REPORT

REGIONAL WORKSHOP
ON THE EPIDEMIOLOGY AND CONTROL OF
CARDIOVASCULAR DISEASES AND DIABETES MELLITUS

Manila, Philippines
24-28 July 1989
REPORT

REGIONAL WORKSHOP ON
THE EPIDEMIOLOGY AND CONTROL OF
CARDIOVASCULAR DISEASES AND DIABETES MELLITUS

Convened by the
REGIONAL OFFICE FOR THE WESTERN PACIFIC
OF THE
WORLD HEALTH ORGANIZATION
Manila, Philippines, 24 - 28 July 1989

23 NOV 1989
Not for sale
Printed and distributed by the
Regional Office for the Western Pacific of the
World Health Organization
Manila, Philippines
October 1989
NOTE

The views expressed in this report are those of the participants of the Regional Workshop on the Epidemiology and Control of Cardiovascular Diseases and Diabetes Mellitus and do not necessarily reflect the policies of the World Health Organization.

This report has been prepared by the Regional Office for the Western Pacific of the World Health Organization for governments of Member States in the Region and for the participants of the Regional Workshop on the Epidemiology and Control of Cardiovascular Diseases and Diabetes Mellitus, which was held in Manila, Philippines, from 24 to 28 July 1989.
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<td>31</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

The Regional Workshop on the Epidemiology and Control of Cardiovascular Diseases and Diabetes Mellitus was held in Manila from 24 to 28 July 1989.

The objectives of the workshop were as follows:

(1) to exchange information on the epidemiology of cardiovascular diseases and diabetes mellitus in the Region;

(2) to review recent developments in the prevention and control of cardiovascular diseases and diabetes mellitus; and

(3) to develop guidelines for the management of national prevention and control programmes with emphasis on the community-based control of cardiovascular diseases and diabetes mellitus, on the basis of an assessment of the problems and resources.

The agenda of the meeting is attached as Annex 1.

Eighteen participants, one consultant and two temporary advisers attended the workshop. The list of participants is attached as Annex 2.

Dr S.T. Han, Regional Director, opened the workshop stressing the increasing importance of noncommunicable diseases in the Western Pacific Region and noting the need for countries to develop integrated noncommunicable disease control programmes. The promotion of a healthy life-style was emphasized as an important element of such a programme. The full text of the Regional Director's speech is attached as Annex 3.

The following participants were elected as officers of the workshop:

Chairman Dr S.C. Emmanuel, Singapore
Vice-Chairman Dr M. Kinahoi, Tonga
Rapporteur Dr M. Laugesen, New Zealand.

2. COUNTRY REPORTS

The country reports are taken from data supplied by the participants. In many cases the information was not able to be
attributed to the actual source and it may not represent official figures. This highlights the need for simple and accurate health information systems for both current status and monitoring purposes.

**Brunei Darussalam**

(1) **Disease patterns**

Exact data on the prevalence, incidence, morbidity and mortality of cardiovascular diseases and diabetes are not available.

(2) **Risk factors**

Screening surveys are currently being performed but no prevalence data yet are available.

(3) **Control activities**

In recent years, the Ministry of Health has launched nationwide campaigns against coronary heart disease and smoking. Educating the public in various health matters through the mass media is also emphasized.

**People's Republic of China**

(1) **Disease patterns**

In several cities in China, cardiovascular disease has increased greatly.

(a) **Mortality**

(1) **All heart diseases**

<table>
<thead>
<tr>
<th>Time</th>
<th>Specific mortality</th>
<th>Proportional mortality</th>
<th>Rank order of causes of death</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957</td>
<td>47.20/100 000</td>
<td>6.61%</td>
<td>5</td>
</tr>
<tr>
<td>1975</td>
<td>115.34/100 000</td>
<td>19.49%</td>
<td>2</td>
</tr>
<tr>
<td>1986</td>
<td>124.88/100 000</td>
<td>23.03%</td>
<td>1</td>
</tr>
</tbody>
</table>

(2) **Cerebrovascular disease**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Mortality (per 100 000)</td>
<td>39.0</td>
<td>36.9</td>
<td>127.9</td>
<td>135.4</td>
<td>114.5</td>
</tr>
<tr>
<td>Proportional Mortality</td>
<td>5.5%</td>
<td>6.9%</td>
<td>21.6%</td>
<td>23.4%</td>
<td>21.1%</td>
</tr>
</tbody>
</table>
(b) Prevalence and incidence

In 1985, the incidence rate of cerebral strokes was 56.6-242.6/100 000 (25-74 years old), and that for myocardial infarction was 1.7-27.2/100 000/year. The prevalence rate (from community surveys) increased in Shanghai from 2.5% in the late 1950s to 5.4% in the early 1970s. In Beijing the increase was from 3.2% to 4.1%.

In 1981, among 304,537 people in 13 cities and provinces, 1854 people suffered from diabetes mellitus. The prevalence rate was therefore 0.61%.

(2) Risk factors

Hypertension

In 1959 the prevalence of hypertension in those over 15 years of age was 5.1% but it increased to 7.7% in 1979-1980; this was an increase of 50% in 20 years.

(3) Control activities

A National Steering Committee for CVD control and research has been established.

A comparative study of hypertension and its risk factors has been undertaken in 10 populations. Collaboration between China and the USA has been undertaken for studies on CVD and rheumatic fever. The MONICA Project (Multinational Monitoring of Trends and Determinants in Cardiovascular Disease) has a large centre in China and will provide important data. There are also plans by the Ministry of Public Health to organize a survey for total causes of death in 100 000 000 people in China. A sample survey of 800 000 people in China for hypertension prevalence is also planned, to be followed by the development of community control programmes in several areas. A project is being prepared, which will be supported by UNDP and executed by WHO, to advance the work of control, diagnosis and treatment of CVD and to formulate the guidelines for a national control programme of CVD from 1990-1992. The control and prevention of diabetes mellitus will be included in comprehensive community-based control programmes.

