Introduction

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Introduction

The need and the demand for healthcare are increasing. In almost every country, the growth of both need and demand for healthcare is faster than the rate of increase in resources available for providing it. There are four main reason for this:

- i) Population aging is a single important factor increasing the need for health care. As the number of older people increases, so does the need for the health care. The interaction of an ageing population and rising patient expectations is significant (cohorts of individuals currently becoming old will have different expectations from those who already are old).
- **ii)** New technology and knowledge New technology will continue to be developed by industry and research workers within health services and related disciplines.
- iii) Patient expectations of health are rising, reflecting societal changes in attitude towards the provision of goods and services. In most of the developed countries, this trend includes rising expectations of accessibility and quality of services, and the accountability of service.
- **iv) Professional expectation** and attitudes are influenced by patient expectation about the services that should be offered. Professional expectations are also influenced by developments in technology in that any new development serve as a stimulus to increase expectation.

The full integration of these components into healthcare policy and management decisions enhances the opportunity for optimal outcomes and quality of life.

The on-going management approach and decision making about the care of patients or the delivery of health services based on best patient Information (Evidence based health care approach).

The evidence-based practice (EBP) is an approach to health care wherein health professionals use the best evidence possible, i.e. the most appropriate information available, to make clinical decisions for individual patients. It involves complex and conscientious decision-making based not only on the available evidence and clinical expertise but also on patient characteristics, situations, and preferences. It recognizes that health care is individualized and ever changing and involves uncertainties and probabilities.

General Discussion

This introduction will tackle a discussion on health status and health services in 2002. It is intended to be meaningful to educate members of general public as well as to health care professionals. The main objective of the coverage that stimulate Ministry of Health discussion for further development of this and associated routine annual reports. The body of this report is structured as follows:

- A summary statistics of the population of the kingdom
- Health resources (physicals, financial, and human resources)
- Health services and activities
- Health status

The report consists of eleven chapters. Chapter one shows a summary statistics of all Health indicators for the Kingdom. The chapter covers all the above items such as the socioeconomic & demographic characteristics, health resources, utilization of Health Institutes, and health status. Chapter two presents selected tables that shows basic results out of the 2001 census. Chapter 3-9 focus on resources, facilities services, vital, morbidity and mortality statistics of Ministry of Health. Finally chapters ten and eleven present some statistics of the Bahrain Defense Force Hospital and Private Hospitals.

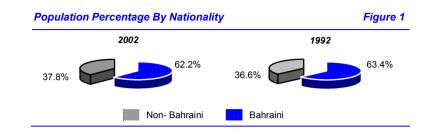
The report was compiled in by the Health Information Directorate and is based on the statistics collected from most of MOH health care business areas, Patient Management Information automated system, Central Informatics Organization(CIO), Ministry of Finance and National Economy (MOFNE), and Private hospitals and clinics.

Demographic and Socioeconomic Indicators

The estimated 2002 population was 672,123 and 519378 in 1992. The proportion of the Bahraini Nationals to Non-Bahrainis were relatively equals over the last 10 years. In the year 2002, 62.4 of the population were Bahraini and 37.6% were Non-Bahraini. Compared to 63.6% Bahraini and 36.4% Non-Bahraini in 1991.

Population by Census 2002& 1992			Table 1
Population	2002	1992	Annual % Change*
Total	672,123	519,378	2.6
Bahraini	417,940	329,158	2.4
Non-Bahraini	254,183	190,220	2.9

Ref: Central Informatics Organization, estimates based on 2001 & 1991 census * Annual % Change= [(Pop.2002/Pop.1992)^{1/t} -1]



Population Sex Ratio

The sex ratios for the entire population were nearly stable in both years irrespective to the nationality (135 in 2002 and 138 in 1992). The sex ratio among Bahraini was constant in both years 102. In contrast to the Non-Bahraini population which was relatively high in both years (243 in 1992 and 223 in 2002). This was due to the male-dominant immigration, especially the middle age group (i.e. the working age group). (see table 2)

Population Sex Ratio		Table 2
Nationality	2002	1992
Total	135	138
Bah	102	102
Non- Bah	223	243

Sex Ratio (male per 100 female) = (No. Male/No. Female)*100

Population by Age, Sex and Nationality

As mentioned previously, although there has been an increase in the estimated population in 2002 from 1992 (as illustrated in table 3), but the percentage of people under 15 years of age has decreased since 1992 from 31.6% to 27.8. In fact, this decrease was also true for both nationalities. Nevertheless, the Bahraini population of this age group took the bulk of these percentages which was 40.8% in 1992 and 36.5% in 2002, comparing to 15.6 in 1992 and 13.5 in 2002 for Non- Bahraini.

