MINISTRY OF HEALTH

ANNUAL COMPREHENSIVE

HEALTH REPORT

YEAR 2000

BELIZE
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Foreword

A review of health data for the past four years shows that Belize is experiencing a transition from communicable to non-communicable diseases (NCD’s). For the third consecutive year, Road Traffic Accidents ranked number one among the ten leading causes of mortality, followed by hypertension, Cerebrovascular Accidents and Diabetes. In 1999, NCD’s contributed to 77.8% of all deaths in the country.

Non-communicable diseases share a relatively small number of common and preventable risk factors such as physical inactivity, tobacco use, unhealthy diets and unsafe driving practices, to mention a few. Actions of the Ministry Of Health to curb the impact of these conditions will focus on preventing and controlling the risk factors in an integrated manner, through health education and health promotion, and by mobilizing community involvement and support in health promoting actions and behaviors.

The newly developed National Health Information and Surveillance Unit goes beyond the traditional practice of collecting morbidity and mortality information. Data is also collected on known risk factors for chronic, non-communicable diseases, with the aim of supporting the planning process and monitoring behavioral changes in the society.

Health and diseases are not opposite occurrences, but different degrees of adaptation of biological organisms to the surrounding environment. Health therefore, is the equilibrium that results from the interaction between man and factors in the environment to which he is intimately attached. The loss of this equilibrium results in disease. Factors in the biological, socio-economic and physical environment, are continuously interacting to create conditions supportive of health or disease. It is the knowledge, manipulation and control of these environmental factors that will bring about the desired results.

While the Health Sector Reform project allocates considerable amount of resources to the upgrading of secondary and tertiary health care institutions, significant efforts will be directed toward the strengthening of primary care and preventive community health programs. The health care system therefore, while providing curative care, will put emphasis on community empowerment through health education and health promotion.

In an effort to document progress of the health situation of Belize, and the performance of the health care system, it has been resolved that in the future, annual comprehensive reports will be developed and circulated.

The present report and the achievements here presented are the results of the coordinated efforts of top and middle managers, health care providers and support services. It is the hope that this report will serve not only to establish baseline information, but also to aid in the continuous process of planning and evaluation of the health care system. Please note that unless otherwise indicated, the statistics presented are those for 1999, the most recent year for which complete data are available.

Dr. Errol Vanzie
Director of Health Services
1. **INTRODUCTION**

1.1 Geopolitical and Socio-economic Aspects

Belize is a Caribbean country located in Central America. At 15 degrees 53' West to 18 degrees 30' North latitude, Belize lies in the outer tropics or subtropical geographic belt. It is bordered by Mexico in the North, Guatemala in the West and the South, and the Caribbean Sea in the East. North to South, the country is 274 km (170 miles) long and is 109 km (68 miles) wide east to west. The total land area is 22,700 km² (8,867 square miles), which is divided into six administrative districts with varying size, population, and ethnicity. Corozal is the most northern district and Toledo lies in the extreme south.

A former colony of Great Britain, Belize is the only English-speaking country in Central America. It is nearer in similarity to other Caribbean countries in culture, politics, and economy, however, due to its location, Spanish is widely spoken and the cross-culturalization process is a growing reality.

Belize is a sovereign state governed by the principles of parliamentary democracy based on the British Westminster system. The titular head of state is Queen Elizabeth II, represented by a Governor General. A Prime Minister and Cabinet constitute the executive branch of the government while a 29 member elected House of Representatives and a nine-member appointed Senate forms a bicameral legislature, the National Assembly. The Cabinet consists of Ministers and Ministers of State who are appointed by the Governor General on the advice of the Prime Minister.

Belize City and Belmopan, the capital of the country, are each administered by nine and seven member elected City Councils respectively. The other five districts have seven member local governments known as Town Boards. At the village level, administration is carried out by seven member Village Councils that operate under the new Village Council Act. In the southernmost District of Toledo the “Alcalde” or mayoral system operates in the villages.

Belize’s economy has historically been dominated by agricultural exports, which include sugar-cane, citrus, bananas, and marine products accounting for 77% of total domestic exports in 1999. Belize also relies heavily on forestry, fishing, and mining as primary resources which, when combined with agriculture, account for 21.8% of the GDP. Tourism has recently become a growing industry adding significantly to the country’s economy.
The principal socio-economics indications are depicted in table I.

### Table I
Principal Socioeconomic Indicators
Belize 1991-1999

<table>
<thead>
<tr>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Public expenditure as a percentage of GDP</td>
<td>N/A</td>
<td>41.2</td>
<td>38.5</td>
<td>37.1</td>
<td>32.7</td>
<td>30.4</td>
<td>32.0</td>
<td>33.5</td>
<td>37.1</td>
</tr>
<tr>
<td>Public social spending as a percentage of GDP</td>
<td>N/A</td>
<td>10.9</td>
<td>14.3</td>
<td>N/A</td>
<td>14.7</td>
<td>10.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total spending on health as percentage of GDP.</td>
<td>3.3</td>
<td>2.6</td>
<td>4.4</td>
<td>5.7</td>
<td>3.3</td>
<td>2.4</td>
<td>2.6</td>
<td>3.5</td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE:** Central Statistical Office

The present administration’s main priorities as elaborated in its “Set Belize Free Manifesto 1998-2003” are to reduce taxes and remove inefficiencies, encourage investment, stimulate economic activity, reduce unemployment, maintain the stability of the Belize dollar, regulate monopolies and reduce utility rates, modernize Belize’s industries, establish the small farmers and business bank, develop Commercial Free Zones and strengthen rural economies.

The 1997 Human Development Report ranks Belize at 63 out of 175 countries in terms of the Human Development Index. This places the country in the “High Human Development” ranking and among the top 30 in the developing world. In the overall health system performance appraisal conducted by the World Health Organization during the year 2000, Belize ranked 69th from among 191 member countries.

The unemployment rate in 1999 was 13.8%, an increase of 1.3% from 1995. There is gender disparity in the employed work force, with approximately 70.9% males and 29.1% females in 1996, the most recent dates for which statistics are available. Unemployment, at a recorded 32%, was highest among the 14-19 age group.

A 1995 Poverty Assessment conducted by the Caribbean Development Bank, Kairi Consultancy, the Ministry of Economic Development and the Central Statistical Office, reported that 33% of Belizeans live in poverty, with 13% falling into the “very poor” category. There is discrepancy
among males and females, and among districts in respect to poverty. Of the male population, 32.8% are poor whereas 33.1% of females are poor. Of male heads of households, 23.6% are considered poor while 30.5% of female heads are poor. In Toledo, where the greatest concentration of Mayas live, 57.6% of the population are considered poor, whereas only 24.9% of Orange Walk’s population, who are mainly of Mestizo descent, are considered poor.

Table II
Socio-economic Indicators by District Belize

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Corozal</td>
<td>88.5</td>
<td>37.0</td>
<td>26.7</td>
<td>11.8</td>
</tr>
<tr>
<td>Orange Walk</td>
<td>90.5</td>
<td>27.5</td>
<td>24.9</td>
<td>5.4</td>
</tr>
<tr>
<td>Belize</td>
<td>86.5</td>
<td>57.0</td>
<td>24.5</td>
<td>16.2</td>
</tr>
<tr>
<td>Cayo</td>
<td>82.0</td>
<td>28.5</td>
<td>41.0</td>
<td>14.5</td>
</tr>
<tr>
<td>Stann Creek</td>
<td>84.5</td>
<td>18.5</td>
<td>26.5</td>
<td>8.4</td>
</tr>
<tr>
<td>Toledo</td>
<td>70.5</td>
<td>28.5</td>
<td>57.6</td>
<td>16.9</td>
</tr>
<tr>
<td>COUNTRY</td>
<td>83.7</td>
<td>39.0</td>
<td>33.0</td>
<td>12.8</td>
</tr>
</tbody>
</table>

The 1996 National Literacy Survey, conducted by the Central Statistical Office (CSO) showed a basic literacy rate (those who completed up to Standard Five or beyond of the formal education system) of 75.1%. However, only 42.4% of the population aged 10-65 years can be described as functionally literate (based on an assessment of specific reading and comprehension skills). The primary school completion rate, defined as a successful exit from the primary school system regardless of the age of completion, is probably in the range of 98%, based on the Ministry of Education’s annual dropout rate of approximately 1.5%. The statistics on the transition from primary to secondary schools reveal a high transition rate, of approximately 80%. However this masks the reality of access to secondary education. The Belize Study 20/20 Initiative reported an average of approximately 41% attendance at secondary schools of an age cohort 15-19 years for the period under review. The average percentage for males was significantly lower (3-9%) than for females.

1.2 Demography

The total enumerated population of Belize as at May12, 2000 was 240,204. Comparing this with the previous census count of 189,392 on
May 12, 1991, the inter-census growth rate is 2.7% per annum. This growth rate is approximately one percent point higher than the growth between 1980 and 1991.

At 28%, the Belize District continues to represent the largest proportional share of the population. However this has declined by two percentage points from its level in 1991. The Urban/Rural distribution of the population is of some significance, with 52% of the population living in the rural areas while 48% live in urban centers. This is the same as the 1991 urban/rural population ratio of 48:52. In the year 2000 the district of Orange Walk recorded the largest urban to rural shift, whereas the Cayo District accounted for the largest shift in 1991.

Forty-four percent (44%) of the population was less than fifteen (15) years of age while 20% was between 15-24 years old. The population may be considered young since children and adolescents represented almost two thirds of its total. The working age population (15-59) accounted for one half of the total population while the elderly (60 years and older) represented (6%). The census data also revealed that there were more males than females. However, the urban areas had more females than males, while the opposite was true in the rural areas. These differences were minimal. Women in the reproductive age group (15-49 years) accounted for 45.6% of the total female population. (Figure I and Table III).

![Population Pyramid By Age & Sex](image-url)
Although small, Belize is home to at least 9 different ethnic groups. According to the 1999 Labour Force Survey, Mestizo (46.4%), Creole (27.7%), Maya (10%), Garifuna (6.4%), East Indian (3.3%), Mennonites (3.3%) and other smaller groups representing (2.9%) made up the population. Within the smaller groups Chinese, Syrians and Lebanese make up the majority.

**Total Fertility Rates**

There has been a gradual decline in fertility rates over the past three decades. The estimated Total Fertility Rate (TFR) based on the 1991 census was 4.7. According to the Family Health Survey conducted in 1999, the TFR has declined to 3.7. The corresponding rate from the Vital Registration System in 1999 was 3.3, which collaborates closely with the figure from the survey. Even though the TFR has decreased, the rate is one of the highest compared to that of other countries in this region. Differentials in fertility by urban/rural residence, educational and socio-

### Table III
Population by Age and Gender

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00-04</td>
<td>15,425</td>
<td>15,305</td>
<td>30,730</td>
</tr>
<tr>
<td>05-09</td>
<td>16,840</td>
<td>16,870</td>
<td>33,710</td>
</tr>
<tr>
<td>10-14</td>
<td>18,030</td>
<td>16,205</td>
<td>34,235</td>
</tr>
<tr>
<td>15-19</td>
<td>14,385</td>
<td>13,635</td>
<td>28,020</td>
</tr>
<tr>
<td>20-24</td>
<td>9,380</td>
<td>10,320</td>
<td>19,700</td>
</tr>
<tr>
<td>25-29</td>
<td>7,605</td>
<td>8,705</td>
<td>16,310</td>
</tr>
<tr>
<td>30-34</td>
<td>7,465</td>
<td>7,965</td>
<td>15,430</td>
</tr>
<tr>
<td>35-39</td>
<td>7,080</td>
<td>7,885</td>
<td>14,965</td>
</tr>
<tr>
<td>40-44</td>
<td>5,730</td>
<td>6,265</td>
<td>11,995</td>
</tr>
<tr>
<td>45-49</td>
<td>4,475</td>
<td>4,080</td>
<td>8,555</td>
</tr>
<tr>
<td>50-54</td>
<td>3,650</td>
<td>3,630</td>
<td>7,280</td>
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<tr>
<td>55-59</td>
<td>2,905</td>
<td>2,435</td>
<td>5,340</td>
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<tr>
<td>60-64</td>
<td>2,220</td>
<td>2,295</td>
<td>4,515</td>
</tr>
<tr>
<td>65-69</td>
<td>2,365</td>
<td>1,920</td>
<td>4,285</td>
</tr>
<tr>
<td>70-74</td>
<td>1,845</td>
<td>1,660</td>
<td>3,505</td>
</tr>
<tr>
<td>75-79</td>
<td>1,110</td>
<td>1,170</td>
<td>2,280</td>
</tr>
<tr>
<td>80-84</td>
<td>465</td>
<td>765</td>
<td>1,230</td>
</tr>
<tr>
<td>85+</td>
<td>595</td>
<td>710</td>
<td>1,305</td>
</tr>
<tr>
<td>DK/NS</td>
<td></td>
<td></td>
<td>121,570</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>121,820</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>243,390</td>
</tr>
</tbody>
</table>

SOURCE: Central Statistical Office
economic levels, as well as ethnicity and religion estimated from the 1991 Family Health Survey (FHS), revealed several facts. Rural women have on average two children more than urban women. Non-working women have 3 children more than working women while women of low socio-economic level have four children more than those of high socio-economic level. Total Fertility Rates were lowest among women with high socioeconomic status (2.7), working women (2.9) and those women with nine or more years of schooling (3.2).

Transient Population/Migration

The 1991 census revealed that almost 90% of the total foreign-born population came from Guatemala, El Salvador, Mexico, Honduras, and United States, in decreasing order of size. Most immigrants from Guatemala, El Salvador and Mexico settled in the rural areas of the country, whereas most from the United States moved into urban areas. The Hondurans were almost equally distributed residing in both urban and rural areas. Since the early 1990s, there has been significant immigration from Asia, mainly from mainland China and Taiwan. Between 1990 and 1994, some 13,000 applications for residency were processed for persons from Asia. The 1991 census revealed that over 70% of Belizean emigrants were from urban areas. Most people who left (53.6%) were between the ages of 15 and 24.

Indigenous Population

Belize has a large indigenous population (Mayan, Garifuna). The Mayan groups constitute about 10 percent of the population, and of these, two major groups, the Mopan and Ketchi, primarily live in remote areas of the Toledo District. The Garinagu, who live mainly in the Stann Creek District and along the Toledo coast, make up some 6.4 percent of the population.

With regards to health, however, fertility rates are highest in both the Stann Creek and Toledo districts where the Garinagu and Maya live. The national fertility rate is 3.8, whereas the average rates for the two Southern districts, is 5.6.

Source for social, demographic or epidemiological data on the indigenous people of Belize is limited. However, several studies have been done focusing on Southern Belize. A 1999 Poverty Assessment Report shows a poverty rate of 58% for the district of Toledo. Water and sanitation coverage is the lowest in the South with 100% of urban households having adequate water supply while only 69% of rural households do. Health data are not presently available by ethnicity but a recently introduced health information system of the Ministry of Health has begun to address this important issue. Two key indicators of health status are nutrition and iron deficiency anemia in pregnant women.
Both the Maya and Garinagu have Councils that advocate for their peoples’ interest and development. Today these groups have formed a wider “Belize National Indigenous Council” (BENIC) resulting in an organized means of carrying out wider networking. Other groups exist in the South including women’s groups, health related and environmental non-governmental agencies and voluntary organizations.

*Life Expectancy Rate*

In 1999 Life Expectancy at birth was 71.87 years. This rate is similar to what obtains in other countries in the Americas. Females have a higher life expectancy (74) than males (70), living on an average of 4 years longer.

**2. GENERAL MORBIDITY AND MORTALITY**

Belize is experiencing a transition from communicable to non-communicable diseases. In 1999 non-communicable diseases were prominent among the ten leading cause of hospitalization.