Cook Islands

(1) Disease patterns

There is a general but undocumented impression that there has been a steady increase in NCD over the years.

Diabetes mellitus, hypertension and obesity have shown an overall increase since 1980 although there is some suggestion that the increase is less in younger age groups.
(2) Risk factors

Number of cases

<table>
<thead>
<tr>
<th>Disease</th>
<th>1986</th>
<th>1987</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>38</td>
<td>68</td>
<td>30</td>
</tr>
<tr>
<td>Hypertension</td>
<td>157</td>
<td>257</td>
<td>164</td>
</tr>
<tr>
<td>RF/RHD</td>
<td>29</td>
<td>14</td>
<td>12</td>
</tr>
</tbody>
</table>

Mortality

<table>
<thead>
<tr>
<th>Disease</th>
<th>1986</th>
<th>1987</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>6</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Hypertensive Disease</td>
<td>5</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Cerebrovascular Disease</td>
<td>8</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Other heart diseases</td>
<td>10</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Other</td>
<td>69</td>
<td>68</td>
<td>62</td>
</tr>
</tbody>
</table>

(3) Control activities

There is an integrated NCD prevention and control programme aimed at hypertension, diabetes mellitus and obesity. The main approach in prevention is health education, informing the public at large through talks, the radio, pamphlets, etc. There is an active national food and nutrition committee.

Fiji

(1) Disease patterns

The percentage prevalence rates of diabetes mellitus and hypertension in 1980 in various study areas in Fiji, are shown below according to ethnic groups:

<table>
<thead>
<tr>
<th>Ethnic group</th>
<th>No. examined</th>
<th>Prevalence of diabetes (%)</th>
<th>Prevalence of hypertension* (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>IGT</td>
<td>DM</td>
</tr>
<tr>
<td>Malanisians:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>477</td>
<td>7.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Urban</td>
<td>863</td>
<td>10.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Lakeba</td>
<td>430</td>
<td>4.7</td>
<td>5.7</td>
</tr>
<tr>
<td>Indians:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>452</td>
<td>9.9</td>
<td>11.7</td>
</tr>
<tr>
<td>Urban</td>
<td>846</td>
<td>10.4</td>
<td>11.8</td>
</tr>
</tbody>
</table>

* Age standardized to 1978 Fiji census.
* Systolic pressure at least 160 mmHg (21.3 kPa) and/or diastolic pressure at least 95 mmHg (12.7 kPa).
* IGT = impaired glucose tolerance; DM = diabetes mellitus.
(2) Risk factors

Risk factors include changing life-styles, dietary habits, increased smoking and alcohol consumption, and reduced physical activity. These factors have been exacerbated by an urban drift in which 18.3% of the population lived in urban areas in 1956, increasing to 33.4% in 1966 and to 39.7% in 1981.

(3) Control activities

(a) National Diabetes Centre

The National Diabetes Centre was established in 1984 to advise on the treatment, prevention and control of diabetes. It has been active in training a wide range of health workers (including some from outside of Fiji), producing health education materials, and carrying out research activities.

(b) National Food and Nutrition Committee

This committee has been active in promoting the concept of a balanced diet, the value of traditional foods and home gardening.

(c) An anti-smoking campaign

(d) Primary health care.

French Polynesia

(1) Disease patterns

(a) Prevalence

In French Polynesia, the major causes of death in adults have changed to noncommunicable diseases during the last two decades, largely because of the change in certain habits in daily life (nutrition, tobacco, an increase in life expectancy). A study of wage-earners in Tahiti in 1987 showed that the prevalence of arterial hypertension was 15.7% for men and 6.7% for women. The same study showed that the prevalence of known diabetes was 1.8% for men and 1% for women. The prevalence of rheumatic heart disease was 1.17%, but the prevalence of coronary heart diseases is not known.

(b) Mortality

Cardiovascular diseases are the prime cause of death in French Polynesia (24.1% of deaths in 1987) while disorders of nutrition and metabolism rank seventh and represent 3.7% of deaths. Arterial hypertension is the main cause of death due to cardiovascular disease (24.5%), followed by ischaemic cardiomyopathies (14.9%), cerebrovascular diseases (15%), acute myocardial infarction (10.1%) and chronic rheumatic heart disease (2.9%).
(2) Risk factors

Information on prevalence is not available.

(3) Control activities

In French Polynesia, except for rheumatic heart diseases, no programmes against cardiac disease and diabetes have been initiated. A programme aiming at controlling and preventing diabetes is planned in the next three years.

Japan

(1) Disease patterns

Trend of noncommunicable diseases

<table>
<thead>
<tr>
<th>Disease</th>
<th>Trend of Mortality</th>
<th>(1980-1985)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ischaemic heart disease</td>
<td>-4%</td>
<td>(41/100,000 in 1985)</td>
</tr>
<tr>
<td>Acute myocardial infarction</td>
<td>-3%</td>
<td>(25/100,000 in 1985)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disease</th>
<th>Trend of Prevalence</th>
<th>(1980-1985)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>+ 2.5%</td>
<td>(30.7/1000 in 1985)</td>
</tr>
<tr>
<td>Cerebrovascular Disease</td>
<td>+/-0.0%</td>
<td>(3.5/1000 in 1985)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>+ 35.0%</td>
<td>(6.1/1000 in 1985)</td>
</tr>
<tr>
<td>Heart disease</td>
<td>+ 4.0%</td>
<td>(7.5/1000 in 1985)</td>
</tr>
</tbody>
</table>

(2) Risk factors

The average body weight is close to the desirable figures.

Serum cholesterol is thought to be on the increase in many rural and urban communities, but average levels remain low compared with those in Western countries. The average intake of salt continued to decrease and was 12g a day per person in 1985.

The smoking rate for Japanese men was 84% in 1966 and has been on the decrease since then, coming down to 63% in 1986.