Population Distribution by Age Group & Nationality						
Population (%)	2002			1992		
	Male	Female	Total	Male	Female	Total
Total (both Nat.)						
Pop<15	24.8	32.0	27.8	28.0	36.6	31.6
15 –64	73.0	65.1	69.7	69.9	60.9	66.2
65+	2.2	2.9	2.5	2.1	2.5	2.2
Bahraini						
Pop<15	37.0	36.1	36.5	41.4	40.3	40.8
15 –64	59.4	60.1	59.8	55.2	56.6	55.9
65+	3.6	3.8	3.7	3.4	3.1	3.3
Non-Bahraini						
Pop<15	10.1	21.2	13.5	11.4	25.8	15.6
15 –64	89.4	78.2	85.9	88.2	73.6	84.0
65+	0.5	0.6	0.6	0.4	0.6	0.4

The proportion of middle age group or working group aged (15-64) years out of the overall population was two third of the total population 69.7% in 2002 and 66.2% in 1992. The population proportion by Nationality was 59.8% for Bahrainis and 85.9% were non Bahraini in 2002. However, in 1992 it was 55.9% were Bahrainis and 84% were non-Bahrainis. There was a noticeable increase in the percentage among Non-Bahraini than Bahraini population of the age group 15-64 years in both estimates.

However, the percentage of persons aged 65 years and over has been maintained at a low proportion: 2.5% during 2002 and 2.2% in 1992. Out of these percentages, 3.7% among Bahrainis and 0.6 for non-Bahraini in 2002. Whereas, the percentage was 3.3 for Bahrainis and 0.4% for non-Bahraini population in 1992.

As shown in the table above that sex differential is in favour of female in the youngest (age < 15 years) and oldest 65+, but not in the middle age especially among Non-Bahraini.

Age Dependency Ratio

The dependency ratio in Bahrain (defined as the number of persons in a population who are not economically active for every 100 economically active persons in that population). It is usual to use as a rough guide the ratio of the population in the age groups 0-14 and 65 and above, to the population in the age group 15-64 years, since the retirement age in Bahrain is 65 years.

There is a significant drop in the dependency ratio for the past ten years. In year 2002 the dependency ratio was 67.3%, 16.4% and 43.6% for the Bahraini, non-Bahraini and the combined populations respectively. Comparing to 1992, the dependency ratios were 78.9%, 102.8% and 51.1%.

However, the number of individuals receiving welfare payments from the state has increased for the past five years as reported by Ministry of Labour. The value of the payment rose from 3.9 million in 2000 to 4.2 in 2002. Out of this amount 43% goes for the elderly.

Overall, the rate of disability among Bahraini population represented only less than 1% of the total population.

Health Facilities and Health Resources (1998-2002)

Physical Resources

The Health system delivery is shared between both government and private sectors. The Health facilities have improved rapidly during the past five years which illustrated in table 4. This can be witnessed clearly through the remarkable evolution in regard to the size and quality of the services at Salminyia Medical Complex (main hospital in Bahrain). The building has been expanded to enable the introduction of new services such as Oncology and Kidney Transplant. The installation of new sophisticated medical equipment contributed in the diagnosis, treatment and rehabilitation of the patients. In additional to that a great attention was given to improve the quality of the services provided at the Psychiatric Hospital, Geriatric and the five Maternity Hospitals.

Bahrain Leadership is always keen on fulfilling population demands for health services accessibility, as a result of that His Majesty the King, Shaikh Hamad bin Isa Al Khalifa, laid the foundation stone of the new Muharraq Hospital in the Busaiteen area on 7th October 2002. The construction of the hospital will cost the country \$ 50 million American Dollars. The project will be kick off by the fourth quarter of 2003 and will finish in 2005. The hospital will provide most of the major medical specialties and departments such as Pediatric, Ophthalmology, Obstetric and Gynecology, Medical department and with capacity of 300 beds. In additional to that the hospital will offer highly sophisticated Accident and Emergency services.