According to data collected by the National Health Information and Surveillance Unit in the year 2000 the leading causes of hospitalizations for all ages were normal deliveries and obstetrical gynecological conditions which accounted for 25.6% (4,021 cases) and followed by gastroenteritis with 3.2%, a category which includes gastrointestinal inflammatory infections, functional and infectious diarrhoea. Lung conditions including bronchopneumonia, asthma and pneumonia ranked third. This information is depicted in Table III.

It is important to note that even though road traffic accidents did not rank among the ten leading causes of hospitalization, it has been the number one cause of death over the past three years. Data from sentinel outpatient clinics and community-based programs suggest that the leading causes of morbidity are acute respiratory infection and other communicable diseases such as malaria and gastroenteritis.

*Crude Birth Rate*

The Crude Birth Rate (CBR) has shown a continuous decline. Data from the Central Statistical Office reveal that the CBR was 43.1 in 1986, 33 in 1991 and 25.5 per thousand live births in 1999. This dramatic decline in the CBR is probably due to the effect of continuous health education, limiting of family size, and availability of affordable contraceptives through BFLA.
Births to the under-twenty population, even though on the decline, have remained significantly high. In 1991, 1,221 of the 6,555 births were to teenagers, which is approximately 18.6% of the births in that year. The proportion was 17.9% in 1996, and 17.4 in the year 1999. These proportions are among the highest in the English-speaking Caribbean and are an indication of the teenage fertility rate. There are limited opportunities for teenage mothers to continue their secondary education. Very few secondary schools encourage teenagers to return after giving birth. Most girls discontinue their education and few go on to alternative evening programs.

**Crude Death Rate**

The Crude Death Rate (CDR) declined from 6.8 in 1990 to 4.3 in 1996. However according to provisional data from the Central Statistical Office the year 1999 has seen an increase to 5.0. The CDR has remained higher for males (5.3) than females (3.4).

**2.1 Morbidity**

**Non-Communicable Disease**

In the pediatric population conditions originating in the prenatal period occupied fifth place within the first ten leading causes of hospitalization. This gains importance by the fact that this group of diseases is closely linked to gestational conditions and to conditions of the first 28 days of life of the newborn.

Cardiovascular diseases have always ranked within the first ten causes of hospitalization. In the adult population, heart attacks, cerebrovascular accidents and hypertension were responsible for a significant portion of the hospitalizations. Diabetes Mellitus, a predominant chronic disease also ranked within the first ten. The prevalence and magnitude of Diabetes and Hypertension is such that special clinics are held in all regional hospitals to manage these. Physician specialists on a weekly basis conduct these clinics.

Diseases of the respiratory system such as bronchopneumonia, bronchitis, asthma also remains within the ten leading causes of hospitalization.

Injuries, poisoning and certain other consequences of external causes occupied the number one cause of morbidity as a group of diseases. These included road traffic accidents, events caused by violence such as wounding, intentional or non-intentional (e.g. homicides).
Family Violence

Family Violence is fast becoming a serious public health problem. The National Health Information and Surveillance Unit (NHISU) highlighted this during the year 2000. Since the introduction, in September of 1999, of the module for data collection of domestic violence, a total of 562 cases were documented. Of these, 94% (531 cases) were registered in Belize District. Underreporting in the other district is a possible reason for the increased incidence of family violence in the Belize district.

The family violence surveillance module has facilitated the disaggregation of injuries occurring as a result of family violence.

Eighty-five (85%) percent of the cases of family violence were in the age group 20 to 49 years, of which 86% of the victims were females. Most of the cases recorded (89%) occurred in the urban areas. It is interesting to note that 459 cases (81%) were persons who had finished either primary or secondary school level. Most of the victims (47%, 267 cases) were living in a common law relationship, and more than 50% of the cases either suffered psychological and/or physical abuse. The aggressors were usually of the same race and age group as the victims. In 67% of the cases the aggressor had had a criminal record, which can possibly be associated with his aggressive behavior within the home.
Abortion Trends

The total number of abortions, regardless of classification, has reflected a small upward trend, being 528, 556, 600, 616 in 1996, 1997, 1998 and 1999 respectively.

Communicable Diseases

Vector Borne Diseases

The Vector Control Program is one of the largest programs that has as its primary objective the control of Malaria and Dengue. Over the last five years there has been a steady decline in the number of Malaria cases from over 10,000 to 1,482 cases in the year 2000. The main strategies used have been: adulticiding, larviciding, environmental sanitation, and case diagnosis and treatment. A very important activity was the indoor spraying against adult vector mosquitoes where approximately 22,074 houses were sprayed in two cycles. The bordering villages with Mexico received special attention after Hurricane Keith. Field teams composed of Mexican and Belizean Vector Control personnel entered those villages and conducted indoor spraying and breeding site control, ultra-low-volume
(ULV) spraying and entomological surveys were also done. This was to minimize the risk of Malaria or Dengue transmission considering the extreme flooding that occurred in both northern districts. Belize River Valley, which is an area where spraying is not usually carried out, was also sprayed.

On a daily basis premises inspections are carried out by the Aedes inspectors with the objective of controlling breeding sites of this mosquito. The ULV spraying is routinely done targeting adult aedes aegypti mosquitoes, the vectors of dengue fever. Domestic water vessels are treated with temephos granules (Abate) and simultaneously, pertinent information is provided to the public through individual household visits or through the mass media. After Hurricane Keith the intense surveillance of Malaria and Dengue prevented these diseases.

The Belize Red Cross with assistance of the Red Cross International Federation assisted in this effort with a clean up campaign and vector control spraying in the Cayo district. The impact was such that only four (4) dengue cases were detected throughout 2000 in all six districts, compared to 9 cases in 1998, and 7 cases in 1999. It should be mentioned, however, that due to the limited capacity for serological testing in Belize there is the possibility of cases remaining unreported.

**MALARIA INCIDENCE BY YEAR**

**BELIZE 1986 - 2000**

**HIV/AIDS and other Sexually Transmitted Diseases**

In the general population infection with the Human Immunodeficiency Virus (HIV) continues to show an upward trend and there has also been an increase in the percentage of clients being tested. The number of cases has increased from 72 in 1995 to 226 in the year 2000. For the same period the positivity rate increased from 1.5% to 3.8% in relation to the total number of clients tested at the Central Medical Laboratory. The
male/female ratio of infection decreased from 1:9 in 1996 to 1:2 in the year 2000. This clearly reflects a feminization of the epidemic. The age group mostly affected in the year 2000 was the 20 - 49 year-old age group with 73% of all cases. Since 1996 this age group has represented between 73 to 86% of the total number of cases per year. This epidemic has threatened the economically active population and therefore represents a serious challenge to the work force if the present trend is not curbed.

There are a cumulative total of 21 infants who have tested positive for the HIV since the beginning of the epidemic in 1986. Of these 11 (52%) were detected in the year 2000. Realizing the gravity of the situation the Ministry of Health, with the assistance of PAHO Belize and the Ministry of Health, Bahamas, embarked on a joint project, the “Mother to Child Transmission Prevention and Control Project” (MTCT). The ultimate goal is to reduce the transmission of HIV from mother to child.

The MTCT prevention program has several components, which are:

i. voluntary testing of pregnant women
ii. counseling pre and post natal testing and additionally if positive
iii. administration of antiretroviral medication to pregnant mothers who test HIV positive and to the newborn immediately after birth
iv. replacement nutrition and supplemental feeding to infants who are not allowed to be breast feed

NEW CASES OF HIV IN PEOPLE TESTED AT CML BY YEAR

BELIZE - 1986 - 2000

<table>
<thead>
<tr>
<th>YEAR</th>
<th>HIV CASES</th>
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</table>
Cholera

Cholera as an infectious diarrheal disease is under strict surveillance. It is interesting to note that no cases were reported in 2000. In 1999 there was one outbreak in the Toledo district with 12 cases reported in May. Post Hurricane Keith (October, 2000) no cases were detected in the areas of high risk such as both northern districts that were severely affected by the floods, and the Toledo district that would traditionally report cases. This was the result of the intensification of public health education, testing and treatment of drinking water.

Tuberculosis

Improvement in the surveillance and reporting system has produced an apparent increase in the number of tuberculosis cases. Tuberculosis has remained stable for over the last five years. For the year 2000, 104 new cases were reported. Since 1996 the total number of cases per year have ranged between 101 and 123 cases. However, since 1992 there has been a steady increase of co-infection with HIV, reaching a total of 15 cases in the year 2000. Most of the cases are pulmonary tuberculosis with only a few exceptions of extra-pulmonary infections. A close review at the local level showed that the Directly Observed Treatment Scheme (DOTS) is used for all new patients. This includes oral treatment with rifampacin, isoniazide, pyrazinamide and ethambutol for a duration of 2 months and a follow up period of six months.

2.2 Mortality

The Crude Mortality Rate has remained relatively stable over the past years, with a slight increase in the last four years (average 5.3) as compared to the rate of 3.9 in the first half of the decade.

The 50 and above age group accounted for 61.6% of the deaths recorded in 1999, while the lowest percentage (3.92) was among the 5-19 age group. Males at 62.7% had a higher percentage of death than females (37.7%).

The district accounting for the highest percentage of death was Belize (50.6%) and Toledo with 3.6% had the lowest.

The ten (10) leading causes of death for the year 1999 are summarized in Table V.
Road Traffic Accidents was the leading cause of death for 1999 with 6.4% (76 cases) of the total number of deaths. This was followed by hypertension with 5.9% (70 cases) and cerebrovascular accidents with 59 cases. HIV/AIDS with 43 cases (3.6%) was ranked fifth among the leading causes of death.

Fifty one percent (51%) of the deaths were reported in Belize District. This district has the greatest concentration of the country’s population (29%) and is the site of the national referral hospital. Additionally, the laws of Belize mandate that deaths be recorded at the place of occurrence. This could explain why the Belize District appears to have with the largest proportion of deaths.

Infant Mortality

The infant mortality rate has been decreasing since 1997 when it was 24.0 per 1,000 live births, to 21.5 in 1998, and 17.3 in 1999. The decrease has been very significant and the contributing factors can be associated with improved access to health care, availability of specialized services especially in the Southern Region. Also contributing to this decrease are improved perinatal care, increased coverage for immunopreventable diseases, the strengthening of the program in preventing anaemia in pregnant women, and the introduction of micronutrients to infants. The establishment of rudimentary water systems in most villages,
especially those in the Toledo and Stann Creek Districts, as well as the
addition of ambulance services to the Toledo District, are other factors
that have contributed to the remarkable reduction of the Infant Mortality
Rate.

'Slow fetal growth' was the leading cause of infant mortality (28.7%),
followed by neonatal asphyxia (14.6%) and congenital anomalies
(12.1%). Sixty three percent (63%) of the deaths occurred within the
first month of life implicating perinatal causes for mortality in this period.
This mandates to take a closer look at the antenatal services provided
especially the last trimester of pregnancy. In this age group, nutritional
anemia ranked as the fifth leading cause of death in 1999.

3. THE RESPONSE OF THE HEALTH SYSTEM

National Health Policies and Plans

The Government of Belize, through the Ministry of Health has been taking
initiatives to improve equity, quality of care, efficiency and effectiveness
since 1990. Health Sector Reform is the main strategy to enable the
Government of Belize through the Ministry of Health to achieve defined
goals and targets, increase equity, efficiency and sustainability.

The Ministry of Health's 1996-2000 Health Plan "Quest for Equity" was
evaluated to determine level of implementation of activities and to find
out if expected results were obtained/achieved. Based on this evaluation,
modification of goals and targets defined in the Plan was made.
Organization of the Health System

The Government of Belize is the main provider of health services including the provision of pharmaceuticals, which have for the past years been practically free to patients, funded by central government. This is now gradually changing based on the policy of instituting cost recovery mechanisms, particularly for curative services. As a result of Health Sector Reform efforts the private sector is rapidly expanding to meet the envisaged increased demand for service.

During the present decade the predominant organizational model for the health services has been centralized in its management, and disease control oriented. The emerging model recognizes the need for decentralization and participatory planning. A clear definition of the decentralization process, its legal implications and the organizational models to be developed, are expected outcomes of the Health Sector Reform process.

As previously mentioned, the Ministry of Health is the only provider of health services in the public sector. There are currently a total of eight hospitals, one in each district, with the exception of the Cayo and Belize districts, each of which has two. Three of the seven hospitals, located in Dangriga, Orange Walk Town and Belmopan, are regional hospitals, which provide both primary and secondary care. There are community hospitals in Corozal, San Ignacio and Punta Gorda Towns, which function basically as primary care facilities with some in-patient services. One hospital functions as the National Referral Center (Karl Heusner Memorial Hospital) and as the secondary health facility for the Belize District. There is one mental health facility located at Mile 21 on the Western Highway in the Belize District. Additional health infrastructure includes thirty-nine (39) health centers and thirty-seven (37) rural health posts countrywide.

These health centers provide pre and post-natal care, immunization services, growth monitoring and nutrition for children under five, treatment for diarrhea and minor ailments and general health education. In addition, some specialist services (primary level) are offered at the health centers for hypertension, diabetes, tuberculosis, STD and AIDS; referrals and follow-up are also provided. Each health centers serves between 2,000 to 4,000 persons. Most centers also provide outreach services through mobile clinics, visiting smaller and more remote villages every six weeks. These mobile clinics account for about 40 per cent of the centers' service delivery. Quality and scope of services provided through mobile clinics vary from district to district and is geographically sensitive.
With the growing need for primary medical care the Government has entered into an agreement with Cuba to provide medical services to most communities. Sixty-seven (67) Cuban Doctors have been assigned to 32 villages in the 6 districts. This has increased accessibility to Health Services.

The private health sector is limited in terms of number of providers and range of services. It is for the most part limited to ambulatory services but this is rapidly expanding with the possibility of the National Health Insurance option of funding the health care system coming on stream. Some secondary care is provided for maternity cases and surgeries. Private institutions are legally registered as business institutions. Presently legislation is being developed to address the regulation of the private sector health services. The Medical Services and Institutions Act relates to narrowly defined public sector institutions. There is one private hospital located in Belize City. Fifty-four (54) private clinics exist which provide ambulatory services, the majority of them located in Belize City.

There is limited information available in the private sector on the human and technical resources, for service delivery. Financing is mainly by the users, directly or through a private health insurance. Private health insurance is limited in Belize but has increased rapidly during the 1980's and 1990's. Many of the insurance companies are affiliates of large international firms. The benefit packages are fashioned to cover expenses for medical care acquired in and outside of Belize, depending on the premium. Insurance companies also sell executive schemes that cover services provided in the United States. Premium levels are high and generally out of reach for the average worker. Family coverage can cost from $120 to $200 monthly (group policy), representing from 10 to 40% of the earnings of many Belizean workers.

There is one not-for-profit hospital in the Cayo District (20 beds) and four (4) clinics throughout the country. The non-profit private health sector institutions are legally recognized as any other non-profit institution. They operate under the Companies Act. A few non-profit organizations are currently being developed which are involved in the provision of ambulatory health services: the Belize Red Cross; the Belize Family Life Association; the Belize Council for the Visually Impaired (BCVI) and the Mercy Clinic, are included, among others. Financing is based on cost recovery mechanisms, donations and external aid. The coverage is very limited and is restricted, mainly to urban areas.

On August 1, 1999 Ministry of Health entered into an agreement with the Belize Emergency Response Team (BERT) for the provision of ambulance services in Belize City. This arrangement has been running smoothly and
negotiations continue to have the service extended to the Regional Hospitals.

Resources

**Human Resources:** There has been an increase in the number of health personnel in the last decade. This was brought about by the addition of Cuban and Nigerian health professionals, to the health care delivery system as a part of a technical cooperation agreement between Belize and these two countries. More than half of the Cuban health providers have been deployed to rural areas bringing regular medical services for the first time to these remote communities. This program has allowed the Government of Belize to reduce the inequities in the distribution of health resources and accessibility to health care.