(3) Control activities

National tentative targets have been set for:

(a) mortality from ischaemic heart disease: down from 41 to 38/1,000,000 by 1995;
(b) prevalence of hypercholesterolaemia (>200 mg/dl): from 15% to 10% by 1995;

(c) smoking rates: currently 63% in men and 13% in women; down to 50% in men and 10% in women by 1995; and

(d) percent calories from fat: from 25% to 24% by 1995.

Kiribati

(1) Disease patterns

<table>
<thead>
<tr>
<th></th>
<th>Hypertension</th>
<th>Diabetes Mellitus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tabiteuea North (rural)</td>
<td>8.6%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Betio (urban)</td>
<td>11.0%</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

Statistics from the Health Statistics Office show much lower prevalences.

(2) Risk factors

There is undocumented evidence that smoking is increasing, especially in the young.

(3) Control activities

The programme is implemented through an integrated nutrition programme which includes home gardening and extensive health education activities.

Malaysia

(1) Disease patterns

In Malaysia, cardiovascular diseases are a major cause of mortality and are emerging as a prominent public health problem. In 1986, 28.6% of the medically certified deaths in Peninsular Malaysia were due to CVD. Between 1972 and 1982, CVD mortality increased by 4%, and hospital admissions in Peninsular Malaysia for CVD increased by 69% from 1973 to 1984. Age specific incidence rates are not available at present.

(2) Risk factors

Smoking is highly prevalent in adult men. According to the findings of the 1986 National Health and Morbidity survey, 40% of men are smokers, and 36% among them are heavy smokers. Fortunately, women smoke less. There is at present no information on smoking habits in young children. However, there are indications that tobacco consumption in the country is increasing.
High blood pressure in the adult population of Malaysia amounts to 14.4%, according to the findings of the above survey.

Furthermore, coronary heart disease often occurs at surprisingly young ages. This phenomenon may be an indirect clinical indicator of an emerging coronary epidemic. Cerebrovascular disease, intimately related to hypertension, was reported as a cause of death in 2031 cases in 1988, and seems to be on the increase. Diabetes mellitus was a cause of hospital admission in 17,815 patients, with resulting death in 227 cases in 1988.

(3) Control activities

A community-based cardiovascular disease prevention and control programme has been planned in Malaysia. This programme is expected to be operational by the beginning of 1990.

The overall objectives of the programme are:

(a) to prevent CVD in the community; and
(b) to reduce morbidity and mortality due to CVD.

Specific objectives are planned for the prevention and control of risk factors such as smoking, hypertension, obesity and hypercholesterolaemia, a sedentary life-style, rheumatic fever and rheumatic heart disease, and diabetes mellitus.

New Zealand

(1) Disease patterns

Coronary heart disease in New Zealand has been gradually decreasing since 1968, but the rates are still among the highest in the world. Tobacco consumption is decreasing, but there is no measurable increase in the percentage taking regular exercise.

Mortality rates for men/100,000 persons

<table>
<thead>
<tr>
<th>Disease</th>
<th>Age</th>
<th>1981</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary Artery Disease</td>
<td>45-54</td>
<td>153</td>
<td>127</td>
</tr>
<tr>
<td></td>
<td>55-64</td>
<td>432</td>
<td>403</td>
</tr>
<tr>
<td></td>
<td>65-74</td>
<td>1162</td>
<td>1058</td>
</tr>
<tr>
<td>Stroke</td>
<td>45-54</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>55-64</td>
<td>90</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>65-74</td>
<td>353</td>
<td>300</td>
</tr>
</tbody>
</table>
(2) Risk factors

<table>
<thead>
<tr>
<th></th>
<th>45-64 years</th>
<th>65+ years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>34%</td>
<td>21%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blood Pressure</th>
<th>Men (40-64)</th>
<th>Women (40-64)</th>
<th>Men (40-64)</th>
<th>Women (40-64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median BP</td>
<td>134/82.8</td>
<td>128.9/78.7</td>
<td>131.6/82.0</td>
<td>129.9/79.2</td>
</tr>
</tbody>
</table>

In 1988, 80% of men and 82% of women between 40 and 64 years had cholesterol levels exceeding 5.2 mm/litre. Alcohol consumption per day for adults over 15 years dropped from 8.8g in 1981 to 7.9g in 1988. Over the same period, fats and oils, as a percentage of total dietary energy, remained at 40.8%. The median BMI (body mass index) for men was 25.4 and 24 for women.

(3) Control activities

An Advisory Committee's report on the prevention of cardiovascular disease was released by the Minister of Health in 1986. Various actions against tobacco use included warnings on packets, increasing tax and prohibiting sales to minors. Taxes on cigarettes have risen twice by 1% since 1986. The 'kick it in the butt' anti-smoking campaign has been implemented. There have also been activities through the Education department and wide-ranging legislation.

Nutrition-related activities such as 'Heart Food Festival', with television and other media coverage, have been instituted.

Papua New Guinea

(1) Disease patterns

Information is currently not available and communicable diseases remain the main priority. However, the impression is that NCDs are of increasing importance in urban areas.

The prevalence of diabetes mellitus in an urban village was recorded as 15.6% in 1977, as 0.3% in public servants in 1979 and 8.9% in a rural village in 1981 although differing methodologies were used and the populations under study were not strictly comparable.

Hospital admission cases do not show clear trends but there are marked regional and urban/rural differences in prevalence.

Information is not available for other NCDs.
(2) Risk factors

Again statistics are not available but they are presumed to be similar to those in other parts of the Pacific.

(3) Control strategies

Since the early 1980s there have been diabetic and cardiac clinics, both of which have registers. A position, as yet unfilled, for an NCD specialist medical officer has been created.

Other strategies include health education using newspapers, radio and television, home gardens and legislation against smoking.

