health care and health promotion activities. The Committee noted the example of the Healthy Localities Project of the Victorian Health Promotion Foundation in Australia.

5.13 Other matters

Recommended that agenda items for the fourteenth session of WPACHR should include the topics of research in oral health and research on the role of nursing in health care.

Table 1. Summary of research projects funded by the WHO Regional Office for the Western Pacific for 1989-1990

	Australia	China	Cook Islands	Fiji	Japan	Lao People's Democratic Republic	Malaysia	Papua New Guinea	Philippines	Republic of Korea	Viet Nam	Total
Acute respiratory infections		3		1				1	1		2	8
Cardiovascular diseases		1										1
Disease vector control								2	1	2	2	7
Environmental health	1								1			2
Health education		1									1	2
Health of the elderly				1		2			1			4
Health systems research										1		1
Human resources for health				1								1
Leprosy							1		2	1		4
Malaria		1									2	3
Maternal and child health, including family planning									1	3		4
Nutrition			1	1								2
Other communicable diseases		1			2		2			1		6
Other noncommunicable diseases		1								1		2
Parasitic diseases		1										1
Prevention and control of alcohol and drug abuse		1			1				1			3
Prevention and treatment of mental and neurological disorders		1				1						2
Primary health care	1	1							1	3		6
Psychosocial and behavioural factors		1								2		3
Tobacco or health		1								1		2
Workers' health		2			1					1	2	6
Zoonoses											1	1
Total	2	16	1	4	4	3	3	3	9	16	10	71

Table 2. Summary of collaborating centres in the Western Pacific Region (as of 1 December 1990)

	Australia	China	Hong Kong	Japan	Malaysia	New Zealand	Papua New Guinea	Philippines	Republic of Korea	Singapore	Viet Nam	Total
AIDS	1			1								2
Accident prevention	1			1								2
Acute respiratory infections		1		1			1					3
Alcohol and drug abuse				1		1						2
Blindness and deafness		1		1								2
Cancer		3		2						1		6
Cardiovascular diseases	4	3		3				1				11
Clinical, laboratory and radiological technology	3	4		5		1			1	1		15
Diarrhoeal diseases	1											1
Disease vector control	1	1		2	1			1				6
Drug and vaccine quality	3	1		1								5
Environmental health	2	1		6		1						10
Food safety	1	1		1		1						4
Health situation and trend assessment		1										1
Health systems research					1				1			2
Health system development				1					2			3
Health education		1										1
Health of the elderly	1	1		1								3
Health information		1									1	2
Human reproduction	2	3						1	1	1		8
Informatics management				1						1		2
Malaria	1											1
Maternal and child health, including family planning		3										3
Mental and neurological disorders		5		1								6
Oral health	1	2				2						5
Other communicable diseases	3	2		8	1				5	1		20
Other noncommunicable diseases	1			1		1						3
Parasitic diseases	1	6		1	1			1	2			11
Primary health care	1	4		1				1	1	1		9
Psychosocial and behavioural factors				1								1
Rehabilitation	1	2	2					1				6
Research promotion	1											1
Sexually transmitted diseases	1									1		2
Tobacco or health		1										1
Traditional medicine		7		2					2		1	12
Tuberculosis		1		2								3
Workers' health	2	2		2					1	1	1	9
Zoonoses	2											2
Total	35	58	2	46	4	7	1	6	16	8	3	186

**Table 3. Summary of TDR-funded projects in the Western Pacific Region by country and by component
1 January 1989 to 31 December 1990
(Number of projects given in brackets)**

Component	Australia	Cambodia	China	Fiji	French Polynesia	Japan	Malaysia	New Zealand	Papua New Guinea	Philippines	Republic of Korea	Viet Nam	Total
Director's Initiative Fund			(6) 55 664				(1) 14 960					(2) 17 250	(9) 87 874
Epidemiology	(1) 100 000		(1) 15 000										(2) 115 000
Filariais	(1) 6 222		(1) 18 810	(1) 53 440	(2) 101 113		(3) 314 582						(8) 494 167
Institution strengthening			(8) 689 670						(1) 67 282	(3) 186 650			(12) 943 602
Leishmaniasis	(1) 20 000		(1) 24 500			(1) 60 000							(3) 104 500
Leprosy	(1) 25 000		(1) 8 400		(1) 21 405			(1) 30 000		(4) 90 475			(8) 175 280
Malaria	(8) 600 276		(2) 61 090			(1) 5 800	(3) 102 588			(1) 19 052		(1) 163 950	(16) 952 756
Schistosomiasis	(1) 10 750		(4) 189 250							(2) 21 950			(7) 221 950
Socioeconomics	(1) 25 000			(1) 16 128						(3) 120 946			(5) 162 074
Training		(2) 27 560	(30) 608 050				(6) 185 230			(14) 337 789	(1) 20 000	(1) 12 804	(54) 1 191 433
Vector biology	(1) 29 950		(11) 231 740		(1) 27 000		(2) 49 620				(1) 23 000	(1) 8 000	(17) 369 310
Country total	(15) 817 198	(2) 27 560	(65) 1 902 174	(2) 69 568	(4) 149 518	(2) 65 800	(15) 666 980	(1) 30 000	(1) 67 282	(27) 776 862	(2) 43 000	(5) 202 004	(141) 4 817 946