At 19.4 to 10,000 population the ratio of nurses to population is considered to be low as per PAHO/WHO Standards for Nursing in the Region of the Americas, where less than 20 nursing personnel per 10,000 population is considered low, medium is between 20-40 and high is more than 40 nursing personnel per 10,000 population. Cuban, Nigerian and Guyanese Nurses with whom technical cooperation agreements have been established, form part of the nursing workforce. There is a large concentration of health personnel in the metropolitan district of Belize, where more than half of the health staff is employed (54% physicians, 52% practical nurses, and 57% professional nurses). The rural and urban distribution is unequal in all the districts for both, physicians and nurses. Almost 75% of the health personnel work in the public sector, with the largest group being practical and professional nurses (83.9%). The private sector has the major representation of physicians and dentists (57.7%). Approximately 14% of health personnel work in both, public and private sector. The national ratio of physicians to population is 10.4 per 10,000 (not including Doctors who are in the country as a part of international technical corporation). Even though this ratio of physician to population is adequate as per international standards, the distribution within the country is not equitable.

The Public Health System is complemented by the support of community health personnel comprised of 117 midwives and 135 traditional birth attendants, the majority of whom (110) have undergone training and currently receive continuing education and refresher courses. Other Ministry of Health staff includes 17 pharmacists, 18 public health inspectors and 68 vector control staff; 7 health educators, and a network of 202 community nurses aides. These data are shown in Table VI.
Table VI
Number of Health Personnel & Ratio Per 10,000 Population

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>2000 Total Population To Each</th>
<th>1999 Total Population To Each</th>
<th>1998 Total Population To Each</th>
<th>1997 Total Population To Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician</td>
<td>251</td>
<td>10.4</td>
<td>251</td>
<td>10.2</td>
</tr>
<tr>
<td>Dentists</td>
<td>32</td>
<td>1.3</td>
<td>30</td>
<td>1.2</td>
</tr>
<tr>
<td>Hospital Administrators</td>
<td>3</td>
<td>0.1</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Sanitary Engineers</td>
<td>3</td>
<td>0.1</td>
<td>3</td>
<td>0.1</td>
</tr>
<tr>
<td>Social Workers</td>
<td>25</td>
<td>1</td>
<td>25</td>
<td>1.0</td>
</tr>
<tr>
<td>Nutritionist/Dietitians</td>
<td>4</td>
<td>0.2</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>Registered Nurses</td>
<td>203</td>
<td>8.4</td>
<td>210</td>
<td>7.8</td>
</tr>
<tr>
<td>Rural Health Nurses</td>
<td>50</td>
<td>2.0</td>
<td>50</td>
<td>4.6</td>
</tr>
<tr>
<td>Nurse Practitioners</td>
<td>13</td>
<td>0.5</td>
<td>11</td>
<td>0.2</td>
</tr>
<tr>
<td>Enrolled /Practical Nurses</td>
<td>149</td>
<td>6.2</td>
<td>112</td>
<td>4.7</td>
</tr>
<tr>
<td>Practical Midwife</td>
<td>15</td>
<td>0.6</td>
<td>13</td>
<td>0.5</td>
</tr>
<tr>
<td>Nursing Auxiliaries</td>
<td>88</td>
<td>3.7</td>
<td>64</td>
<td>2.7</td>
</tr>
<tr>
<td>Community Health Aides</td>
<td>202</td>
<td>8.4</td>
<td>202</td>
<td>8.2</td>
</tr>
<tr>
<td>Radiographers</td>
<td>13</td>
<td>0.5</td>
<td>13</td>
<td>0.5</td>
</tr>
<tr>
<td>Laboratory-Technologists/Technicians</td>
<td>86</td>
<td>3.6</td>
<td>86</td>
<td>3.5</td>
</tr>
<tr>
<td>Pharmacists/Dispensers</td>
<td>69</td>
<td>2.9</td>
<td>69</td>
<td>2.8</td>
</tr>
<tr>
<td>Physiotherapists</td>
<td>3</td>
<td>0.1</td>
<td>3</td>
<td>0.1</td>
</tr>
<tr>
<td>Occupational Therapists</td>
<td>5</td>
<td>0.2</td>
<td>5</td>
<td>0.2</td>
</tr>
<tr>
<td>Dental Auxiliaries/Nurses</td>
<td>3</td>
<td>0.1</td>
<td>3</td>
<td>0.1</td>
</tr>
<tr>
<td>Public/Environmental Health Inspectors</td>
<td>18</td>
<td>0.7</td>
<td>19</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Source: NHISU

The Ministry of Health is in the process of establishing a Human Resource Management Unit as well as a Caring for Care Provider Program to deal with staff development and employee assistance.

Medical Supplies and Pharmaceuticals

There is a Belize Drug Formulary with a total of 241 drugs included and its use is mandatory for all registered physicians. The first publication of the Belize Drug Formulary was in December 1984. A revision was conducted in 1994 and published in July 1997. Mechanisms are being instituted to monitor and enforce the implementation of the Formulary. All Belizeans have access to the formulary drugs when using the public sector health services, based on their availability. Three major problems have been identified in the public sector drug management: First, the annual budget has been insufficient to cover all the population’s medical needs. Second, procurement is ineffective, with many purchases occurring at unnecessarily high prices. This problem is currently being addressed with the introduction of the Maximum Contract for the Procurement of
Pharmaceutical and Medical Supplies. Third, the distribution system though sound in theory, is dysfunctional in practice, with frequent and prolong stock outs and shortages. There are no standardized treatment protocols for the prevalent pathologies in public health care facilities. However, these are now being developed.

Equipment and Technology

Equipment and technology are still somewhat limited in Belize. However, this is an area of focus of the Health Sector Reform Project with funds allocated for infrastructural development, including the equipping of all health facilities. The number of countable beds in the country increased to 598 in 2000. In the private sector, one of the facilities was expanded from (4 to 20 beds) and plans are underway for the building of a new private facility with a capacity for 24 beds.

Table VII
Availability of Equipment in the Health Sector: 1999

<table>
<thead>
<tr>
<th>Type of Resources</th>
<th>Sub Sector</th>
<th>Countable beds</th>
<th>Clinical Laboratories</th>
<th>Blood Banks</th>
<th>Radiodiagnostic Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public</td>
<td>554</td>
<td>7</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>44</td>
<td>15</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>598</td>
<td>22</td>
<td>1</td>
<td>28</td>
</tr>
</tbody>
</table>

There were seven (7) public and fifteen (15) private clinical laboratories and one (1) government owned blood bank. Radio-diagnostic equipment numbered twenty-eight (28), ten (10) in the public sector and eighteen (18) in the private sector (Table VII).
Routine maintenance of equipment is compromised due to limited resources including trained personnel and preventive maintenance protocols. There is a great number of equipment that is defective or out of service. High technology units and equipment are basically available only in Belize City at both public and private sector institutions.

Legislation

There have been no significant changes in health legislation in Belize in the last 29 years. However extensive reviews in the diagnostic phase of the HSRP has been conducted. New Statutory Acts in specific areas are now being approved. The Laws of Belize include ten health related chapters in Volumes I and VI which refer to medical services and institutions, public health, food and drugs, and certification and practice of health professionals.

According to The Laws of Belize the Minister of Health is responsible for making regulations on health related issues. The “Chief Medical Officer” (Director of Health Services), who is appointed by The Governor, is responsible to execute the ordinances and to recommend to the Minister the necessary regulations, and in some cases (such as in communicable diseases) to make regulations.

There are three legally established health regulatory bodies: The Belize Medical Council responsible for the registration of medical practitioners, dentists, opticians and nursing homes and to advise the Minister on regulations concerning those categories of health personnel; The Nurses and Midwives Council, responsible for the registration and regulation of nurses and midwives; and The Board of Examiners of Chemists and Druggists, responsible for the examining and registration of chemists and druggists and for carrying out other matters provided for in this ordinance.

The need for a comprehensive review and updating of the existing health legislation has been recognized. This is an expected outcome of the on-going health policy reform project. The existing and any additional Acts will be more effectively used with the development and implementation of regulatory mechanisms, norms and standards to enforce the Law.

Authority to prevent and control environmental pollution is contained in provisions of the Public Health Act, the Pesticide Control Act, and the Solid Waste Management Authority Act. The Environmental Protection Act of 1992, establishes a Department of the Environment. This basic enabling legislation provides the Government with the authority to address modern environmental pollution problems. Over the past five years, legislation has been developed for the control of pollutants on land and water. Air
quality standards for the protection against industrial and traffic emission have not been established neither is there any legislation to reduce exposure to environmental tobacco smoke in public buildings. A plan for the control of tobacco smoking is being developed and will be implemented during the year 2001. The Housing Department has set standards for housing ventilation and no building plan is approved for construction if it does not meet these requirements.

The Act to establish the Belize Agriculture and Health Authority has been passed. This body now has the responsibility to implement and monitor the standard of foods for exportation. In February 2001, the national nutrition policy was launched by the Ministry of Agriculture in coordination with the Ministry of Health and other sectors.

The Factories Act, the only legislation governing occupational health and safety, no longer meets the needs of the workers as it covers health and safety in factories only. The present Workers Health Plan recognizes the need to replace this Act by a new and comprehensive legislation, in the form of an Occupational Health and Safety Act more relevant to the working environment in Belize.

4. National Health Information & Surveillance System

The Ministry of Health initiated a project for the development of an integrated and decentralized Health Information Network in 1995 with the technical and financial collaboration of the Pan American Health Organization. The network, which already has begun to function, comprises several Ministry of Health units at both, central and local levels that are connected to PAHO’s Belize country office and to other stakeholders through the Internet. The network which will provide a critical contribution to the country’s health system, aims to facilitate access of key health staff and community members to up-to-date information. This network will be used to implement a decentralized health information system and to facilitate long-distance continuing education opportunities for health personnel at the periphery level.

The key elements of the network are the National Health Information System, the Central Medical Laboratory Information System, and the Virtual Health Library. During the last two years software for the National Health Information System and the Central Medical Laboratory Information System were developed and installed at central level units. In addition, hardware and accessories were purchased and distributed, and training was initiated in basic computer skills, software use, and ICD-10 coding. Internet connections were installed in the National Health
Information/Surveillance Unit, which administers and coordinates the network.

The NHIS is fully functioning at the Southern Regional Hospital, the Cleopatra White Health Center and is being introduced in the Orange Walk and Corozal Districts. The Laboratory Information System (CLAB), an important component of the National Health Information Network, has been fully functioning at the Central Medical Laboratory since March 1999.

The National Health Information and Surveillance Unit is headed by an Epidemiologist and has the support of a Medical Statistical Officer, two (2) Assistant Statistical Officers, six (6) Statistical Clerks, four (4) Data Entry Operators and one (1) Data Entry Clerk.

The NHIS Unit’s primary function is to support the various health units (hospitals, health centers and the other allied health programs) in an evidence-based decision-making process whose objective is to provide quality care to the Belizean population.

Currently the services provided include the collecting, collating, analysis, and dissemination of information on health and vital statistics. It also serves as a resource center for students, health personnel and other allied health programs. Weekly, Monthly, Quarterly and Yearly Reports (HIV/AIDS, Domestic Violence, Admissions/Discharges Reports), are available at this unit for references.

Activities carried out during the year 2000 include:

- The development and installation of the NHIS/LAB software.
- Hardware and accessories were purchased and distributed, and training was initiated in basic computer skills, software use, and ICD-10 coding. Internet connections were installed in the National Health Information & Surveillance Unit, which administers and coordinates the network.
- Seventy nurses, 18 doctors and 19 clerks in the districts were trained in the use of the NHIS software, and introduction to computer and ICD -10th Revision.
- Countrywide 110 persons were trained in the use of the Domestic Violence Form.
- To date three (3) Ministries are using the Domestic Violence Form, (Ministry of Health, Ministry of Human Development, and the Attorney General’s Ministry and the Police. Haven House is also using the form. The NHIS is fully functioning at the Southern Regional Hospital, Cleopatra White Health Center, Corozal, Orange Walk, Cayo, and Belmopan hospitals. Punta Gorda Hospital recently
had the programme re-installed so data entry should begin as of now.

- Production of a computer Internet/e-mail Policy
- Since the latter part of June 2000 Internet, e-mail and a web page were installed at the Southern Regional Hospital
- E-mail and Internet connections are installed and functioning in all six districts.
- The NHIS is now producing outputs on 75% of the modules created in the software

There is the need for a systems Engineer to maintain the Network in all districts.

5. **Health Sector Reform**

The overall goal of the Health Sector Reform Program is to raise the health status of the population by improving the efficiency, equity and quality of health care services and by promoting healthier lifestyles.

The specific objectives are

- restructuring and strengthening the organizational and regulatory capacity of the central and regional level of the public sector to plan, organize, produce, deliver, and procure good quality and value for money services;
- rationalizing and improving the coverage and quality of services in the public and private sectors by restructuring public facilities, purchasing selective services from the private sector to support the public supply, providing mobile services and transport in less accessible areas, and training community nursing aides and other health professionals. Performance agreements will be designed, implemented and enforced in order to tie performance improvements to infrastructure deployment; and
- achieving an equitable and sustainable system of sector financing by helping to set up a National Health Insurance Fund and focusing public spending on the poor.

It will be a four (4) year program aimed at complementing improvements in public sector provision, and regulating improvement with a medium and long term financing strategy which will be the base for consolidation of health sector reform in Belize.

According to the strategy, the program will finance technical assistance, training, pilot programs and investment in hospital/health center
infrastructure and equipment. The program has three components. The first one relates to strengthening the MOH so it can exercise a regulatory and policy orientation role, and de-concentrate responsibilities to health regions and one autonomous hospital. The second component is focused on rationalization of the public health care network infrastructure by reorganizing services and investing in civil works and equipment. The third component supports establishment of a National Health Insurance Fund and will provide this new institution with the administrative and strategic tools to manage the funds of the system and to become an effective purchaser of services.

1. SECTOR RESTRUCTURING:

- **Reorganization Ministry Of Health**
  
  New Ministry Of Health Legislation  
  Policy and Planning Unit Orientation Workshop  
  Central Ministry of Health workshop  
  Private Sector Regulation

- **De-concentrating Health Services**
  
  Appointment of Management and Staff  
  Staff training and on-going support  
  Design of systems  
  Computer & equipment and related training  
  Patient Charter

Piloting Autonomy with Karl Heusner Memorial Hospital Authority

- Appoint Board Members  
- Conditions of employment  
- Appoint Chief Executive  
- Management orientation workshops  
- Appoint Bankers and external auditors  
- IT training  
- Professional skills upgrading  
- Human resource strategy  
- Information/Communication to staff  
- Appoint staff to new employment  
- Staff orientation workshops  
- Hospital Management, Finance, & IS/IT  
- Procure computers  
- OD Training
Public Information Strategy

Consulting services
Materials & media
Develop strategy/actions
Communications activities

Promoting Knowledge and Behavioral Change

Consulting services for: Base-line studies- design, implementation, identification target population, media strategy, Materials/media
Training: MOH personnel providers
Evaluation: design, implementation
Vehicles

II SERVICES RATIONALIZATION

❖ Western Health Region

RHMT Offices in Belmopan
Regional Hospital at Belmopan
Community Hospital at San Ignacio
Polyclinic I at Benque Viejo
Polyclinic I at Belmopan
Health Centers
Mobile Units

❖ Northern Health Region

RHMT Offices at Orange Walk
Regional Hospital at Orange Walk
Community Hospital at Corozal
Polyclinic I at Orange Walk
Polyclinic I at August Pine Ridge
Polyclinic I at Sarteneja
Health Centers

❖ Southern Health Region

RHMT Office & Polyclinic I – Dangriga
Ambulance Regional Hospital
Community Hospital at Punta Gorda
Polyclinic II at San Antonio
Polyclinic 1 Dangriga
Polyclinic I Independence
Health Centers
Mobile Unit, Toledo (PG)

❖ Central Health Region

RHMT Office – Belize City
Regional Hospital, KHMHA
Polyclinic II – Cleopatra White
Polyclinic II – Matron Roberts
Polyclinic I – Ladyville
Polyclinic II – San Pedro
Health Centers
Mobile Unit Matron Roberts

❖ National Programs

Performance Contracts
Pharmaceuticals Study Rationalization
Develop Protocols and Norms
Maintenance Management
Environmental Management Support
Develop Performance Indicators
Quantified/Cost Plan
Central Laboratory Equipment

III SUPPORT TO THE NATIONAL HEALTH INSURANCE FUND

Technical Development of the NHIF Innovation Fund

The Health Sector Reform Program Loan BL – 0014 has been approved amounting to US$ 18,126,000.00. This includes the total investment costs, unallocated costs, and financial costs.