Philippines

(1) Disease patterns

(i) Prevalence rates of major cardiovascular diseases:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Prevalence rates/1000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Hypertension &gt; 15</td>
<td>70 - 110</td>
</tr>
<tr>
<td>(b) Coronary artery disease 45 - 69</td>
<td>8</td>
</tr>
<tr>
<td>(c) Congenital heart disease 6 - 15</td>
<td>2 - 5</td>
</tr>
<tr>
<td>(d) Rheumatic fever/rheumatic heart disease 6 - 15</td>
<td>0.9</td>
</tr>
</tbody>
</table>

(2) Risk factors

A study of 397 children aged 6, 9, 12 and 15 years enrolled at a local school, showed the following:

(a) Hypertension (elevated diastolic pressure) 8.9% to 20%
(b) Hypercholesterolaemia 9.1% to 16.1%
(c) Smoking (12-15 years old) 6.5%
(d) Inactivity 17.9%

(3) Control activities

(a) A Comprehensive Community-based Cardiovascular Control Programme has been taking place in Pangasinan since 1977.
Republic of Korea

(1) Disease patterns

(i) Age-specific prevalence rates of cardiovascular diseases in 1980

<table>
<thead>
<tr>
<th>Age</th>
<th>Rate (per 100,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-24</td>
<td>539</td>
</tr>
<tr>
<td>25-34</td>
<td>1,140</td>
</tr>
<tr>
<td>35-44</td>
<td>2,192</td>
</tr>
<tr>
<td>45-54</td>
<td>3,625</td>
</tr>
<tr>
<td>55-64</td>
<td>4,380</td>
</tr>
<tr>
<td>&gt; 65</td>
<td>6,534</td>
</tr>
</tbody>
</table>

Data from medical insurance system.

(ii) Age-specific prevalence rates of cerebrovascular diseases by survey area in 1979

<table>
<thead>
<tr>
<th>Age</th>
<th>Urban area</th>
<th>Rural area</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-39</td>
<td>0</td>
<td>99</td>
</tr>
<tr>
<td>40-49</td>
<td>53</td>
<td>98</td>
</tr>
<tr>
<td>50-59</td>
<td>611</td>
<td>405</td>
</tr>
<tr>
<td>&gt; 60</td>
<td>2,527</td>
<td>1,889</td>
</tr>
</tbody>
</table>

Data from household survey.

(iii) Age-specific prevalence rates of hypertension in 1979-1981

<table>
<thead>
<tr>
<th>Age</th>
<th>Rate (per 100,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-49</td>
<td>3,305</td>
</tr>
<tr>
<td>50-59</td>
<td>8,078</td>
</tr>
<tr>
<td>60-69</td>
<td>14,663</td>
</tr>
<tr>
<td>&gt; 70</td>
<td>16,580</td>
</tr>
</tbody>
</table>

Data from the community based hypertension control programme in a Korean rural area.

(iv) Age-specific prevalence rates of diabetes mellitus in 1980-1983

<table>
<thead>
<tr>
<th>Age</th>
<th>Rate (per 100,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-29</td>
<td>600</td>
</tr>
<tr>
<td>30-39</td>
<td>900</td>
</tr>
<tr>
<td>40-49</td>
<td>3,400</td>
</tr>
<tr>
<td>50-59</td>
<td>7,100</td>
</tr>
<tr>
<td>60-69</td>
<td>10,400</td>
</tr>
<tr>
<td>&gt; 70</td>
<td>10,700</td>
</tr>
</tbody>
</table>

Data from the health screening programme of a general hospital in Seoul.
(2) Risk factors

No information is available.

(3) Control activities

No information is available.

Republic of Marshall Islands

(1) Disease patterns

(a) The hypertension prevalence in Majuro has been estimated as 4.5% for people aged 25 years and over.

(b) Cerebrovascular disease

In 1988, 12 persons were admitted to Majuro hospital with strokes.

(c) Rheumatic heart disease

The prevalence of rheumatic heart disease in persons under the age of 18 years is 0.1%.

(d) Diabetes prevalence has been reported to be 32% in Majuro, 31% in Ebeye and 17% in the other islands, and when corrected for age, in the urban centre it is 24% in the 30-40 years age group to a high of 65% for those over 55 years.

However morbidity and mortality data are generally incomplete or not available.

(2) Risk factors

Although these are presumed to be the same as the rest of the Pacific, actual data are not available.

(3) Control activities

There is a chronic disease programme in the Public Health programme with good intersectoral cooperation at an interministerial level.

There are US federally funded hypertension clinics and outreach clinics (fairs, shopping centres, etc) for screening. Screening through various venues, including prenatal and women's clinics, is important. The early identification of risk factors is one aim of this programme, followed by an integrated health education approach. Prevention programmes include risk factor education in the school curricula and public awareness through the radio and newspaper.
Samoa

(1) Disease patterns

Diabetes mellitus and other noncommunicable diseases are thought to have increased in recent years but Health Department data for morbidity and mortality are scarce. A survey reported in 1981 demonstrated a prevalence rate of non-insulin dependent diabetes mellitus of approximately 7.0% in urban groups and 2.7% in rural groups in the age group 20 years and over.

A rheumatic fever/rheumatic heart disease clinic has been operational since 1982. Using a modified Jones criteria for diagnosis, 55 cases were confirmed in 1988.

(2) Risk factors

Statistical information on actual levels is not available but risk factors are presumed to include changing physical activity patterns, increased fat, sugar and alcohol consumption with resultant obesity and increasing levels of smoking.

(3) Control activities

National health policies and Health Department control and prevention programmes are the main activities with the latter focusing generally on nutrition, diabetes mellitus, hypertension, chronic obstructive airways disease, rheumatic fever and rheumatic heart disease, anti-smoking activities and reducing alcohol consumption.

Republic of Singapore

(1) Disease patterns

(a) Cardiovascular diseases are responsible for 34% of all deaths in Singapore today compared with 13% three decades ago.