The Expansion in health care services never stopped with government only, but it include the private sector. The opening of the Bahrain Specialized Hospital on 19th October 2002 was a clear eye witness for that. In additional to that, and several private clinics, Polytechnics and Medical Centers in various medical specialties were opened. Seven of these clinics are operating round the clock.

The expansion of the services was not limited to the Secondary Health Care, but it included also the Primary Health Care. To maximize the capacities and accessibilities to the services in Primary Health Care, many steps were taken during the past five years such as:

- Extending the working hours in some health centers like Sh.Salman Health Center in the evening for 4 hours since 13/7/2002.
- Final plans for building new health centers for Al Dair And Zallaq Health Centers were submitted and approved.
- Formulation of the primary health care quality improvement committee with the main objectives:
 - Empowering the staff through decentralizing the process of decision making
 - for their related jobs.
 - Decentralizing the process of decision making for their related jobs.
 - Enhancing and improving the quality of the work in two health
 - centers (A'ali and Bilad Al Qadeem) as pilot.
 - Reducing the cost of some provided services by enhancing the way
 - they are performed.
 - Setting up standard procedures and policies for the health centers.

Health Facil	ities (1998-	2002) Table 4				le 4
Description		2002	2001	2000	1999	1998
Hospitals	Govern	9	9	9	9	9
	Private	6	5	3	3	3
Beds	Govern	1,680	1,696	1,678	1,689	1,694
	Private	244	150	134	134	138
Primary Health Care	Govern*	23	23	22	22	22
Inpatients	Govern	76,624	71,756	72,478	62,231	61,391
	Private	6,838	4,435	4,616	4,863	4,854
Outpatients	Govern	3,768,188	3,619,036	3,594,914	3,293,632	3,369,222
	Private	341,478	309,003	294,332	290,368	273,261

* Including Public Security H.C.

Private Primary Health Care is provided through the private companies clinics

From the above table it showed a remarkable increase in the health care facilities especially in private sectors, Which nearly doubled from the past five years.

Financial Resources

With growing population , health care budgets are coming under mounting strain as the country strives to maintain and improve its services. Financial allocation for medical care have risen substantially in resent years. But still they are not sufficient for the demands placed upon them.

Now a days, the major challenge that the Ministry faced is to maintain current health services and strive for health for all. With the continuous increase in the provision of health care services commencing 1973 and continued until today (see table5), the Ministry requires a mechanism that brings additional financial resources in order to sustain the best quality of health services.

Financial Resources					Table 5
Financial data	2002	2001	2000	1999	1998
% of allocated budget to MOH from total Government expenditure	7.1	7.8	7.8	8.5	8.0
MoH Budget* (BD. in Million)	71.0	64.4	61.0	61.7	56.2
MoH average recurrent health expenditure/ capita*	105.8	99.1	95.4	99.4	95.6
Cost per MOH Visits (BD.)					
Primary outpatients	3.0	2.9	2.6	2.7	2.6
Secondary outpatients	27.8	26.6	27.3	25.1	23.9
Secondary Inpatients (per day)	112.2	106.6	109.3	100.5	95.6
Deliveries (maternity Hosp.)	278	287	267	269.5	273
% MOH recurrent expenditure on:					
Primary & Preventive H.C.	22.2	21.9	21.0	21.0	21.5
Secondary H.C.	59.1	60.0	59.5	58.8	59.1
Total Other	18.7	18.1	19.5	20.2	19.4

1US\$ = 0.377 BD

* including projects

* * Source: Ministry of Finance & National Economy - MOH budget include projects received

The Ministry of Health is the major provider of health services and is considered as a major source of health financing. The budget of the Ministry of Health was 71 million in 2002, which was 7.1% of the total government expenditure. In that year, the Ministry's recurrent budget was BD. 69.3 million with annual growth rate of 9.5%, whereas on 1998 the Ministry's budget was BD.56.2 million which represented 8.0% as percentage of the total government expenditure. The Ministry's recurrent budget was BD. 69.3 million which represented 8.0% as percentage of the total government expenditure. The Ministry's recurrent budget was BD. 69.3 million.