The MIF is divided into three (3) components:

Component I: Developing a regulatory framework for the private sector

Component II: Improvement of Private Sector Standards and Market Organization, including the corporate and organizational development of private providers as contractors.

Component III: Developing and institutionalizing private sector purchasing and contracting tools and skills.

Achievements to date include the following:
The piloting of KHMHA as an autonomous body has commenced with the passing of legislation required to establish such an authority. Persons have been appointed to the Board of KHMHA. Chief Executive Officer for the KHMHA has been appointed. Senior managers have been appointed in the areas of: Human Resource Management, Nursing Administration, Financial Management, and Clinical Management. New Terms and Conditions of Employment have been developed for KHMHA and are now being finalized. Four Regions (Central, Northern, Western and Southern) are being established with Regional Managers and deputies being placed in the regions to manage the delivery of health services for their respective regions. Hospital Administrators for the regional hospitals are being placed at the Southern Regional Hospital, Orange Walk Hospital and the Belmopan Hospital. Terms of Reference for the technical assistance required under the Health Sector Reform Program Loan and the Multilateral Investment Fund have been developed and submitted to the Inter-American Development Bank for their "no objection". Work has begun with developing a regulatory framework that will govern, strengthen, and improve the practice of medicine in Belize to include licensing, credentialing, and monitoring professionals and the facilities in which services are given. Intermediary measures were introduced on the Southside of the Belize District to improve on the quality, access and level of services provided in the public facilities that fall within the boundaries of the area mentioned.

6. **RESPONSE TO HURRICANE KEITH**

Tropical Depression No. 15 became a tropical storm (Keith) on September 29, 2000 at 3:00 p.m. and was located approximately 270 miles from the coast of Belize. By 6:00 p.m. on October 1, Keith had strengthened to a Category IV hurricane and had advanced to about fifty-five miles from Corozal Town at 18.0N and 87.3W.

Hurricane Keith remained almost stationary over the islands of San Pedro, and Caye Caulker for approximately 72 hours, also affecting the northern part of the Belize, Orange Walk and Corozal Districts, until it was downgraded to a tropical storm late October 2, 2000.

Four of the six districts of Belize were seriously affected by Hurricane Keith - the Belize District (which includes Ambergris Caye and Caye Caulker), Orange Walk, Corozal and the Cayo districts. Approximately 72,092 persons (30% of the total population – based on the 2000 census)
had been directly affected and were at risk of health problems due to Hurricane Keith.

During the hurricane there were two confirmed deaths and two persons were reported missing on the island of Ambergris Caye. Nine days after, the National Health Information/Surveillance Unit reported that at least 808 people had sought medical attention for injuries (142), vomiting and/or diarrhea (118), fever and cough (153), skin infections (30) and food poisoning (2).

Keith left at least 3,279 homeless in Ambergris Caye and Caye Caulker, and at least 13,460 persons were isolated in the rural areas of the Belize, Orange Walk and Corozal Districts. In addition to the homeless, in the cayes, at least 12,649 persons suffered direct damage to housing and properties in the flooded areas. Approximately 55,182 remained in flooded areas up to the end of November 2000.

Main Areas of Concern

It was feared that the population living in flooded areas were at high risk of being affected by possible outbreaks of diseases, particularly dengue fever, malaria, hepatitis A, cholera, leptospirosis, and gastroenteritis. However, this was prevented with the intensification of existing public health programs, particularly vector control, water quality monitoring and treatment, public health education and epidemiological surveillance. Six weeks after there was no evidence of any outbreak situation in the flooded areas or anywhere else in the country.

Safe drinking water was a critical issue, as water supply systems were greatly affected by Hurricane Keith. The islands and the four districts experienced widespread floods that washed over dumpsites, sewers, and lagoons, bringing excreta from latrines and septic tanks into residential areas. This also caused contamination of wells used by the residents for drinking purposes.

Even though the cayes were the areas with nearly all of the major infrastructural damage, from a public health point of view, the cayes were not at a high risk of outbreaks. The biggest challenge remained inland due to the extensive flooding and isolation of rural communities.

Availability of food for the population living in affected areas, particularly those flooded areas where livestock and crops for domestic consumption were destroyed, was a major area of concern, and was addressed by the rationing of food by the Government, the Belize Red Cross and various voluntary organizations (international, regional and national).
The impact of Hurricane Keith on the mental health of the affected population was another area of concern in which the Ministry of Health placed particular focus.

Public Health programs and primary care services elsewhere in the country were affected due to the deployment of personnel to attend to the emergency situation. Lack of appropriate equipment and supplies in some areas was of some concern.

The Ministry of Health activated its Hurricane Plan on Friday, September 29th at 2:00 p.m. The Ministry of Health Emergency Command Center was established in Belize City on Friday, under the direction of the Permanent Secretary, and moved to Belmopan on Saturday, September 30th at 10:00 p.m.

The Ministry of Health established an Assessment Team, which initiated field visits on October 3. By October 10, seventy-one (71) communities had been visited by health teams. Ten (10) health teams comprised of a medical doctor, a public health nurse, a public health inspector and a vector control officer visited affected communities to provide essential health services and to complete needs assessments.

Management and distribution of donated medical supplies were totally integrated in the SUMA system, which was established on Thursday, October 5.

The Ministry of Health prepared a preliminary report on October 3, and launched an appeal for external assistance on Wednesday, October 4. By October 10, several donors had confirmed their contribution through the Pan American Health Organization as follows: OFDA, US$232,000; DFID, US$150,000; and CIDA, CAN$50,000 (US$33,333), for a total of US$415,333.

The Ministry of Health received the solidarity support of the Government of the Bahamas (donation of medication and deployment of a health team for the provision of medical services to affected communities); The Government of Mexico (donation of medication); and the General Consul of the Assembly of God (deployment of a health team for the provision of medical services to the affected population).

The Ministry of Health also completed its Emergency Operational Action Plan for the next two months following the Hurricane and implemented the same.

The major areas of focus of the Action Plan were:
The establishment of post disaster epidemiological surveillance in affected communities for early detection of outbreaks, and development of contingency outbreak control plans; Intensify and restore regular epidemiological surveillance system;
Immediate restoration and intensification of public health programs, particularly monitoring water quality, food inspection, and vector control;
Address environmental conditions in affected areas;
Conduct intensive public awareness campaigns on post disaster health issues and training at community level;
Replace damaged equipment and supplies in health facilities affected;
Immediate restoration of the equipment and supplies for the Central Medical Laboratory and the Blood Bank, particularly those concerned with blood screening and testing for laboratory confirmation of communicable diseases under surveillance in the post disaster phase;
Intensify and maintain mobile services to those communities isolated due to the flooding;
Implementation of an aggressive emergency Vector Control strategy;
Intensify nutrition surveillance and micro-nutrient programme in affected areas;
Monitor closely the mental health of the affected population, and ensure provision of post-traumatic counseling services, specifically related to violence, drug abuse and depression; and
Increase disaster response capacity at national level based upon the lessons learned from Hurricane Keith.

7. National Achievements of the Ministry of Health

There were No Cases of Cholera in Belize last year even after Hurricane Keith. This was a direct result of environmental sanitation, water quality improvement and health educational sessions provided to high risk groups Over the past six (6) years there has been a dramatic decrease in the number of Malaria cases. From 10,441 in 1994, it decreased to 9,413 in 1995; and to 1,482 in the year 2000. This decrease was associated with a strengthening of the surveillance activities at local level. The joint spraying operations with Mexico on the Belize and Mexico border areas had a positive impact on the reduction of the malaria incidence. The Chagas Project successfully completed a national serology and entomology survey. The data from this exercise will be analyzed shortly and this will assist the Ministry in determining what strategy to adopt for the prevention and control of Chagas disease. Human infection has been determined and the bug has been found in Belize. Measures have already been taken to screen all blood donors for the Chagas parasite. A mini laboratory was installed at the Karl Huesner Memorial Hospital to facilitate
the processing of the survey tests and to do any test that may be requested for Chagas investigation.

The Environmental Health Program in an effort to guarantee the quality of potable water recently obtained new equipment for water quality monitoring.

The Mother to Child Transmission Prevention and Control of HIV/AIDS Project was launched in cooperation with the Ministry of Health of Bahamas. This project should reduce the incidence of infection from mother to child by 70%.

As part of the micronutrient component of the Maternal and Child Health Program, Vitamin A, Folic Acid and Iron form part of the basic package for infants. This will enhance proper growth and development during the first year of life.

The Pharmacy department launched its National Drug Policy and the Drug Inspectorate began functioning. This will improve the overall management of drugs within the public and private sector.

The Ministry of Health initiated its participative management of services at operational level and stewardship at central level. This will enhance the decentralization process, therefore allowing the regions to participate in the planning, monitoring and evaluation of health services.

The Karl Huesner Memorial Hospital now has a new board of management headed by a Chief Executive Officer. He is supported by a Medical Chief of Staff, a Director of Nursing and a Director of Administration and Finance. The institution now provides 24 hour coverage for X-ray and laboratory services.

The Ministry of Health in fulfillment of its commitment to involve the private sector and NGO's in the delivery of care, has entered into agreement with the Belize Council for the Visually Impaired to provide ophthalmic services to the public.

The Belize City South Side Project intermediary measure to improve and increase access to health services was launched and proved to be successful. This experience has served to design a model of the Primary Care Provider strategy to be implemented by the National Health Insurance.

The National Health Information System (NHIS) was launched early in the year. Presently the system has been installed in all six districts. Personnel have been trained to use the new software and computers have been provided to all districts. The hospital that pioneered the use of the NHIS was the Southern Regional Hospital. To date Cleopatra White Health Center in Belize City and most districts are already utilizing the system for data transfer via electronic mail. A specific product has been the launching of a comprehensive HIV/AIDS quarterly report.

Belize School of Nursing was integrated into the University of Belize. The three year diploma for Registered Nurses was replaced by a four year Baccalaureate Degree Program.
A Nurse Anesthetist Program got underway with 7 nurses enrolled. In the year 2001 eight more nurses will join the program. This will alleviate the shortage of nurse anesthetists presently being experienced in some districts.

Twenty-four (24) of the 34 Cuban Nurses participated in an English Course. This strengthened their communication skills with the Belizean population, thus improving the interpersonal relationship.

The Cuban contingency of physicians all received diagnostic equipment to be used in the rural area where they practice. This will enhance their diagnostic capacity thus improving the quality of care provided.

The Matron Roberts Health Center was extensively repaired. The Port Loyola Health Center was expanded. Other health centers throughout the country underwent major repairs.

The PLAGSALUD Project was successfully extended to the Stann Creek district. After starting in the Cayo District the experience learnt there facilitated a smooth implementation in Stann Creek. A survey on knowledge, attitudes and practice on the use of pesticide was done in collaboration with the Pesticide Control Board (PCB). It was satisfactory to learn that the efforts of the PCB and the training done through the PLAGSALUD project were not in vain. The users of pesticides were generally cognizant of the dangers of improper handling of pesticides.

The Infant Mortality Rate decreased from 21.3 in 1998 to 17.3 in 1999. This came as a result of strengthening the resolution capability at district level. Pediatricians were posted in regional hospitals, community nurse’s aides were trained, and medical supplies were readily available.

An Intensive Course in Neonatal Management was conducted at the Karl Huesner Memorial Hospital to prepare nurses and doctors for emergency management and central care of newborns.

The National Disaster Management Plan was completed and implemented during Hurricane Keith. The emergency operations in all affected districts were a success. There was no communicable disease outbreak in the affected areas.

A Tri-National Agreement was signed between Belize, Mexico and Guatemala. This endeavor provides the context of cooperation among the three countries in addressing health priorities at border areas.

8. **DISTRICT HEALTH SERVICES**

8.1 **Corozal District Health Services**

The northern most district of the country, Corozal has a population of 32,708, 16,422 being males and 16,286 females with a total of 6,885 households. The population grew by 26.8% since the 1991 Census, with 34.6% of the population living in the rural areas. The Crude Birth Rate for the Corozal District as estimated in the 1999 Census is 28.2%.
following behind Toledo District at 29.6% and Stann Creek District which at 32.7% has the highest Crude Birth Rate in the country³.

Corozal District health facilities include one community hospital, one urban and six (6) rural health centers and eight (8) health posts where mobile clinics are conducted.

*Hospital Services and Production*

Corozal District Hospital’s services were administered by the District Medical Officer who had the support of three (3) medical officers, twenty-three (23) nurses (including the Sister-In-Charge) and fifteen (15) ancillary staff.

Designated a community hospital, Corozal Hospital provides Medical, Obstetrical/Gynecological, Emergency, Outpatient, Specialists and Minor Surgical Services. As of February 2000, major surgeries were transferred to the Northern Regional Hospital in Orange Walk Town.

Hospital statistics for the year under review are shown in Table VIII.

This move was a part of the rationalization of health services as identified in the Diagnostic Phase of the Health Sector Reform Project, which aims to concentrate resources in one area in order to improve productivity, efficiency and quality of service.

**Table VIII**

**Corozal Hospital Statistics: 2000**

<table>
<thead>
<tr>
<th>Corozal Hospital</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admissions</td>
<td>1141</td>
</tr>
<tr>
<td>Discharges</td>
<td>1139</td>
</tr>
<tr>
<td>Deliveries</td>
<td>308</td>
</tr>
<tr>
<td>Minor Surgery</td>
<td>339</td>
</tr>
<tr>
<td>Major Surgery</td>
<td>19</td>
</tr>
<tr>
<td>Eye Surgery</td>
<td>43</td>
</tr>
<tr>
<td>Transfer to K H M H</td>
<td>76</td>
</tr>
<tr>
<td>Transfer to Orange Walk Hospital</td>
<td>124</td>
</tr>
<tr>
<td>O.P.D.</td>
<td>13757</td>
</tr>
<tr>
<td>Deaths</td>
<td>41</td>
</tr>
<tr>
<td>R.T.A.</td>
<td>22</td>
</tr>
<tr>
<td>Injections</td>
<td>800</td>
</tr>
<tr>
<td>Dressings</td>
<td>2164</td>
</tr>
<tr>
<td>Medical Clinic</td>
<td>746</td>
</tr>
<tr>
<td>Surgical Clinic</td>
<td>915</td>
</tr>
<tr>
<td>Gynecologist Clinic</td>
<td>537</td>
</tr>
<tr>
<td>Pediatric Clinic</td>
<td>311</td>
</tr>
</tbody>
</table>

*SOURCE: Corozal District Health Report 2000*
Support Services

Pharmacy, laboratory and imaging services are provided in the Corozal District by one (1) pharmacist, one (1) medical technologist II and one (1) x-ray technician.

Pharmaceutical services are provided to the hospital, Out-patient Department and seven (7) villages. A total of 24,832 prescriptions were filled with a total of 36,963 items.