The age-adjusted (by direct method using the 1970 Singapore population) mortality rate declined steadily from 769 to 352/100 000 population between 1957 and 1987. Noncardiovascular deaths also fell from 649 to 234 over the same period. All cardiovascular deaths on the other hand rose from 120 to 138 between 1957 and 1981, before declining to 118 in 1987. Within this group, ischaemic heart disease rose dramatically from 27/100 000 to peak at 71/100 000 in 1986 before declining and levelling at 64/100 000. Mortality among males was 1.5 times that of females. Cerebrovascular disease rose from 40/100 000 to 50/100 000 in 1970 before gradually declining to 33/100 000 in 1987. Mortality levels among females were slightly higher than males. Hypertensive disease followed a similar trend, rising from 13/100 000 to 17/100 000 in 1970 before declining to 8/100 000 in 1987. Rheumatic heart disease declined from 9/100 000 to 2-3/100 000 since 1980. There was little difference between the sexes for these two diseases.
(b) Ethnic differentials:

The mortality level for ischaemic heart disease among Indians was 2.5 times that among Malays and Chinese, with the difference being greatest for males. This corresponds to findings on immigrant Indians elsewhere in the world. Cerebrovascular disease was marginally higher among Chinese while hypertensive disease was slightly higher among Malays.

(c) Diabetes mellitus

Diabetes mellitus, which in 1970 ranked thirteenth among the leading causes of deaths, has ranked sixth since 1980. However, this has been based on a single-cause mortality analysis.

(2) Risk factors

Cigarette smoking declined from 19% to 13.6% between 1984 and 1987. The decline was seen in both sexes and in all age groups and ethnic groups. The levels were 25% among males and 2% among females. The level among Malay males was the highest, followed by Indians (28%) and then Chinese males (23%). A national survey carried out in 1984 provided the following data on other risk factor levels:

Hypertension: The prevalence was highest among Malays (25.7% males, 19.0% females), followed by Indians (20.7% males, 11.0% females), then Chinese (15.2% males, 12.4% females).

Cholesterol: little variation was seen between the three ethnic groups.

(3) Control activities

In 1982, a blue paper "The National Health Plan" was drawn up which clearly stated that preventive health was to be the main thrust of the Ministry of Health national health policy until the year 2000. Following this, prevention and control activities against cardiovascular diseases have been the main priority of the Training and Health Education Department of the Ministry. The School Health Service has programmes for school children. Maximum use has been made of national media - TV, radio, newspapers, and magazines. Outreach programmes include major national and specific campaigns against smoking. Healthy life-styles, health fairs and training programmes for health and education professionals have been promoted and carried out. The government primary health clinics, as the service departments, also carry out face to face counselling of high risk groups. The past decade has also seen marked progress in the upgrading of the priority-selected disciplines of cardiology and cardiothoracic surgery, and cardiac rehabilitation.

In 1987, the Singapore Myocardial Infarct Register was set up according to the specifications of the WHO MONICA project.
Tonga

(1) Disease patterns

Studies conducted in the 1970s revealed high prevalence rates for all the major noncommunicable diseases namely hypertension, diabetes mellitus, and ischaemic heart disease. Follow-up surveys have shown an increasing trend for all the major diseases. Since 1962, heart diseases have become the main cause of death and communicable diseases have become less important as a health problem.

(2) Risk factors

Risk factors identified in Tonga include obesity, increased smoking, high alcohol consumption, high sugar consumption, and lack of physical exercise.

(3) Control activities

Control activities include health education, the training of health personnel, an RF/RHD screening programme, nutrition education, outpatient clinics, and an anti-smoking campaign.

Viet Nam

(1) Disease patterns

(a) The prevalence of hypertension is between 1.9% and 8% and thought to be increasing. Rheumatic fever/rheumatic heart disease prevalence is 0.21%-2%, with no clear tendency of decreasing yet. Hypertension and rheumatic heart disease are the two main problems of CVD in Viet Nam. The prevalence of acute myocardial infarction is 1.5% and it is increasing every year. Acute myocardial infarction and ischaemic heart disease in general are increasing but are not yet major health problems in Viet Nam.

(b) The mortality data for CVD as a whole shows a rate of 493/100 000 population. It is ranked tenth amongst the causes of mortality in Viet Nam.

In 1970, ischaemic heart disease made up 4.5% of all CVD autopsy cases, which percentage had risen to 14.9% by 1980. For cerebrovascular disease, cerebral haemorrhage due to hypertension represented 27.6% of 10 840 autopsy cases. The commonest form of stroke in Viet Nam is cerebral haemorrhage, which is as frequent as thrombosis or embolus.

(2) Risk factors

Prevalence data are not available.

(3) Control activities

Control and prevention programmes for CVD are nowadays an inseparable part of the National Health Programme for 64.5 million
Vietnamese. Two identical national CVD programmes exist, one for the northern and one for the southern part of Viet Nam. These two CVD programmes cover a variety of conditions but their main concern is the predominant single condition of hypertension. For reducing all risk factors for ischaemic heart disease and hypertension, these programmes recommend the "Zuong Sinh Method", a kind of well known "autotraining therapy", a traditional therapy from the 16th century in Viet Nam.

3. ACTIVITIES AND DISCUSSIONS

3.1 Epidemiology of noncommunicable disease

There are three major aspects to consider:

(1) the size of the problem;

(2) risk factors for disease; and

(3) the development of prevention and control programmes.

In identifying the size of the problem, we must have an indication of the accuracy of the data. Routine mortality statistics are often inaccurate and may vary within and between countries. An examination of the risk factors for cardiovascular disease indicates that while those few individuals with the highest levels of blood pressure and blood cholesterol are at highest risk, the largest number of deaths in a population occur among the larger number of the population at moderate risk. This should be considered when planning population programmes which may either concentrate on those at highest risk or attempt to reduce the risk across the whole population. Although there is a case for both 'high risk' and 'population' strategies, the 'population' strategy is likely to lead to a greater reduction in disease incidence and to be cheaper than the 'high risk' strategy. The potential impact of secondary prevention should not be underestimated, as a large proportion of those who present with ischaemic heart disease have had prior presentation to the medical services. A major impact on the community patterns of cardiovascular diseases could be achieved by efficient secondary prevention activities.