The Ministry of Health average expenditure per capita has increased from BD.95.6 (equivalent to U.S \$253.6 per person) in 1992 to BD. 105.8 (equivalent to U.S.\$ 280.6) in 2002. More than half of the Ministry budget was devoted to Secondary Health Care (59.1% in 2002 which relatively constant 59.05% in 1998). However, only 21.9% of the Ministry's budget was devoted to Primary and Preventive Health Care in 2002 and 21.5% in 1998.

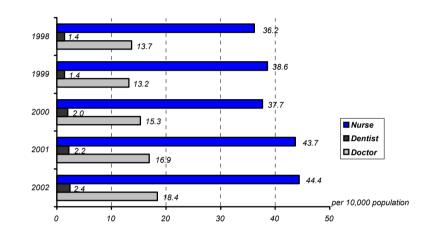
The average cost per visits for primary Health care clinics was BD. 3.0 in 2002 relatively similar to the cost in 1998 (BD. 2.6). On the other hand, the cost of the services per person in the secondary health outpatient clinics has been increased since 1998 from BD. 23 to BD. 27.8 in 2002. Moreover, the cost of the inpatient per day has also increased from BD. 95.6 in 1997 to BD. 112.2 in 2002 (see table 5).

Human Resources

Table 6 below shows the development of the medical resources over the past five years at the national level respectively. During the 1998, per 10,000 population, there were 13.7 doctors, 1.4 dentists and 36.2 nurses, while they were 18.4, 2.4, 44.4 respectively in 2002. The nurse-doctor ratio was 2.4 in 2002.

Human Resources					Table 6
Indicators per 10,000 Population)	2002	2001	2000	1999	1998
Doctors	18.4	16.9	15.3	13.2	13.7
Dentists	2.4	2.2	2.0	1.4	1.4
Nurses	44.4	43.7	37.7	38.6	36.2
Nurse per doctors	2.4	2.6	2.5	2.9	2.7
Bed	28.6	28.2	26.2	27.4	28.5





Health Status of The Community

The following are selected standard health indicators that reflect Bahrain's improving health status.

Vital Statistics

Table 7 below shows that most of the vital statistical indicators were relatively constant for the past five years. For example, crude birth rate per 1000 population was 20.1 in 2002 and 20.3 in 1998. Infant mortality rate/1000 population recorded a significant variation in 2002 which was 7.0 - the lowest ever recorded for the Kingdom, this was undoubtedly due to the high level of preventive and curative for the mother and child health programs.

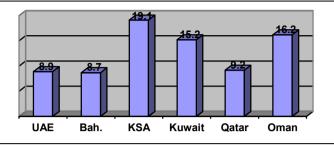
Vital Statistics as reported by Public Health Directorate					
Health Indicators	2002	2001	2000	1999	1998
Crude birth/1000 population	20.1	20.5	19.6	19.8	20.3
Still birth rates/1000 births	9.8	8.7	10.0	8.6	10.8
Infant mortality rate/1000 live births	7.0	8.7	8.6	7.7	8.5
Maternal mortality rate/1000 live births	0.22	0.22	0.15	0.23	0.15
Under 5 yrs mortality/1000 live births	8.5	12.1	11.4	11.7	11.1
Under 5 yrs mortality/1000 child <5 yrs old	1.9	2.7	1.9	2.0	2.0
Total Fertility Rate per woman (Female 15-44)	2.5	2.5	2.5	2.5	2.6
Crude death rate/1000 population	3.0	3.0	3.0	2.9	3.1
Life expectancy rate at birth both sex	73.8	73.8	72.9	72.9	72.9

*Excluding 27 deaths under 25 weeks of gestation who died shortly after birth

Looking to graph 3, Bahrain is one of the healthiest countries in the Gulf – head of the rest of the other GCC countries.

Total fertility rates (per woman) are consistent at an average fertility rate of 2.5 in 2002 (3.3 for Bahrainis and 1.5 for Non Bahrainis) and 2.6 in 1998 (3.5 for Bahrainis and 1.4 for non-Bahraini).

Life expectancy rate at birth for both males and females was 73.8 years in 2002, 72.1 for male and 76.3 for female. Comparing to 1998, it was 72.9 for both sex, 70.4 for male and 75.3 for female respectively. This is a substantial achievement as the Global indicator No.10 stated that the averaged life expectancy rate at birth should be 62 years.