Laboratory services were delivered to 1,816 patients in hospital, outpatient clinic and health centers who received a total of 6,261 tests. These tests included hematology, chemistry, urinology, parasitology and serology.

X-ray examinations carried out during 2000 numbered 795 for 723 patients. They included X-rays of chest, abdomen, skeletal, urinary and gastric system.

Community Health Programs

A number of primary health care programs were provided in the Corozal District, coordinated by the District Medical Officer and Program Managers at the Central Level. With the implementation of the Health Sector Reform process, the organization of the community programs has been modified. The programs are now more integrated and under the direct responsibility of the Regional and Deputy Regional Health Managers in the regional and community hospitals respectively. The former Program Managers will now function in an advisory and monitoring capacity for technical assistance to the health regions.

Maternal and Child Health Program

The largest community programme, the Maternal and Child Health program in Corozal is headed by a public health nurse supported by five (5) rural health nurses, four (4) caretakers and a driver.
A successful maternal and child health program is reducing Belize's Infant Mortality Rate

Services provided include:

- Antenatal and Post Natal Clinics
- Child Health Clinics
- Family Planning
- Sexually Transmitted Infection Clinics
- Mobile clinics for the provision of all services to population in remote villages and communities
- Cervical Cancer Screening Services
- Diabetic and Hypertensive Clinics
- Prevention and Control of Communicable Diseases
- Chest/Tuberculosis Clinics
- Health Education Services
The following are the services provided by the community health-nursing program for the year 2000:

1. **Immunization**  
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Number of Vaccines provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>893</td>
</tr>
<tr>
<td>DPT</td>
<td>3,447</td>
</tr>
<tr>
<td>Polio</td>
<td>3,448</td>
</tr>
<tr>
<td>MMR</td>
<td>4,830</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>6,117</td>
</tr>
<tr>
<td>DT</td>
<td>798</td>
</tr>
</tbody>
</table>

2. Child Health visits  | 23,467  
3. Antenatal visits    | 4,992  
4. Referrals            | 360  
5. Post Natal visits    | 294  
6. Family Planning visits | 798  
7. STI Clients seen     | 150  
8. Contact Tracing visits | 306  
9. Follow Up Visits     | 426  
10. Diabetic and Hypertensive clients seen | 576  
11. Chest Patient visits | 360  
12. Outpatient visits RHN | 8,850  

*Training of midwives and community Nurses’ Aides was expanded in 2000*
Public Health and Vector Control (Environmental Health)

Staffed by a Public Health Inspector, one Vector Control Supervisor, one Evaluator, one ULV Operator and four Environmental Assistants, the two units conduct activities aimed at ensuring a safe environment. Services include food and water safety, sanitation; liquid and solid waste management, and the prevention, detection and treatment of vector borne diseases, especially, malaria, dengue, rabies and cholera.

Production of the Public Health Inspector:

- Inspection of 217 food premises and 42 itinerant food vendors
- Inspection of 716 bovine and 811 porcine carcasses
- Vaccination against rabies of 2806 dogs and 246 cats
- Collection for analysis of 37 water samples
- Investigation of 101 complaints of nuisances and abatement of same
- Conduction of 13 Health Education sessions

Vector Control personnel took a total of 2000 blood slides, sprayed 4000 houses, treated 80 cases of malaria and conducted 15 health education sessions at schools.

Dental Services

Dental Services are delivered by the following: one Dentist, one Dental Nurse and one Dental Assistant. Services provided include preventive, restorative and surgical procedures. Health education is also a large component of the program.

Production of the Dental Program is listed below:

- Patients seen: 1,656
- Silver fillings: 146
- Teeth extraction: 1,413
- Prophylaxis: 32
- Fissure sealants: 473
- Number of children receiving topical fluoride: 1,744
- Number of children in tooth brushing drill: 1,266
- Number of children receiving dental education: 1,055
- Number of schools visited for dental health education: 18
- Number of referrals: 22
- Frenetomy (lingual): 4
- Minor Surgery: 4
Removal of stitches 3
Dressing 1
X-Ray 1
Scaling 1

Psychiatric/Mental Health Service

One Psychiatric Nurse Practitioner delivers this service in Corozal District. Services provided include among others, consultations at clinics, home visits, counseling and education sessions and evaluation of drug efficiency.

A total of 311 clients were seen and one workshop was conducted with families of clients with mental disorders. Most common mental disorders seen during the period under review were schizophrenia, depression and anxiety.

Health education sessions were done with community groups aimed at reducing the stigma of mental illness.

Health Education Community Participation Bureau (HECOPAB)

One (1) District Coordinator and forty-five (45) Community Nurses Aides provide a network of health education activities, involving active participation of community members.

Some of these activities are school and home visits, issuing of basic medications for common ailments such as cough, colds, diarrhea, and basic first aid and breastfeeding initiatives.

During the year 2000, 10,146 home visits were made, 618 health education sessions conducted (including 80 in breastfeeding), 250 blood pressure measures were taken, 444 persons given First Aid, 3,600 packets of Oral Rehydration Salts (ORS) were distributed and three (3) Health Fairs were held.

Recommendations and Conclusion

Corozal District Health Services reported high productivity despite the limitations and challenges posed by limited resources. Additional staff is required in almost all community programs. In the area of institutional nursing service where the in-patient census has markedly declined due to the cessation of surgery, it is recommended to re-assign nurses to Public Health where the workload is much heavier.
8.2 Orange Walk Health Services

According to the National Population and Housing Census 2000, Orange Walk has a population of 38,890, 19,948 males and 19,942 females with 7,727 households. This district showed the largest urban to rural shift of the population with Trial Farm Village being the most populated village countrywide (3,443 persons). Orange Walk also has the second largest urban center in the country, Belize City being the largest3.

Sugar remains the principal industry, resulting in the district morbidity and mortality being work related injuries (sugar cane farming) and accidents.

The Crude Birth Rate in 2000 was 20.3 making Belize and Orange Walk Districts tied for the lowest in the country. The Crude Death Rate was 33.

In the year 2000, as a part of the Health Sector Reform process, the Orange Walk Hospital was designated the Northern Regional Hospital and surgeries were shifted from Corozal to Orange Walk Hospital. The number of surgeries done between February and December 2000 in Orange Walk was 1,147 as compared to the 498 cases that were done in Corozal in 1999.

Orange Walk Hospital Services

Hospital services were coordinated by the District Medical Officer who was assisted by seven (7) Doctors, thirty-one (31) nurses (including the Matron) and thirty-one (31) Ancillary Staff.

Designated the Northern Regional Hospital, Orange Walk Hospital provides services in Obstetric/Gynecology, Internal Medicine, Surgery, Pediatrics, Emergency and Outpatients Care and Specialist Clinics. Support services include: Laboratory, Imaging and Pharmaceuticals.

Hospital statistics for the year under review are depicted in Table IX.

Table IX
Orange Walk Hospital Statistics: 2000

<table>
<thead>
<tr>
<th>Orange Walk Hospital</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission</td>
<td>2,976</td>
</tr>
<tr>
<td>Discharge</td>
<td>1,431</td>
</tr>
<tr>
<td>Deliveries</td>
<td>1,037</td>
</tr>
</tbody>
</table>
Orange Walk Hospital Statistics

<table>
<thead>
<tr>
<th>Statistics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeries</td>
<td>1,147</td>
</tr>
<tr>
<td>Deaths</td>
<td>112</td>
</tr>
<tr>
<td>R.T.A. Deaths</td>
<td>16*</td>
</tr>
<tr>
<td>Injections</td>
<td>4,729</td>
</tr>
<tr>
<td>Dressings</td>
<td>1,431</td>
</tr>
<tr>
<td>Medical Clinics</td>
<td>105</td>
</tr>
<tr>
<td>Surgical Clinics</td>
<td>946</td>
</tr>
<tr>
<td>OB/Gynecology Clinics</td>
<td>1,134</td>
</tr>
<tr>
<td>Eye Clinics</td>
<td>3,053</td>
</tr>
<tr>
<td>Pediatric Clinic</td>
<td>5,368</td>
</tr>
<tr>
<td>Transfers to K H M H</td>
<td>313</td>
</tr>
<tr>
<td>Clients seen at OPD</td>
<td>36,995</td>
</tr>
<tr>
<td>Clients seen at emergency</td>
<td>2,903</td>
</tr>
</tbody>
</table>

*leading cause of deaths

Source: Orange Walk District Health Report 2000

The five most frequent causes of hospitalization in 2000 were injuries, acute respiratory infection, diseases of the digestive system, intestinal infectious disease and Diabetes Mellitus.

Support Services

Support services available at the Orange Walk Hospital are Pharmacy, Laboratory and Imaging/X-Ray.

Pharmaceutical services were provided to 26,756 patients to whom 59,775 items were delivered. Total laboratory tests done were 32,495, while 5,754 X-Rays were done.

Community Health Programs

The Community Health Programs were coordinated by the District Medical Officer and Program Managers at the Central Level. This structure has been re-organized with the Regional Health manager now responsible for coordinating all community programs in an integrated manner.

Maternal and Child Health Program

The Maternal and Child Health program is administered by a Public Health Nurse who heads the program, nine (9) Rural Health Nurses, nine (9) Caretakers and a Driver. The Maternal and Child Health Program provides the following services: Prenatal Clinic, Child Health Clinic, Mobile Clinic at Village Level, Chest Clinic, High Risk Pregnancy Clinic, Postnatal Clinic, Sexually Transmitted Infections Clinic, Home Visits, School Visits, Health
Education/Health Promotion, Contact Tracing of notified Communicable Diseases, Roles in Disasters, Community Activities – Out Reach Programs.

Immunization coverage ranged between 54.50% for Hepatitis B and 100% for MMR. The fact that the Hepatitis B was only introduced in the year 2000 accounts for its low coverage.

*A micronutrient supplement program and an Expanded Program of Immunization meant many more healthy Belizean babies in 2000*

Table X
Immunization Coverage Orange Walk District: 2000

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>Target Population (1 Year)</th>
<th>Number Given</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>1,143</td>
<td>1,069</td>
<td>93.50</td>
</tr>
<tr>
<td>3rd DPT</td>
<td></td>
<td>949</td>
<td>83</td>
</tr>
<tr>
<td>3rd Polio</td>
<td></td>
<td>945</td>
<td>83</td>
</tr>
<tr>
<td>3rd Hepatitis</td>
<td></td>
<td>624</td>
<td>54.50</td>
</tr>
<tr>
<td>1st MMR</td>
<td>1-2 years 1,219</td>
<td>1,217</td>
<td>100</td>
</tr>
<tr>
<td>Booster MMR</td>
<td>1-4 years 3,100</td>
<td>1,119</td>
<td>100</td>
</tr>
</tbody>
</table>

SOURCE: Orange Walk District Health Report 2000

Public Health and Vector Control (Environmental Health)

Environmental Health activities are carried out by a Public Health Inspector and an assistant Public Health Inspector, two (2) Evaluators and one (1) Environmental Assistant.
Services provided by Vector Control include free treatment of patients with malaria, spraying of houses in infected areas and destruction of mosquito breeding sites. In the year 2000 houses in fourteen (14) localities were sprayed and thirty-six (36) Health Education sessions were done in schools. Sixty-four (64) cases of Malaria were diagnosed and treated.

Inspection of premises, food establishments and meats as well as certification of food handlers are a few of the services provided by the Public Health Inspectors. Control of communicable diseases and rabies are also important. Water quality control and sewerage disposal are other areas of focus of Public Health.

![Regular water testing and analysis helped to keep Belize cholera free in 2000](image)

During the year 2000 sixty-five (65) premises and 265 food establishments were inspected, 195 complaints of nuisances investigated, and where necessary abated, 259 food handlers certificate issued and 6,946 porcine, bovine and poultry carcasses were inspected.

**Dental Health Services**

The Dental Health Program in Orange Walk is headed by the Senior Dental Surgeon who is assisted by a Dental Assistant.
Public sector dental services are being expanded to include regular visits for children for examination and cleaning.

Services provided include restorations, extractions, prophylaxis, fissure sealants and other miscellaneous surgical procedures. A total 1844 patients were seen, 980 restorations, 1550 extractions, 16 surgeries (fracture jaw) and 525 other procedures including prophylaxis, fissure sealants and cleaning were done.

**Psychiatric/Mental Health Services**

The Psychiatric/Mental Health Services are provided to Orange Walk District by the Psychiatrist and Psychiatric Nurse Practitioner from Belize City, since the PNP assigned to that district resigned.

**Health Education and Community Participation Bureau (HECOPAB)**

A network of health education activities involving community participation are carried out by the District Coordinator and three (3) Community Nurses Aides.

In the year 2000, a total of 222 visits were made to rural areas to support village health committees and community nurses aide and to assist nurses on mobile clinics. Two (2) Village Health Committees (VHC), were formed, bringing the total to 8 Village Health Committees in the district.

Delousing of children in eight (8) schools was done and health education sessions on Personal Hygiene were conducted.

Twelve (12) workshops were held for Community Nurses Aides and assistance was given to the Public Health Inspector with Rabies Campaign.
Recommendations and Conclusion

With the designation of Orange Walk Hospital as the Northern Regional Hospital, services have been expanded to include all specialist care, thus posts for these specialists will have to be established.

Creation of special care units is also warranted. That is isolation, critical care, and special care baby units.

Production at the Hospital has more than doubled since 1999, necessitating additional resources.

8.3 CAYO DISTRICT HEALTH SERVICES

8.3.2 Belmopan Health Services

Belmopan Hospital has been designated the regional hospital for the Western Region. It has been equipped and staffed to function as the regional hospital having the four basic specialties, i.e. Internal Medicine, Surgery, Pediatrics and Obstetrics/Gynecology. Preventive medicine is also a strong component within the scope of coverage.

There was an increase in admissions at this hospital, being 2,369 in 2000 compared to 2,003 in 1999. At the outpatient setting the demand for consultations increased, from less that 21,000 in 1998 to over 25,000 in the year 2000. The number of deliveries increased by 12% compared to two years ago. Normal deliveries constituted the main cause of admissions followed by acute respiratory infections and gastroenteritis. In the outpatient setting the main causes for consultations were respiratory
infections, gastroenteritis, malaria, intestinal parasitism and gynecological conditions.

There were a total of 4,136 consultations by specialists during this year. Specialist clinics were also conducted at the San Ignacio Hospital covering Pediatrics, Internal Medicine, General Surgery and Obstetrics.

These services were implemented by a total staff comprised of eight (8) physicians, thirty (30) nurses and twenty-seven (27) support staff.

**Environmental Health**

One Public Health Inspector is posted at the Belmopan hospital. His area of responsibility covers the eastern part of the Cayo district. The major duties performed are summarized as follows:

<table>
<thead>
<tr>
<th>Service</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat inspections</td>
<td>216</td>
</tr>
<tr>
<td>Investigated complaints</td>
<td>108</td>
</tr>
<tr>
<td>Trade/liquor license inspections</td>
<td>198</td>
</tr>
<tr>
<td>School health education sessions</td>
<td>35</td>
</tr>
<tr>
<td>Dog bite investigations</td>
<td>40</td>
</tr>
</tbody>
</table>

**Recommendations**

The Maternal and Child Health, Environmental Health and Dental Programs can be improved greatly having a four-wheel drive vehicle; therefore one is requested.

A new complement of specialists needs to be deployed at Belmopan in order to offer full emergency coverage.

HECOPAB and Vector Control officers need to be posted at Belmopan. An incinerator is urgently required for proper management of medical waste. An additional operating theatre needs to be installed and equipped.

**Conclusion**

For the Belmopan hospital to improve the quality of services it is necessary to complement the staff to a point where a 24-hour coverage would be guaranteed.