3.2 The Epidemiology of Diabetes Mellitus in the Western Pacific Region

While insulin-dependent diabetes mellitus (IDDM) is rare in developing countries, non-insulin-dependent diabetes mellitus (NIDDM) reaches its highest prevalence in non-European communities. Genetic predisposition to NIDDM appears to vary between populations, and in susceptible subjects certain potentially modifiable precipitants of the disease are strongly suspected. Of these, the three most important appear to be obesity, low levels of habitual physical activity, and aspects of the modern diet. The Western Pacific area is one of the best documented areas of the world and some recent estimates of the
prevalence of NIDDM using the WHO criteria are summarized in the Table below:

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Country</th>
<th>Age range</th>
<th>Prevalence(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Pacific:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micronesian</td>
<td>Nauru</td>
<td>&gt; 20</td>
<td>24.6</td>
</tr>
<tr>
<td>Micronesian</td>
<td>Kiribati</td>
<td>&gt; 20</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>rural</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>urban</td>
<td></td>
<td>8.1</td>
</tr>
<tr>
<td>Polynesian</td>
<td>Rarotonga</td>
<td>&gt; 20</td>
<td>5.5</td>
</tr>
<tr>
<td>Polynesian</td>
<td>Niue</td>
<td>&gt; 20</td>
<td>5.3</td>
</tr>
<tr>
<td>Melanesian</td>
<td>Fiji</td>
<td>&gt; 20</td>
<td>1.7</td>
</tr>
<tr>
<td>Melanesian</td>
<td>PNG*</td>
<td>&gt; 20</td>
<td>0.0</td>
</tr>
<tr>
<td>Melanesian</td>
<td>Highlands</td>
<td>&gt; 20</td>
<td>0.0</td>
</tr>
<tr>
<td>Melanesian</td>
<td>Solomon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melanesian</td>
<td>Islands</td>
<td></td>
<td>0.0</td>
</tr>
<tr>
<td>Melanesian</td>
<td>urban</td>
<td></td>
<td>0.0</td>
</tr>
<tr>
<td>Aboriginal</td>
<td>Australia</td>
<td>&gt; 20</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>(urban)</td>
<td></td>
<td>14.6</td>
</tr>
</tbody>
</table>

*Papua New Guinea

Of populations of South-East Asian ethnicity, Indians appear to be the most susceptible. Indian migrants to Fiji, Malaysia, Mauritius and Singapore all demonstrate prevalence of NIDDM of 10% or more. Whilst it was formerly believed that Chinese were rarely affected by NIDDM, recent reports cast some doubt on this, with high prevalence (in excess of 6%) now being reported for Chinese in Singapore, Taiwan and Mauritius.

The WHO classification of glucose intolerance (IGT) includes a category that is intermediate, between normal tolerance and diabetes mellitus. IGT has an unpredictable course, and is thought to represent a heterogeneous group of subjects, some of whom may progress towards frank diabetes, some of whom may have a transient abnormality, and some of whom may continue in a steady IGT state.

A survey of white Australians estimated the prevalence of IGT as approximately 4%. In the Western Pacific, the prevalence of IGT in Fiji Indians and Nauruans - approximately 10% and 18% respectively - reflects the high prevalence of NIDDM in these two populations. The prevalence of IGT in several other Pacific populations of Micronesian, Polynesian

and Melanesian ancestry varied widely, from almost total absence in the Solomon Islands to 17% in urban females in Kiribati. IGT was present in the Papua New Guinea highlanders, although there was no NIDDM. Compared with the high prevalence of NIDDM, IGT was surprisingly uncommon in an urban Australian Aboriginal population. Thus, there is a wide variation in the prevalence of IGT in populations, which to some extent mirrors their prevalence of NIDDM.

3.3 Smoking

At least 2.5 million deaths annually are attributed to tobacco-related diseases. Adult men in the more industrialized nations are smoking less and less. Nevertheless large numbers of young people, and particularly young women, are continuing to take up the habit.

The overwhelming majority of new smokers start before the age of 19 years. In Japan 20% of youths aged 15-17 years are smokers, as are approximately 29% of young Australian teenagers between 16-19 years. In the Philippines, 17% of boys 11-16 years of age regularly smoke, and approximately 25% of young men in China are addicted to tobacco smoking before they reach the age of 18 years.

Now more women smoke, they are suffering increased levels of lung cancer and cardiovascular diseases. Women smokers are also particularly at risk for some diseases such as cancer of the cervix, reduced fertility, earlier menopause, low birth weight babies and cardiovascular disease. Children growing up in smoking households are ill more often than children of nonsmokers. The overall effects on health are now well recognized; they are lung and other cancers, cardiovascular disease and respiratory tract pathology. It is a significant risk factor in all the important noncommunicable diseases.

In order to encourage the concept of tobacco or health, the establishment of national Tobacco or Health committees has been promoted. These aim to educate the public, with emphasis on including health education in school curricula at both primary and secondary levels. These committees involve the different mass media as well as governments and health personnel, in the promotion of anti-smoking; they also aim to increase taxes on tobacco products. This approach has been shown to be successful in the Region, e.g. in New Zealand and Hong Kong. The allocation of a certain percentage of cigarette tax revenues to health education and other smoking activities should also be encouraged.

Such committees should also promote legislative action to restrict the use of tobacco, and in particular create a smoke-free environment in public places, public transport and places of work. They should eliminate the advertising and promotion of tobacco products; control the level of harmful substances in tobacco products; and ensure that all tobacco products are labelled with strong and varied health warnings (including imported cigarettes). The import, manufacture and sale of smokeless tobacco products should be banned; tobacco taxation policies should be formulated and enforced; the sale of cigarettes to minors should be prohibited; and vending machines should be prohibited.
3.4 Prevention and Control of Rheumatic Fever and Rheumatic Heart Disease in the Western Pacific Region

The prevention and control of rheumatic fever/rheumatic heart disease is a major social goal in some developing countries of the Western Pacific Region. Rheumatic fever and rheumatic heart disease are potentially preventable conditions and a community-oriented prevention programme is feasible and cost-effective.