"Vital Health Indicators - 2001" Executive Office of the Health Ministers Council for GCC

Nutritional Status of Children

Birth weight is an indicator of the health and nutritional status of mothers, as well as a prediction of infant health and development. In Bahrain, the percentage of newborns weighing at least 2.5 kg. has remained relatively stable for the past five years at 90.4%, 90.3%, 90.1%, 90.4%, and 90.7% for the years 2002, 2001, 2000, 1999, 1998 respectively. In addition to that, the percentage of children below five years with weight-for-age values corresponding to acceptable standard reference values has significantly increased since the early Nineties from 77% to remain relatively stable around (92 \pm .5%) for the past five years. It is well known that the better educated mothers the greater impact will be on the health of the whole family, as well as newborns.

Mortality

In 2002, 2,034 deaths were reported to Public Health Directorate as compared to 1,997 in 1998, mostly from hospitals (50.6% deaths occurred at Salmaniya Medical hospital). The crude death rate continues to be very low and nearly constant (3.0 per 1000 population) since 1998.

Diseases of the circulatory system/ Cardiovascular diseases the constitute the highest single cause of mortality in Bahrain, accounting for more than 30% of total hospital deaths.

The known risk factors for CVD such as smoking, and raised blood cholesterol, and the risk makers such as lack of physical activity, obesity, and alcohol consumption are expected to have increased in Bahrain over the last two decades. In additional to that, the continuing rise in the incidence of the Cardiovascular in association with the rise in the size of the population over sixty five years of age.

Neoplasms or Cancer is the second most common cause of death in Bahrain accounting for about 41.4%. This accords with the world pattern. The great majority of deaths from Cancers were in the over sixty-five age group nearly 53%. Most deaths recorded in Bahrain from the disease are amongst male 62% rather than female.

Deaths from the Infectious and Parasitic rose significantly in 2002, 79.6% from previous year. Other major causes of death were injuries & poisoning, endocrine, nutritional & metabolic disorders, congenital anomalies, Genitourinary diseases and diseases of the digestive system. (see table 8).

One of the recommendations of the World Health 2002 Report "Reducing Risks report" was that "countries should give top priority to developing effective, committed policies for the prevention of globally increasing high risks to health." The main risk factors as defined by WHO are high blood pressure and high blood cholesterol are closely related to excessive consumption of fatty, sugary and salty foods. They become even more lethal when combined with the deadly forces of tobacco and excessive alcohol consumption and unsafe sex in connection with HIV/AIDS.

Top Leading Causes of Death					Table 8
Causes of Death (rates per 100,000 Population)	2002	2001	2000	1999	1998
Diseases of circulatory system	86.5	86.3	77.6	85.0	85.8
III-defined Conditions	45.2	49.6	45.0	42.5	48.8
Neoplasms	41.4	36.9	35.8	35.0	37.8
Endocrine, nutritional & metabolic disorders	28.1	24.9	20.3	22.2	22.7
Injuries & poisoning	26.5	28.1	44.9	23.9	28.3
Respiratory system	18.0	16.2	12.2	18.8	22.7
Digestive system	10.4	9.6	10.6	11.4	13.4
Infectious & Parasitic	10.1	7.5	12.3	8.0	6.8
Genitourinary System	7.6	8.2	7.8	8.4	12.0
Congenital Anomalies	6.7	10.1	12.3	10.1	7.6

Morbidity

The health problems of Bahrain are those generally found in countries passing through the stage of transition from developing to developed nations. Communicable diseases are declining as the major causes of mortality and morbidity. They are being replaced by non-communicable ones such as cardiovascular diseases, cancer, metabolic diseases, congenital anomalies and accidents. The main causes of hospital admissions, based on the statistics of Salmaniya Medical Complex are illustrated in table 9.

Spontaneous abortion/miscarriages were the most common complication in pregnancies throughout the world. The SMC data showed that most of the listed morbidity have risen for over the past five years. This may highlight that more attention should be given to the environmental risks, community lifestyle and health education.