8.3.2 **San Ignacio Health Services**

The San Ignacio hospital has a staff of 57 (including the Vector Control Program spray-men), being 4 physicians, 22 nurses, and 31 support staff. Some of the staff also covers the Belmopan area. With a total of 28 beds
the number of admissions for the year 2000 was 1,410 with an average length of stay of 9.1 days. The number of patients seen in the outpatient setting was 25,057. A total of 627 deliveries were attended and 659 minor operations were performed. The visiting specialists from Belmopan saw 443 patients during 45 sessions, equivalent to 10 patients per session.

Dental Health

The services provided include:

- Scaling and polishing of children and pregnant women teeth
- Obliteration of children teeth (8-10yrs)
- Treatment to alleviate pain
- Dental x-rays
- Drainage of abscesses
- Extraction of teeth
- Dental health lectures and tooth brushing drills for school children
- Treatment of traumatized patients

The staff assigned to carry out the above mentioned duties were two persons: 1 dentist and 1 dental assistant. These two persons attended to a total of 1,711 patients of which 50% were adults. Five hundred and eighty (580) extractions were done to adults and 559 to children. Twelve schools were visited and 1,216 children participated in toothbrush drilling.

Pharmacy

The service of this unit consisted of daily dispensing to the public, provision of first aid kits, provision of supplies to the hospital wards, rural health centers and CNA's. In the year 2000, 26,388 prescriptions were filled, compared to 1999 with 25,866. The total items dispensed were 43,615 compared to 1999 with 40,448. The ratio of items dispensed increased from 1.7 in 1999 to 1.88 in the year 2000 (this refers to the number of drugs requested in one prescription).

Health Education Community Participation Bureau (HECOPAB)

This unit plays an important role in all public health programs. It is the strategy within primary health care that allows for individual and group behavioral change and community participation.

The services provided are:

- Health education sessions to CNAs on a monthly basis
Health education to 5 primary schools reaching out to 367 students
Drug prevention education sessions
targeting tour guides, teachers, bus drivers and conductors
Health week activities
Assisting visiting health teams

There is one district coordinator/health educator who is the person responsible for these activities.

Vector Control

This program has the responsibility to prevent and control the transmission of Malaria and Dengue. One of the main strategies is the indoor spraying of houses against Malaria. A total of 2,390 houses were targeted and a coverage of 86% was achieved spraying 2,090 houses. The population covered was 7,392. Other services included: diagnosis and treatment of Malaria cases, spraying against the dengue mosquito with a vehicle mounted fogger (the ultra low volume sprayer), premises inspection, mosquito breeding site control, and support to the voluntary collaborators, community health workers and the community nurses aides.

Of the 3,195 blood slides taken to investigate Malaria 350 (11%) were positive.

It is strongly recommended that these officers be allowed to travel more often to the rural area to improve the coverage of services.

Environmental Health

One Public Health Inspector is assigned to this area that extends from Ontario to the Western Border, and from Mountain Pine Ridge to the Yalbac Area. The service provided include:

Premises inspection
Meat Inspection
Inspection of food establishments, factories
Monitoring of dairies
Monitoring of water quality
Investigation of complaints
Investigation of outbreaks
Implementation of anti-rabies campaign
Monitoring of sewerage, solid and liquid waste management
Health education
Monitoring of use of chemicals, herbicides, insecticides and industrial waste
Prosecution of public health offenders

There are 1,248 food and/or liquor establishments that were inspected throughout the year. Two hundred eighty four (284) complaints from the public were investigated. During the rabies campaign over 5,000 dogs were vaccinated. Eighteen (18) primary schools and 4 high schools were visited for educational sessions. Over 990 food handlers were certified.

The PLAGSALUD project is being implemented and within this context all reported cases of pesticides poisoning were investigated.

Maternal and Child Health

The services provided include: child health, prenatal and postnatal care. In all the sessions implemented throughout the year 2000, over 15,760 children and 8,724 women were attended. For the children group this represented an increase by 18% compared to 1999. The coverage for the vaccination against immuno-preventable diseases in children varied significantly within health centers. However, the average within the Cayo district for BCG (against tuberculosis), DPT3 (those who received the three doses against polio) and MMR was 98%. Only the coverage against Hepatitis B (3 vaccines) was 76%. However, this is a vaccine that was recently introduced to the scheme.

Mopan clinic did an excellent job for the MMR vaccine. The coverage for the target population was 99.6%.

8.4 Stann Creek District Health Services

The Southern Regional Hospital (SRH) is now fully functional and has the four basic specialties, Internal Medicine, Surgery, Pediatrics, Obstetrics and Gynecology. The hospital provides care to the entire southern region, covering a population of approximately 50,000. The SRH pioneered as a hospital the National Health Information System (NHIS) and the entire staff is very satisfied with the outcome of this new computerized information system. To date there has been over 15,000 patients already registered into the NHIS.

Over 24,000 persons were attended within the outpatient setting with an average of 100 persons seen per day. The inpatient setting maintained an average daily census of 30 patients. Five hundred ten (510) deliveries were attended at the hospital. This institution is staffed with 4 medical officers, and 7 medical specialists, 26 nurses, and 25 other support staff.
**Maternal and Child Health**

The services provided by this program are: prenatal and postnatal care, child health, management of clients with STIs, HIV/AIDS, tuberculosis, diabetes, hypertension. Mobile Clinics and home visits are fundamental strategies for outreach activities. The Rural Health Nurses in Placencia, Independence, Nuevo San Juan, Hopkins, Pomona, and Dangriga are each responsible for the implementation of the mobile clinics in their respective area.

The coverage for vaccination with BCG, DPT, Polio, Hep B and MMR were all above 80%. Six hundred eighty nine (689) home visits were done; 96 educational sessions were imparted to the different communities, 24 sessions for special groups, i.e. for diabetics and hypertensives were implemented, and 108 mobile clinics were carried out.

![A near new born is administered the polio vaccine](image)

**Mental Health**

The services provided within the Mental Health Program are as follow: education, assessment and treatment, counseling, referral, mobile clinics and training. There is one psychiatric nurse practitioner at the district responsible for the implementation of these services. During this year, 700 clients were attended at the clinic and 198 were taken care of at their homes. Those in the streets were also visited (15).

The contributing risk factors for mental health conditions included: drug abuse, dysfunctional family conditions and family violence.
Dental Health

The services provided included:

Comprehensive care in children
Relief of acute pain through extractions and minor surgery
Health education sessions

These services were provided by one dental surgeon, one dental officer and one dental assistant who have responsibility for the Stann Creek district.

During this year 2,300 patients were seen; 110 minor surgical procedures, 110 restorations, 400 prophylaxis, 210 school health education sessions.

Health Education Community Participation Bureau (HECOPAB)

This unit plays an important role in all public health programs. It is the strategy within primary health care that allows for individual and group behavioral change and community participation.

The services provided are:

Health education sessions to CNAs on a monthly basis
Health education to 5 primary schools reaching out to 367 students
Drug prevention education sessions
First aid training sessions targeting tour guides, teachers, bus drivers and conductors
Health week activities
Assisting visiting health teams

There is one district coordinator/health educator who is the person responsible for these activities.

Vector Control

The main objective of the program is to prevent and control the transmission of Malaria and Dengue. The services consist basically of the following:

Active fever case detection at village level
House to house treatment of Malaria cases
Strengthening of voluntary collaborators
Health education sessions
Indoor spraying against the vector mosquito
ULV fogging.
There is one district supervisor and two other officers who provided these services throughout the entire district.

This year, 3,435 slides were taken of which 353 were positive (10%). For the surveillance against *aedes aegypti* 479 houses were visited and 355 containers with the larvae were either treated or destroyed. Only one case of dengue was reported for this year.

*Environmental Health*

This district has a population of 24,548 and only has one Public Health Inspector to cover the district. The services provided are:

- Private premises inspection
- Inspection of food establishments
- Institutional inspection
- Port inspection
- Food handlers certification
- Complaints investigation
- Dog vaccination against rabies
- Surveillance for pesticide poisoning
- Waste disposal regulation and monitoring.

Production is as follows:

*Approximately*

1,500 food establishments were inspected
300 private premises inspected
75 private institutions inspected
40 schools visited for school feeding program
150 water samples collected
150 vessels boarded and inspected
2,000 food handlers attended to
75 carcasses inspected at meat market
150 complaints investigated
2,600 dogs vaccinated against rabies.

National Health Information System

The Southern Regional Hospital has led the process in using the NHIS within a hospital setting. The unit has registered approximately 15,000 patients. The two persons stationed there, one statistical officer and one data entry clerk have done the following:

- Registration of new patients
- Updating of all patient records
- Basic analysis of data.

Recommendations

There is the need for a vehicle to be assigned specifically to the MCH program
Efforts are being made to strengthen the care and support services for HIV/AIDS patients
HECOPAB would greatly benefit from the addition of at least one more person to the staff to more effectively carry out health education for the district

8.5 Toledo District Health Services

According to the Census as at May 12, 2000, the total population of the country of Belize was 240,204 inhabitants, of which 9.7% (23,297) correspond to Toledo District population (0.7 % higher than the census of 1991) who live in a territorial extension of 1979 square miles (12 inhabitants per square mile)³.

With a Male/Female ratio of almost 1:1 and a very young population, the high incidence of teenage pregnancy and prevalence of under-nutrition at the age of weaning, Toledo is a real challenge for anyone interested in the social aspects of health services.

The urban/rural ratio for the country shows to be predominantly rural, Toledo District shows the highest rural population of the country: 81.4%. 
Cultural diversity, inaccessibility to some rural communities during the rainy season and low educational levels are some of the contributing factors to the slow development in this part of the country.

Acute respiratory infection, head lice infestation, malaria, parasitic intestinal diseases, skin infections and pulmonary tuberculosis continue to be the predominant features of morbidity, complemented only by increased incidence of diabetes, hypertension and lately, road traffic accidents.

In spite of the district geographic characteristics and location, no maternal death was reported for year 2000, which reflects good antenatal and postnatal care.

One district hospital, six (6) government health centers three of which are staffed by Community Health Nurses, two (2) private health centers and 17 health posts were the outlets for health care delivery during the year 2000.

Eight Family Physicians from Cuba were posted in the district thereby strengthening the staff in the hospital setting and at the community level.

Considerable assistance was received from NGOs and religious organizations who conduct annual clinics in a variety of specialized areas.

A few border meetings between Belize and Guatemala were held under the tri-national agreement during the year however, due to periodic changes in personnel in both countries there was a decline in the frequency of these meetings. The will to coordinate preventative health related actions along the border areas still exist and this has proven to be very fruitful in the past.

The staff consists of 4 physicians, 23 nurses and 17 support staff. The services provided were:

- Emergency services
- General medicine
- Maternity and delivery
- Outpatient services
- Ambulance
- Hotel Services for In-patient and staff

The total number of admissions was 1,669 this year compared to 1,726 in 1999, a difference 3%. At the outpatient setting 17,629 persons were attended. Referrals summed up to 146, either to KHMH or the SRH. The total number of deliveries was 320.
Laboratory

The services provided included:

Phlebotomy
Assays of test to final reporting
Quality assurance
Availability of safe blood supply for emergency
Supervised biohazard waste and sharps to be incinerated
Transport packaged samples to CML
Maintaining adequate supplies of reagents and materials for disasters
X-ray services (in absence of Radiographer)

Of the basic tests done the ones performed with more frequency were the following:

<table>
<thead>
<tr>
<th>Test</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing of blood donors</td>
<td>141</td>
</tr>
<tr>
<td>Grouping</td>
<td>928</td>
</tr>
<tr>
<td>HIV</td>
<td>1,104</td>
</tr>
<tr>
<td>RPR</td>
<td>926</td>
</tr>
<tr>
<td>Urinalysis</td>
<td>806</td>
</tr>
<tr>
<td>Parasitology</td>
<td>562</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>2,510</td>
</tr>
</tbody>
</table>

One Medical Technologist II is posted at Toledo.

X-Ray

A total of 1,127 examinations were done, most being from the outpatient setting, (68%).

Maternal and Child Health

The services provided consisted of:

- Immunization of the 8 vaccines on the schedule
- Mobile clinics
- Provision of vitamin A to infants
- Prenatal and postnatal care
- Reproductive health services
- Training of traditional birth attendants
- Surveillance of communicable diseases
These activities were implemented by 5 nurses and 7 support staff. The coverage against immunopreventable diseases was excellent. BCG was provided to 100% of the target population. DPT had a coverage of 96.4%, polio 98.1%, MMR 98.9%. Hepatitis B was the lowest with 81.2%. Every 6 weeks 36 villages were visited by the mobile clinics.

Mental Health

There is one Psychiatric Nurse Practitioner who provided the following services:

- Assessment and counseling of clients
- Training sessions on stress management
- Educational sessions at school
- Participated in the mobile health clinics
- Home visits
- Group therapy
- Organization of community support groups
- Advocacy between clients and community based agencies

Out of the above activities the one performed with most frequency was for counseling and treatment (834 consultations).

Dental Health

One dental surgeon along with one dental assistant covers the entire Toledo district. The main activities included extractions and educational sessions.

Patients examined were 1,593 of which 64% were adults.

The services were provided by one district coordinator/health educator, but this person was supported by 39 CNAs. Health educational sessions were implemented at schools and community settings. Village meetings were conducted to address health issues, and coordination was done with public health personnel in the mobile clinics. Training was done for 20 CNAs and 9 Traditional Birth Attendants.

Vector Control
Environmental Health

The services provided in this district consisted mainly of:

- Private premises inspection
- Investigation of complaints
- Meat inspection
- Food establishments’ inspection
- Checks on itinerant food vendors
- Issuing of Food Handlers’ Certificate
- Collection of water samples
- Free chlorine residual monitoring
- Siting of latrines
- Septic tanks inspection
- Health education
- Investigation of communicable diseases
- Vaccination of dogs and cats
- Extermination of stray dogs
- Investigation of dog bites

Within the above activities the following can be highlighted:

- 846 porcine carcasses were inspected before reaching the market
- 408 food handlers certificates were issued
- 1928 dogs and 511 cats were vaccinated

General Recommendations

Two more vehicles are needed for Toledo Health Services. These vehicles need to be selected taking into account the terrain and the purpose.

8.6 Belize District Health Services

With a total of 68,197 inhabitants, Belize District continues to represent the largest proportional share of the country’s population (28%). However this has declined by 2% from its level of 30% in the 1991 census. The majority of the population (53,549) lives in Belize City with 34,616 being on the South side, 14,648 on the North Side, and 4,499 in San Pedro Ambergris Caye. The Crude Birth Rate for the Belize District was 20.3 in the year 1999 and the Crude Death Rate for the year 2000 was 8.5.
Hospital Services and Production

Belize District has never operated as a health district. Health programs and hospital services have been managed mainly by central level personnel, even though it is the largest in terms of population and health programs. This situation is being corrected with the appointment of a Regional Health Manager to coordinate all activities in the Central Region. This region comprises Belize District, including Caye Caulker and San Pedro Ambergris Caye.

In addition to the KHMH, the Belize District Health Services is comprised of four (4) urban and nine (9) rural health centers. Services at Queen Square and Port Loyola Health Centers were upgraded to include additional medical and nursing staff and a full time pharmacist. KHMH functions as the provider of secondary care for the central region and as the national referral hospital.

Karl Heusner Memorial Hospital Health Services

The principal secondary care institution, Karl Heusner Memorial Hospital (KHMH) being the national referral hospital is undergoing a period of transition to become an autonomous institution as of April 2001. A new board has been put in place. KHMH provides specialist service clinics on a daily basis, provides care for emergencies and has a bed capacity of 109, with a staff of 480 persons including forty-one (41) doctors including 12 Cubans and 6 Nigerians, one hundred seventy-five (175) nurses and two hundred seventy (270) technical and support staff.

Hospital production statistics are shown in Table XI.