The annual incidence of rheumatic fever is declining in China, Japan, Australia, New Zealand and some other countries in the Western Pacific Region. The recent highest incidence rate was reported as 153 patients/year/100,000 Maori children aged 5-19 years in Rotorua, New Zealand in the period 1972 to 1983. The lowest rate was 13.9/year/100,000 for Tongans aged 5-24 in the period 1981 - 1985.

The prevalence of chronic rheumatic heart disease is also decreasing in some countries in this Region. The highest prevalence figure was reported as 18.6/1000 children aged 5-19 years in Rarotonga, Cook Islands in 1982. One of the lowest prevalence rates is that reported in Japan of 0.7/1000 school children.

For further implementation of the prevention and control programme of rheumatic fever/rheumatic heart disease, the most important requirement for primary health care is an adequate supply of benzathine penicillin or appropriate substitutes for secondary prevention. Another key requirement is accessibility to primary health care for children suffering from a sore throat, who may be affected by such factors as direct payment, and distance from home. The third important component is to transfer the minimal information necessary for the prevention of rheumatic fever and rheumatic heart disease to the public and to train health personnel in primary health care.

3.5 Integrated NCD Control

Noncommunicable diseases (NCD) such as cardiovascular diseases (CVD), cancer, diabetes, mental disorders and accidents are responsible for the bulk of mortality and morbidity in developed countries and are becoming so in a growing number of developing countries. Each is to some extent preventable but many programmes have been developed to deal with one or other of the NCDs in isolation. However, since the diseases are multifactorial and several of the risk factors are common to more than one disease, multisectorial intervention is necessary to design effective control programmes.

Justification for Integrated Programmes

Epidemiological research has identified a number of factors which are of etiological importance in NCD and are at the same time common to many of them. Elevated plasma cholesterol promotes the development of coronary heart disease, as well as certain types of malignant tumour. Smoking is one of the main causes in the development of coronary heart disease, some malignant tumours and chronic nonspecific respiratory diseases. Obesity contributes to the development of CVD, malignant tumours, diabetes mellitus and obstructive lung diseases.
The concept of integration reflects the recognition that various chronic conditions have a number of risk factors (mainly related to life-style) in common. On this basis, it was supposed that the simultaneous reduction of several risk factors common to major NCDs would reduce the corresponding noncommunicable disease. Experience is being accumulated in pilot areas to demonstrate the feasibility of community-based programmes for preventing CVD and some other NCDs.

It permits the managerial unification of a set of preventive and other control activities that should lead to the prevention and control of major NCDs and to the promotion of health in entire communities.

The programme is economical since it uses existing health and other services, removing unnecessary duplication both in research effort and in efforts to prevent and control the diseases.

It has also been recognized that there is increasing public awareness that compartmentalization has resulted from the disciplinary structure of existing medical services. Preventive and curative medicine should not be separated. Primary prevention is typically a multisectoral undertaking, with the health sector often having the responsibility for coordinating the work of other sectors.

The programme should be international, which should be developed to reduce risk factors using methods which are applicable to many different environments. Research and evaluation components should also be incorporated into the programme. The programme will need to be transmuted from a simple to a more complex design and it should gradually expand from local pilot areas to becoming nation-wide. The programme will be a long-term one.

4. GUIDELINES: DEVELOPING A CONTROL PROGRAMME

General Principle

General principles can be applied to developing a control programme for any particular health problem but they may need to be modified according to local circumstances and customs. A list of general principles follows with two examples of their application in the development of programmes for diabetes mellitus and hypertension in Annex 3.

(1) Identify the priorities for the most important and feasible programme to develop.

(2) Identify the aims and objectives of the programme.

(3) Collect available information on disease patterns and perform a baseline epidemiological survey if data are not available.
(4) Communicate with:

(a) members of the target population through a survey to identify knowledge, attitudes and practice in order to plan appropriate intervention;

(b) health professionals to ensure that the intervention is feasible and relevant to other activities; and

(c) 'power groups' to ensure political and funding support for the tentative programme. The use of baseline data and/or survey results may be very valuable.

(5) The planning and implementation of intervention strategies:

(a) identify detailed objectives and specify targets for the intervention;

(b) obtain approval for resources, manpower and the budget;

(c) confirm political approval and attempt to enact legislation if it is part of the programme;

(d) confirm professional approval and the cooperation of medical services;

(e) establish a multisectoral planning committee;

(f) identify possible barriers to the implementation of the programme and either overcome them or modify the plans;

(g) draw up a timetable;

(h) appoint personnel;

(i) identify training needs and attempt to meet them;

(j) choose and pre-test intervention methods/educational materials; and

(k) approach the target population (and control population if appropriate) and implement the strategies as identified in 5a;

(6) Evaluation of programme:

(a) describe the structure of the programme;

(b) describe the process measures; and
(c) measure the outcome variables. These should be directly linked to the objectives listed in 5a which should have been used to calculate the sample size needed to be able to make a meaningful evaluation. Outcome measures may be interim or final and include changes in knowledge, attitudes and practices and trends in morbidity or mortality data. Estimates of the cost-effectiveness of the programme should be made.
PROVISIONAL AGENDA