Top Ten Morbidity Based on Discharges from Salmaniya Medical Complex							
Morbidity (rates per 100,000 Population)	2002	2001	2000	1999	1998		
Complication pregnancy, childbirth & puerperium (15-44)	6,226.4	6,132.1	6,248.5	6,301.2	6,698.1		
Spontaneous abortion	1,017.4	1,012.1	1,012.1	1,053.4	1,090.6		
Heredity anaemias	277.5	227.2	233.4	229.4	221.0		
Neoplasms	237.9	241.5	221.9	146.3	287.6		
Ischemic heart disease	159.5	148.6	128.4	152.2	151.9		
Diabetes	85.4	88.6	94.8	75.5	81.3		
Asthma	66.1	61.1	69.9	72.4	89.3		
Acute respiratory infection	43.7	41.7	43.4	59.4	49.8		

Immunization

Due to an efficient Expanded Program on Immunization (EPI) and high immunization coverage more than 98%, childhood diseases have been almost eradicated in Bahrain. According to the World Health Organization (WHO) Immunization Schedule, Measles vaccine as single antigen dose1 and MMR as dose2 were replaced by MMR1 given to children at one year of age MMR2 at 5-6 years of age since 1999. (see table 10)

The EPI team coordinate with the Ministry of education to carried out the Immunization activities on the schools children at all levels for both government & private under the umbrella of the school health program.

Immunization Coverage Percentage					able 10
Immunization Against	2002	2001	2000	1999	1998
DPT	98	99	97	97	98
Measles*	NA	NA	NA	NA	93
Mumps, Measles, Rubella (dose 1)	99.9	97	98	93	100
Mumps, Measles, Rubella (dose 2)	97	99	92	98	100
Poliomyelitis	98	99	97	97	98

*Measles Vaccine was replaced with MMR! & MMR2 since 1999 as recommended by WHO. NA= not applicable

Communicable Diseases

No cases reported of the Diphtheria, Whooping Cough, Neonatal Tetanus or Poliomyelitis was reported since 1990. Nevertheless, table 11 below shows that there were some variations in the trend of communicable diseases for the past five years. Although there was a marked drop in Gonococcal Infection (47.7/100,000 in 1998 to 62.0/100,000 in 2002), Syphilis incidence showed that there was a continuous rise to reach 248 cases (36.9/100,000) in 2002 from 117 cases (18.2/100,000) in 1998.

Furthermore, There was also a substantial decrease in the number of Malaria cases from 46 cases (7.0/100,000) in 2002 as compared to 140 cases (22.6/100,000) in 1998. There was an increase of the Viral Hepatitis to reach 36.3/100,000 in 2002 from the 2001which was 35.1/100,000.

Communicable Diseases Rates					Table 11
Disease (rates per 100,000 Population)	2002	2001	2000	1999	1998
Pulmonary TB	18.7	17.0	23.2	14.7	18.1
Gonococcal Infection	62.0	36.4	34.0	28.9	47.7
Syphilis	36.9	22.8	31.8	15.8	18.2
Viral Hepatitis (Total)	36.3	35.1	23.3	30.8	30.6
Malaria (P. vivax)	7.0	7.0	7.7	9.8	17.1

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- "Basic Results Population, Housing, Building & Establishments Census-2001" part1. Central Information Organization.
- 2) "Health Statistics Report 2000", Ministry of Health. Kingdom of Bahrain.
- 3) "National Accounts 2001", Ministry of Finance & National Economy.
- 4) "The world Health Report 2002", World Health Organization.
- "Vital Health Indicators 2001" Executive Office of the Health Ministers Council for GCC Countries.
- "Evidence-Based Healthcare How to Make Health Policy & Management Decisions", by J.A. Muir Gray. Churchill Livingstone. 1997

Appendix 1: Selected Global Health Indicators

[G.I.7]	The percentage of the population covered by eight elements of primary health care
[G.I.7(c)]	The percentage of infants immunized against diphtheria, tetanus and whooping cough
[G.I.7(e)]	The percentage of infants immunized against polio
[G.I.8(a)]	The percentage of newborns weighing at least 2.5 kg. at birth
[G.I.8(b)]	The percentage of children whose weight-for-age and or weight-for height are acceptable
[G.I.9(a)]	The Infant mortality rate/1000 live births
[G.I. 9(b)]	Maternal mortality rate/1000 live births
[G.I.10(a)]	Life expectancy rate (male & Female) at birth in years
[G.I. 10(b)]	Male life expectancy rate at birth in years
[G.I. 10(c)]	Female life expectancy rate at birth in years
[G.I.12]	Per capita gross national product in US dollars \$