<table>
<thead>
<tr>
<th>Services</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admissions</td>
<td>8,601</td>
</tr>
<tr>
<td>Deliveries</td>
<td>2,146</td>
</tr>
<tr>
<td>Surgeries</td>
<td>2,171</td>
</tr>
<tr>
<td>Deaths</td>
<td>599</td>
</tr>
<tr>
<td>X-Rays Examinations</td>
<td>17,093</td>
</tr>
<tr>
<td>Patients seen at specialist Clinic</td>
<td>9,146</td>
</tr>
<tr>
<td>Accident and Emergency</td>
<td>23,806</td>
</tr>
<tr>
<td>Prescriptions filled</td>
<td>37,506</td>
</tr>
<tr>
<td>Number of Patients referred from District</td>
<td>675</td>
</tr>
</tbody>
</table>

SOURCE: NHISU

Admissions to KHMH accounted for 44% of all admissions in the country. This represents a small increase from the previous year, where admissions
at KHMH were 43% of total admissions. With regards to the other services, there were no signification production difference between the years 1999 and year 2000.

The average length of stay for the year 2000 was 4.6 days. The ward with the highest length of stay was surgical with 7 days per patient. Maternity has had the lowest length of stay which was 2 days per patient. The bed occupancy rate varied from 67% to 89% with the surgical ward reporting 89% and the pediatric ward 67%.

The total number of surgeries was 2,171, a slight decrease compared to the year 1999 when it was 2,376. Of the total surgeries 695 were elective surgeries, while the others were emergency surgeries. Sixty three percent (63%) were classified as major and 37% as minor surgeries. Most of the cases were classified as general surgical cases, 27.6% followed by the obstetric cases with 24.9%.

**Community Health Programs**

In the absence of a management structure for the Belize District, community programs were coordinated by program managers who also supervised the implementation of programs at the national level. A regional health manager for the central region (Belize District) has been put in place as part of the health sector reform program. This person will be responsible for the day to day management of community based programs in the central region.

**Maternal and Child Health Programs**

This program was run vertically during the year 2000 with a Director, the Supervisor of Public Health Nurses, the Inspector of Midwives and the Senior Public Health Nurse being the top management team. As earlier noted this structure has been changed, with the aforementioned persons functioning as technical advisors.

The Regional Health Managers for the Central Region will now assume the responsibility for Maternal Child Health, as well as the other community programs.

Aside from the four (4) Managers, four (4) Public Health Nurses, one (1) Registered Nurse/Midwife, thirteen (13) Rural Health Nurses, twelve (12) Caretakers, three (3) Drivers and three (3) Grounds-men carried out the Maternal and Child Health Services in the year 2000. In addition to the regular activities of the Maternal Child Health programs, it is at the Central Level where procurement and distribution of vaccine and management of the cold chain is done.
The Inspector of Midwives has full responsibility for the standards of midwifery practice in the country, including the training and supervision of Traditional Birth Attendants.

The production of the Maternal Child Health program during the year 2000 may be viewed in Table XII.

### Table XII
Production of the Maternal Child Health Program Belize District: 2000

<table>
<thead>
<tr>
<th>Activity</th>
<th>2000 Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunization Coverage</td>
<td>91% overall</td>
</tr>
<tr>
<td>BCG</td>
<td>97%</td>
</tr>
<tr>
<td>DPT 3 dose</td>
<td>89.6%</td>
</tr>
<tr>
<td>Polio 3 dose</td>
<td>89.6%</td>
</tr>
<tr>
<td>MMR</td>
<td>94%</td>
</tr>
<tr>
<td>Hepatitis B 3 dose</td>
<td>84%</td>
</tr>
<tr>
<td>MMR Campaign 12 – 59 months</td>
<td>84%</td>
</tr>
<tr>
<td>MMR 5 – 35 years</td>
<td>total # of children 0-5yrs – 18,375</td>
</tr>
<tr>
<td>Child Health Clinic</td>
<td>total done – 2,728</td>
</tr>
<tr>
<td>Mobile Clinics</td>
<td>total done – 1,426</td>
</tr>
<tr>
<td>Home Visits</td>
<td>1,149</td>
</tr>
<tr>
<td>Post Natal Clinics</td>
<td>total pregnant mother 9,010</td>
</tr>
<tr>
<td>Pre-Natal Clinic</td>
<td>28 villages</td>
</tr>
<tr>
<td>Iron Supplementation</td>
<td>all post natal mothers (6 wks after delivery)</td>
</tr>
<tr>
<td>Screening for Cervical Cancer</td>
<td>to all pregnant and post natal women and children 0 mths – 5 yrs</td>
</tr>
<tr>
<td>Vitamin A Supplementation</td>
<td>contact tracing, counseling and follow up</td>
</tr>
<tr>
<td>STI/HIV/AIDS</td>
<td>family planning counseling to all child bearing women. Administration of contraceptives, condoms, injection and IUD’s</td>
</tr>
<tr>
<td>Reproductive Health</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Belize District Health Report 2000*

Recommendations are as follows:

Increase staff coverage for Urban & Rural Health Centers
Installation of telephones at Crooked Tree, Gales Point, Maskall and Double Head Cabbage Health Centers
Training of Traditional Birth Attendants to assist with delivery in the Community. Employment of five Community Nurses Aides for the Belize District
Refurbishing of Maskall and Double Head Cabbage Health Centers
Continuous in service education for nurses e.g. Emergency
Management, of Acute Respiratory Infection

**Environmental Health Program**

The Environmental Health Program has as its objective the preservation of life and prevention and control of diseases through the provision of sanitary, healthy living and working conditions for the Belizean population. Major areas of focus are potable water and sanitation, wholesome food supply and an environment free of vectors and nuisances.

This program is carried out by a Principal, two (2) Senior and ten (10) Public Health Inspectors. A Water Analyst and a Secretary are other members of staff.

Services Provided and Production for the year 2000 are stated below:

**Food Safety**
- 120 tons of food stuff condemned
- Over 24,000 carcasses of porcine, bovine and poultry inspected
- 200 food establishments and 356 itinerant food vending site inspected
- 550 food handlers certificate issued
- A food borne disease outbreak was investigated

**Potable Water Supply**

- 126 free residual chlorine tests carried out
542 water samples collected for bacteriological and chemical analysis

Disaster preparedness training helped ensure there were no disease outbreaks following Hurricane Keith

Solid Waste Management
Incineration of Medical Waste at five (5) Government Hospitals
Rabies Control
15,507 dogs and 1303 cats vaccinated against rabies
273 dogs exterminated
9 dog bites reported and investigated
4 persons administered post exposure anti-rabies vaccination

It is noteworthy that no cases of human or animal rabies were reported nor diagnosed for the year 2000.

Port Health and Quarantine

342 vessels boarded, inspected and granted permission to land in the country, after being found disease free
14 deratization exemption certificates issued
No exotic disease reported for year 2000
Prevention and Control of Water-borne Diseases, Especially Cholera
2 food handlers workshops held

No cases of cholera were reported for the year 2000.

Post Hurricane Keith

The outbreak of leptospirosis after hurricane Keith in the Belize District was immediately controlled. The Public Health Inspectorate effectively monitored water quality and assisted in treatment of water systems at
both the municipal and domestic levels and thus prevented the outbreak of any water-borne disease. The inspectorate effectively monitored solid waste management and assisted in the cleaning of private premises as well as public places. The sewage disposal systems were effectively monitored thus preventing fecal borne disease.

The inspectorate effectively monitored the food supply and a quantity of unsound food item-including chicken, meat products and canned goods were condemned seized and destroyed. No food-borne illness related to hurricane Keith was reported. A mass public information campaign was launched and so prevented any environmental health crisis. The Hepatitis A outbreak in the Cayo District in March 2000 was controlled.

Recommendations

Integration of Public Health and Vector Control Program
Increase staff by at least 12 Public Health Inspectors
Further Development of Public Health Bureau Data Systems and its full integration into the National Health Information System
Provision of adequate and reliable motor vehicles for the Public Health Bureau
Provision of Office and residential quarters for district Public Health Inspectors
Training of Public Health Inspectors
Strengthening of the water quality monitoring program to be able to test for other elements and pesticides
Investment in a food laboratory to support the food safety program

Vector Control Program

The Belize District is the district with the lowest incidence of Malaria in the country.
The Vector Control Staff of the Belize District is comprised of one Chief of Operation who has national responsibility with eleven (11) technical staff.

There are also Thirty-five (35) Voluntary Collaborator/Community Health Workers that assist with surveillance in the villages. The services provided by the Vector Control Programme are:

- Fever case detection at village level.
- Treatment of positive malaria cases.
- Indoor house spraying.
- Reduction of breeding sites.
- Treatment/Reduction of domestic breeding containers.
ULV spraying to control adult mosquitoes that can transmit dengue.

Health Education.

For the year January to December 2000 a total of 787 blood samples were taken from fever cases, 168 were taken by active case detection and 618 by passive case detection. Of the 787 samples examined 26 were positive (3.3%) and all were treated.

A total of 28 Dengue samples were taken from suspected dengue cases for the Belize District, of these four (4) were positive as reported by CAREC.

Regular scheduled U.L.V. spraying continue in Belize City and in high-risk villages.

The Environmental assistants continue their weekly house and premises inspections in Belize City in their assigned area.

There was an increase in the number of localities sprayed in the second spraying cycle for 2000, that is because villages that were flooded as a result of Hurricane Keith were sprayed.

For the first spraying cycle a total of Ten (10) localities were sprayed with a total of 1,177 houses and a population of 3,275 was protected.

The second spraying cycle included the entire Belize River Valley that was flooded after Hurricane Keith. A total of 28 localities were sprayed with a total of 2,255 houses and 6,490 population protected.

A major limitation that the Vector Control Program faces in the Belize District is the lack of transport (Motorcycles) for the three (3) evaluators, at present they are traveling to the villages by the public transport.
The three (3) evaluators will be provided with motorcycles, so that they will be better equipped to conduct active case detection, supervise radical treatment of positive cases, and provide support to the Voluntary Collaborators/Community Health Workers.

**Mental Health Services**

The following are the services that are currently being provided by the Mental Health program:

In-Patient Services- Rockview Hospital, the only psychiatric institution in the country of Belize

Out-Patient Services: Provided at the Psychiatric Clinic at the Cleopatra White Health Center and at the other 5 districts hospitals of the country

Community Services such as:

- Prison visits
- Mobile Clinics
- Shelter and Hostel clinic
- Home visits
- Streets Clinics
- School Program (SHAPES)

Organization of Staff for Mental Health is as follows;

The Psychiatric/Mental Health Services are delivered by two (2) Psychiatrists, four (4) Psychiatric Nurse Practitioners, four (4) Social workers, five (5) Practical Nurses, an Occupational Therapist, twenty-two (22) attendants and thirteen (13) other support staff.

**Rockview Hospital Services Provided**

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admissions of New Acute Cases:</td>
<td>53</td>
<td>24</td>
<td>77</td>
</tr>
<tr>
<td>Re-admissions</td>
<td>35</td>
<td>45</td>
<td>80</td>
</tr>
<tr>
<td>Average daily census:</td>
<td>55 patients</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Occupational therapy, counseling and psychotherapy as well as psychopharmacology interventions were also services provided during the year 2000.
Psychiatric Clinic

New Cases 389  
Old Cases 1,476  
Total of Cases 1,865  

Activities: Daily Crisis interventions, Follow-up, clinical assessments etc, 350 clients were seen at various community institutions and during street visits.

Recommendations

Training of a mix of personnel, (PNPs, Psychiatric Social Workers, Occupational Therapists, and psychologist)  
Update the Mental Health Legislation  
Implement the Health Information system in Rockview and the clinics  
Closure of Rockview and creation of Acute Unit within General Hospitals  
Shelter housing for chronic patients and rehabilitation center

National AIDS Program

The National AIDS Program has a staff of three (3), a National Coordinator, a Field Coordinator/Health Educator and a clinic nurse. The program is also supported by Public Health Nurses and Public Health Inspectors countrywide.

Services provided include:

- Comprehensive Clinic  
- Contact Tracing  
- Clinical Management of patients at Hattieville Prison  
- Pre and Post HIV Testing Counseling  
- Technical support – Workshops, Seminars etc  
- Coordinate with the National AIDS Commission

Production

- 600 cultures and 800 blood samples taken  
- 800 patients with STI/HIV/AIDS treated  
- 173 workshops, seminars, health educational sessions carried out, reaching a total of 13,240 persons
Recommendation

Renovation of office with private room for counseling and bathroom facilities for staff and clients. Increase in staff and equipping of office to provide more efficient service and increased coverage to clients, as well as to assist with contact tracing.

Nutrition Program

Nutrition and nutrition promotion services are delivered through not only the Nutrition Unit, but through the Maternal and Child Health Department, Health Education and Community Participation Bureau (HECOPAB), the Dietetic Section of the Karl Heusner Memorial Hospital (KHMH), the primary school curricula as well as through the School Health and Physical Education Services (SHAPES) component.

The year 2000 was the global benchmark for the elimination of a number of nutrition related diseases. However statistical data was strongly indicating persistency and significant increases in some of the nutrition related diseases. Hence, this year special efforts were made to initiate and implement strong actions and interventions in the area of nutrition and nutrition linked services, in order to prevent and bring under control the effects of illnesses and poor nutrition conditions.

The Nutrition Unit has for many years been staffed by one person only and as such has had to devise ways to make an impact in the area of
nutrition. This Unit works along with other health sectors as well as with other Ministries, as mentioned above, supporting and developing efforts towards strengthening nutrition actions.

The Nutrition Unit advises, promotes and monitors nutrition programs and liaises with training institutions and personnel for the implementation of nutrition programs.

Last year the Unit conducted the following activities:

- Two days Nutrition Training with Primary School Teachers in all Districts, that is with those directly involved with School Feeding Programs and those who are planning to implement similar programs in their schools. It is a total of about fifty schools and some three hundred teachers.
- Two nutrition sessions with the kitchen staff of the Sister Cecilia Home for the aged.
- One nutrition session with the staff of the Hattieville Geriatric Home.
- Revitalized the Baby Friendly Hospital Initiative Program in the Hospitals country wide.
- Conducted activities in celebration of “World Breast-feeding Week, such as promotional sessions at the clinics countrywide, news paper and radio press releases and daily Breast-feeding tit bits for the radio.
- Two sets of Summer Training in Nutrition for Primary School Teachers doing extra studies for accreditation.
- Did a “Qualitative Comparative Gender Analysis Study On Diet and Exercise Practices” of individuals ages 40 years and plus. Results were presented at the Annual Regional Nutrition Meeting held here in Belize.
- The Nutrition Unit hosted the four day Annual Regional Nutrition Coordinators Meeting in November 2000.
- The Nutrition Unit with the support of its multi disciplinary task force conducted its first National Nutrition Quiz Competition for secondary schools on the 24th of November 2000. This activity was financed by the Belizean branch of ADM Mills Supper market to the world.

Other Significant Accomplishments

There are currently several initiatives related to the improvement of nutrition in the country, and they are as follows:

- Food and Nutrition Security Policy was approved by Cabinet on October 17, 2000.
Nutrition component surveillance was initiated through the National Health Information System and Surveillance Unit.

Information on Nutrition Status of School Children was assessed based on anthropometric data taken last year and analyzed utilizing the National Information system software.

National flour is now fortified with iron up to the recommended levels of 60 parts per million.

Vitamin A supplementation program was started in October 2000.

Iron supplementation for children under five years old was initiated simultaneously with vitamin A supplementation program.

Nutrition education is now included in the primary school curriculum through the healthy school initiative SHAPES.

Training Programs for teachers and parents is being conducted on a regular basis to support education in schools and the school feeding programs.

Micro nutrient and Breast-feeding promotional campaigns have been conducted country-wide.