1. OPENING CEREMONY
2. ADOPTION OF AGENDA
3. EPIDEMIOLOGY AND NONCOMMUNICABLE DISEASES
4. COUNTRY REPORTS
5. WHO PROGRAMMES IN THE WESTERN PACIFIC REGION
6. ASPECTS OF SMOKING
7. DEVELOPMENT OF NATIONAL GUIDELINES
8. EPIDEMIOLOGY OF DIABETES IN THE WESTERN PACIFIC REGION
9. EPIDEMIOLOGY OF CARDIOVASCULAR DISEASES IN THE WESTERN PACIFIC REGION
10. INTEGRATED NONCOMMUNICABLE DISEASE CONTROL
11. EXPERIENCE IN DEVELOPING CVD CONTROL PROGRAMMES
12. DEVELOPMENT OF MANAGEMENT GUIDELINES FOR NATIONAL PROGRAMMES
13. CLOSING CEREMONY
### LIST OF PARTICIPANTS, CONSULTANT, TEMPORARY ADVISERS AND SECRETARIAT

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Opening Remarks by the Regional Director to the Regional Workshop on the Epidemiology and Control of Cardiovascular Diseases and Diabetes Mellitus, Manila 24 - 28 July 1989

Distinguished Participants, Ladies and Gentlemen,

I am very pleased to be able to welcome you to the Regional Workshop on the Epidemiology and Control of Cardiovascular Diseases. Training courses on the epidemiology of cardiovascular diseases have been held by the World Health Organization in the past but this is the first meeting to combine a discussion of both cardiovascular disease and diabetes. The clinical features of these diseases are of course quite different, but risk factors, and means of control and prevention have many features in common.

We know that obesity and lack of physical activity are important in the development of both diabetes and of many types of cardiovascular disease. Aspects of diet such as a high saturated fat content and a low fibre intake are also important. Tobacco use is a major risk factor which increases the risk of developing coronary heart disease and also increases the likelihood of complications in diabetic patients.

A variety of noncommunicable diseases are affected by personal habits or preferences, or what we often call life-style. These diseases include not only cardiovascular diseases and diabetes, but also some types of cancer, chronic respiratory diseases, diseases of the mouth and teeth, and some mental disorders.

In most countries in the Western Pacific Region, noncommunicable diseases, especially cardiovascular diseases and cancer, are among the leading causes of death. Communicable diseases remain important in children but in adults morbidity and mortality from noncommunicable diseases are increasing.

In the past, the World Health has concentrated its efforts on communicable disease control and prevention. It is now time to give increased attention to noncommunicable diseases.

The World Health Organization is now promoting the concept of integrated noncommunicable disease control programmes. We believe that promotion of a healthier lifestyle including adequate physical exercise, a well balanced diet, and avoidance of tobacco will eventually result in a healthier population.

During this workshop, you will review the epidemiology of cardiovascular diseases and diabetes in this Region. You will also discuss the development of national prevention and control programmes and how best such programmes should be managed.

I hope that you will return to your own countries with renewed and strengthened enthusiasm for the task of developing and implementing programmes for the control of noncommunicable disease.

I wish you an enjoyable and productive week in Manila.
DEVELOPING A CONTROL PROGRAMME: EXAMPLES

A Diabetes Mellitus Control Programme

1. This was identified as a high national priority by many representatives.

2. The aims are to use a combination of primary, secondary and tertiary prevention strategies to reduce the burden of diabetes on the population (detailed objectives are spelt out later).

3. Currently available information would include hospital (morbidity) data and national data on sugar, tobacco and fat consumption. A small scale population sample survey would need to be performed to identify levels of glucose intolerance, body mass index and blood lipids as well as cigarette smoking and exercise patterns.

4. A community survey (possibly incorporated in 3 above) would identify present knowledge and attitudes as well as dietary habits.

5. The planning and implementation of primary, secondary and tertiary prevention strategies can be considered separately. However, an intersectoral national committee would be established to develop detailed objectives and draw up the detailed programme. Primary prevention should be based on health education, legislation for taxing and pricing and agriculture, and would require close cooperation with non-government organizations. The example of a tax on tobacco to be used for health education and evaluation might be followed. Secondary prevention would aim to induce regression and reduce progression of atherosclerosis complications as well as to prevent complications. Strategies might include population screening, early detection, appropriate case management, health education and counselling of patients and families, training of health personnel, and provision for research. Tertiary prevention would include rehabilitation, further patient and family education and counselling and early intervention and management of complications. Strategies would include the development of noncommunicable disease or diabetes centres.

6. Evaluation would depend in part on the availability of resources. A follow-up population survey to assess changes in previously measured parameters might be complemented by continuous monitoring of morbidity patterns and of patterns of health service utilization.

A Community Hypertension Control Programme

1. This was seen as a high national priority by many representatives.
The aim of the programme was to use a combination of primary and secondary prevention activities to improve the control of hypertension in the community (detailed objectives follow late).

Relevant data on patterns of cerebrovascular disease mortality, morbidity and resource implications should be collected. A baseline summary on a random population sample will measure levels of blood pressure and obesity.

As part of the population survey above, information will be collected on knowledge of hypertension and its risk factors, previous experience of blood pressure measurement and treatment and use of medical services. Health professionals will be contacted and asked for cooperation and provided with information about the programme and politicians, the clergy and non-governmental organizations will also be given information.

The objectives of the programme are interim (it is beyond its scope to be able to provide measurable changes in community blood pressure levels or diseases rates). Objectives include observing an increased awareness of hypertension and its complications in the community, an increased proportion of the community with a recent blood pressure measurement, an increased proportion of known hypertensives to be on treatment, improved compliance with treatment and reduced levels of obesity, smoking, alcohol and salt intake and physical inactivity both among hypertensives and in the general population. Targets will be developed specifying the amount of change to be sought and the blood pressure cut-off points to be used in the definition of 'hypertension'.

The intervention strategies will include community health education, screening of adults aged 35 years or more, training for health personnel to measure blood pressure and provide advice on smoking, obesity and physical activity to screenees and advice on appropriate treatment of confirmed hypertensives. Training of personnel in research and evaluation methodology will be encouraged.

Evaluation will entail the effect of baseline measures to assess if the stated objectives have been met. A comparison between three groups will allow quantification of the effect of the programme - these groups will be community health education only, health education plus screening and follow-up advice and treatment, no active intervention (control population).