Limitations

The Nutrition Unit needs human, material, and financial resources. It needs a minimum of seven (7) Staff members, one (1) Nutritionist/Dietitian, operating at national level, with the support of five (5) Nutrition Officers one for each district hospital and one (1) secretary.

With the enforcement of a National Food and Nutrition Security Policy and the establishment of a Secretariat there is the urgent need for at least one Nutrition Officer per district. This person would assist in the development and implementation of nutrition standards.

Recommendations

In order to facilitate better capabilities for programming, implementing and evaluating initiatives towards nutrition the following is recommended:

- Broaden the base of qualified personnel in food and nutrition.
- Make provisions for suitable human, material and financial allocations to enable the Nutrition Unit to perform its required functions of Planning, Advising, Training, Supervising, Promoting, Coordinating, Research, Evaluation and Administration.
- Establish an updated and reliable database on nutrition situation, through the basic surveillance system of nutrition.
indicators.

• Comply with the agenda of the Multi sectoral Taskforce in Food and Nutrition to strengthen coordination between health sectors.

Pharmacy Department

The Pharmacy department aims at providing safe, effective and continuous pharmaceutical care of good quality to the Belizean Public. To do this, the pharmacist must ensure that adequate forecasting is done. This is reflected in their monthly request for pharmaceuticals and Medical Supplies.

Pharmaceutical Services are being offered at each of the seven districts hospitals throughout Belize, as well as at the Old Belize City Hospital Pharmacy (OBCH), Matron Roberts Health Center (MRHC) and Cleopatra White Health Center (CWHC). In December 2000 Pharmacy were installed in Port Loyola and Queen Square Health centers as a part of the intermediary measures to improve and increase access to health care in Southside Belize District.

The services offered at the Health centers are mainly dispensing. The Old Belize City Hospital offers dispensing services, but the main focus is on manufacturing of extemporaneous preparations that are supplied to and utilized by, the hospital and the health centers in the Belize District, as well as the rural facilities such as the department of Correction, Rockview Hospital, Sister Cecilia’s Home and the Hattieville Health Centre etc.

Staff Complement

The staff complement comprises fifteen Dispensers, one Senior Dispenser, four Apprentice Dispensers and the Chief Pharmacist. The Pharmacist and the Senior Dispenser are at the National Pharmacy (OBCH.).

The office of the Chief Pharmacist is responsible to assist in:

Certification and approval of Request for Controlled Substances Submission of Statistical Reports to the International Controlled Board Approving the importation of Antibiotics and duty exemption claims on products Conduct the Registration exam for Pharmacist Ensure there is continuity of Pharmaceutical Services at all times. Undertake Public Awareness Campaign and Health Promotional Activities
Regularize the practice of Pharmacy both in the public and Private Sectors.

The present demand for pharmaceuticals exceeds the budget allocation, resulting in frequent shortages, which negatively impact both users and providers.

The south side project with the influx of medications has and served to improve the present situation by increasing the availability of drugs at the health centers. There were periods of shortages but those were due to system defect and supplier performance.

Central Medical Stores

Central Medical Store is one of the supporting service of the Ministry of Health. This unit is responsible for the budgeting, purchasing and distribution of Pharmaceutical, Medical, Laboratory and X-Ray supplies for Public Use. This unit also procures supplies for Environmental Health, Vector Control, Maternal & Child Health, Pharmacy, Dental and Community Health Worker. The Central Medical Store Unit has 10 members of staff consisting of one (1) Supply Officer, one (1) Assistant Supply Officer, one (1) Custom Broker, one (1) Data Entry Clerk, one (1) Secretary III, two (2) Store-keeper/Clerk, two (2) Porters and one (1) driver.

The Contractor General has approved new tender documents for pharmaceuticals. A multidisciplinary tender committee reviews submissions of interested suppliers and using established criteria select a list of suppliers and the respective items are purchased. After approval purchases are made on a quarterly basis.

The approved budget represents 40.29% of the requested submission made by each program, which amounts to $6,800,000.00.

Southside Belize District Project

The department continues to provide supporting service to the Belize Southside District Project. Medical Supplies are issued to these health centers on a regular scheduled basis. Requisition for Pharmaceutical supplies is done through the National Pharmacy. All other supplies are requested directly to the Central Medical Stores through the nurses in charge.
Tendering Process

This year as part of the Health Sector Reform the purchasing of Pharmaceutical and Medical Supplies products will be processed through an Open Tender. Purchasing will occur through a Maximum Price Contract arrangement with the successful company or companies. Because of the new project being undertaken the purchasing of supplies for the first quarter will be purchased using the quotes from last year tender. A new Tender Committee is being set up by the Ministry.

Hurricane Keith

Central Medical Stores Emergency operational action plan went into effect on Saturday 30th, September 2000 immediately after the Ministry of Health activated its Hurricane Plan. Most Medical supplies were evacuated to Belmopan and Orange Walk in containers. Staff was deployed to these areas. Stocks were readily distributed to various Health facilities throughout the country.

Limitation

Due to the increase demand for pharmaceuticals and medical supplies in all health institutions, it is necessary to have an increase budget allocation to this cost center.

Recommendation

Since the approved budget is insufficient to procure all the necessary drugs, it is recommended that an essential drug list be made for the National Formulary.

Laboratory Services

The role of the Laboratory Services is to provide diagnostic testing for institutional and outpatient facilities, surveillance patient management. The central medical laboratory is responsible for technical oversight for ALL Ministry of Health Laboratories and for ensuring the availability of sufficient quantities of the right kinds of reagents for performing analytical procedures and advising on equipment purchasing and maintenance.

The Central Laboratory has a complement of 16 technical and 4 support staff. Two senior Medical Technologists supervise the day-to-day activities of the Central Laboratory and the Blood Bank/KHMH Stat Lab. The Medical Technologist 1/Cytologist performs cancer screening of PAP
smears. Four Medical Technologist II provide eight-hour shift services for the KHMH; one functions as the network administrator for the laboratory information system and the remaining four Medical Technologist II perform functions as technologists in charge of the serology, hematology, chemistry and bacteriology sections. The 2 MT III provide technical assistance for the Histology and Bacteriology sections. The Phlebotomist is responsible for the collection of blood units for the blood bank while the Laboratory Assistant provides support for the bacteriology section.

At the district level there are six laboratories staffed by nine technologists. These are located at the hospitals in Belmopan, San Ignacio, Dangriga, Punta Gorda, Orange Walk and Corozal.

Services provided at Central level include: Bacteriology, Serology, Chemistry, Cytology, Histology, Hematology, Blood transfusion, 24-hour coverage for the Karl Heusner Memorial Hospital and referral services for public and private laboratories. The District laboratories performed basic diagnostic services relevant to the needs of each district hospital and utilized the Central Laboratory's referral services as necessary for HIV, Hepatitis B, Thyroid Function, Bacteriological cultures, surgical biopsies and PAP smears. District technologists provided on call service after regular working hours.

An average of forty prenatal mothers are routinely screened at the Central Laboratory, the district laboratories also perform prenatal screening. Tests performed include hemoglobin, glucose, blood typing, sickling, and RPR (screening for syphilis). It is of vital importance to identify abnormalities through these screening tests for appropriate public health interventions. Prenatal mothers with negative Rhesus blood type undergo further testing for the presence of destructive antibodies in their circulation which can destroy red blood cells causing neonatal jaundice, and if not managed properly may result in brain damage or death.

The Laboratory Services continue to perform routine screening of food handlers for parasitic infections in all laboratories. Occasional food products were tested at the Central Laboratory to rule out food poisoning. The screening of diarrhoeal samples for cholera and enteric pathogens were conducted at the Central Laboratory in Belize and at the Belmopan and Punta Gorda laboratories.

During the year 2000 all laboratories continued to screen samples from the Sexually Transmitted Infection Clinic for syphilis. All samples for gonorrhoea, antibodies to Hepatitis B surface antigen and HIV were screened at the Central Laboratory. Samples were also screened for fungal and parasitic infections – Candida albicans and Trichomonas vaginalis.
Productivity

The Central Medical Laboratory performed a total 41,946 tests on 23,917 patients in the year 2000. These were distributed as follows:

<table>
<thead>
<tr>
<th>Section</th>
<th>Number of Tests</th>
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<tbody>
<tr>
<td>Biochemistry</td>
<td>7083</td>
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<tr>
<td>Haematology</td>
<td>8682</td>
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<tr>
<td>Bacteriology</td>
<td>8058</td>
</tr>
<tr>
<td>Parasitology</td>
<td>3692</td>
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<tr>
<td>Urinalysis</td>
<td>5228</td>
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<tr>
<td>Serology</td>
<td>9203</td>
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</tbody>
</table>

The Blood Bank collected 3,275 units of blood while the Histology section performed 1,035 biopsies and the Cytology section 862 PAP smears. There was no laboratory-diagnosed cholera case in 2000. In the previous year, 1999, there were 12 laboratory-diagnosed cases of cholera in Belize.
Greater efforts are being made to safeguard the nation’s blood supply

A total of 5969 HIV tests were performed by the Central Laboratory in 2000, of these 224 (3.8%) were positive. In 1999 there was a marked increase in both testing and positive laboratory diagnosed cases for HIV. This possibly resulted from the amnesty program.

**Recommendations**

Restructure the organization of the Laboratory Services in order to respond to the laboratory needs of the central region and to serve as the national referral lab.

Increase the complement of technical and support staff in order to fill the vacuum created by the reassignment of 4 members of staff to the Karl Heusner Memorial Hospital Health Authority.

Upgrade technical posts to equate salaries with similar post in the government service and to prevent the high attrition rate.

Facilitate training of Medical Technologist to strengthen laboratory capacity and facilitate succession planning.

Provision of security services for safety of personnel and protection of facilities.

Extension and redesign of the patient and sample management areas to enable ramp access and ensure safe, efficient sample management and to provide ground floor access for blood donors. Also to expand the waiting area to accommodate the large number of patients who at present are compelled to wait outside the building expose to the inclement weather.
Improve compound by filling and paving parking area and landscaping
Assign dedicated Biomedical engineer/technician for timely and effective
maintenance of laboratory equipment.

Creation of a National blood transfusion services

National Engineering and Maintenance Center (NEMC)

The National Engineering and Maintenance Center (NEMC) was
established for the purpose of installation, service and repair of medical
equipment. In addition maintenance and repair of vehicles and physical
facilities/infrastructure fall under the responsibility of the NEMC. The
services are provided with very limited human resource comprising a
Director and fifteen (15) support staff including carpenters, plumber,
electrician, bio-medical technician, store-keeper and secretary.

It is estimated that NEMC was able to accomplish 75% of its planned
activities for the year 2000.

Medical Equipment

Some medical equipment in all hospitals were repaired or received
preventive maintenance. These included sterilizers, anesthetic machines,
blood pressure apparatus and suction machines.

Vehicles

NEMC was able to service and/or repair all vehicles within the Ministry of
Health. A log book, outlining repairs done for each vehicle was initiated
and maintained to keep track of what was done to each vehicle. NEMC is
also responsible for ambulances in regional hospitals.

Mechanical Equipment

Boilers, generators, water pumps, chillers and medical gases were all
managed and repaired as needed.

Health Facilities

NEMC was able to refurbish about 70% of all health facilities. This was
done by the NEMC staff and in some cases by private contractors.
Under the Health Sector Reform Project all clinics and hospitals will be upgraded and refurbished

The Proposed Plan for the year 2001 is as follows:

- Set up preventative maintenance schedules
- Training of personnel in biomedical/mechanical technology
- To have all equipment inventoried and computerized with necessary replacement serviceable parts
- Monies must be easily available to procure parts
- There must be standby equipment
- The National Engineering and Maintenance is planning to purchase additional equipment to be used in emergency cases as backups.

9. SUMMARY AND CONCLUSIONS

In this first comprehensive health report it is appropriate to commend the “Captain of the Ship”, the Chief Executive Officer who though relatively new to the Health arena provided direction and motivation to associates. The high level of productivity and commitment of associates, who despite the limited resources and other physical constraints, in the majority of cases function over and beyond the call of duty is also worthy of praise. This dedication was evident during Hurricane Keith when the Ministry of Health led the way in effectively implementing its newly revised hurricane disaster plan.

The achievement of specific programs is noteworthy. For instance, communicable diseases, especially the immunopreventable ones have been significantly decreased and immunization coverage remains high. Cases of Malaria were drastically reduced from over 10,000 in 1995 to less
than 1,500 in the year 2000. Dengue was kept to a minimum (4 cases) even after Hurricane Keith when there was an increase of breeding sites in the areas affected by flood. A major highlight of the year 2000 is the fact that no case of Cholera was detected.

The infant mortality rate was greatly reduced from 21.4 to 17.3 per thousand live births over a one year period. This decrease is attributed to the placement of additional health professionals at district level, training of Community Nurses Aides and availability of drugs at rural level. Improvement of environmental sanitation and availability of potable water are also factors which no doubt contributed to the lowering of the infant mortality rate.

During the year 2000 Health Sector Reform activities were accelerated. Regionalization became a reality with the designation of four health regions and the recruitment and appointment of Regional Health Management Teams. In preparation for the piloting of the National Health Insurance Project measures were undertaken to improve and increase access to health services on southside Belize district. These include extension of opening hours of the health centers, the addition of professional and support staff, an updated selection of pharmaceuticals and imaging services, with private sector providing those services not available at Government facilities. Mobile medical clinics are now being provided to Gales Point on a weekly basis.

Although major successes were noted in the implementation of primary and secondary care, significant challenges persist in the attempt to combat the upward trend of HIV infection. It becomes even more critical as the age group predominantly affected is the 15 to 44 years, which is the economically active sector of the population.

Road Traffic Accidents which over the last three years ranked as one of the first five major causes of mortality in all districts, ranked first in the general leading causes of mortality in 2000, signaling the need to intensify activities to curb this problem. This will require inter-ministerial collaboration.

It was observed that in all six districts lack of reliable and consistent transportation was noted as a limiting factor for the smooth and timely delivery of health services. It is expected that for the year 2001 the productivity and performance will continue to improve. This of course can only be realized if associates are provided with an enabling environment, which will impact on quality of service to the people they serve.
10. **ACRONYMS**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>BAHA</td>
<td>Belize Agriculture and Health Authority</td>
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<tr>
<td>BCG</td>
<td>Bacillus Calmet Guermin</td>
<td></td>
</tr>
<tr>
<td>CBR</td>
<td>Crude Birth Rate</td>
<td></td>
</tr>
<tr>
<td>CDR</td>
<td>Crude Death Rate</td>
<td></td>
</tr>
<tr>
<td>CNA</td>
<td>Community Nurses Aide</td>
<td></td>
</tr>
<tr>
<td>DOTS</td>
<td>Directly Observed Treatment Scheme</td>
<td></td>
</tr>
<tr>
<td>DPT</td>
<td>Vaccine against Diptheria, Pertussis, Tetanos</td>
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<tr>
<td>HECOPAB</td>
<td>Health Education and Community Participation Bureau</td>
<td></td>
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<tr>
<td>KHMH</td>
<td>Karl Heusner Memorial Hospital</td>
<td></td>
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<tr>
<td>MMR</td>
<td>Measles, Mumps, Rubella</td>
<td></td>
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<tr>
<td>PHI</td>
<td>Public Health Inspector</td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>Public Health Nurse</td>
<td></td>
</tr>
<tr>
<td>RHN</td>
<td>Rural Health Nurse</td>
<td></td>
</tr>
<tr>
<td>SRH</td>
<td>Southern Regional Hospital</td>
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</tr>
<tr>
<td>OBCH</td>
<td>Old Belize City Hospital</td>
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</tr>
<tr>
<td>BFLA</td>
<td>Belize Family Life Association</td>
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</tbody>
</table>
REFERENCES

1. National Health Information and Surveillance Unit


4. Central Statistical Office, Belmopan, Belize