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HEALTH REPORT

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Foreword

The Maldives is experiencing a rapid epidemiological transition from communicable disease to non-communicable diseases. Emerging and re-emerging communicable diseases is becoming a challenge. This double burden of disease and the rapid development in service delivery has made health budget to sore at unimaginable pace demanding efficiency, effectiveness and quality in service delivery.

The importance and significance of information and research hence has become the backbone of investing in services, both nationally as well as globally. Evidence based decision making and planning are pivotal for an accessible, affordable, effective and efficient health system.

The need for information, data and research on health has never been more crucial than that at this juncture with health indicators contributing to a great deal to overall human development as indicated in the goals of the International Conference on Population and Development and the Millennium Development Goals. The emergence of disease, their prevalence and epidemiological trends, morbidity and mortality, risks to health posed by lifestyle and changes in behaviour, environmental influences are vital for the development of the health sector. This comprehensive account of information shows the Ministry of Health's commitment to generate and use the evidence in achieving goals.

We are greatly inspired and encouraged by President Maumoon Abdul Gayoom's reaffirmed commitment and contribution to improve the health of Maldivian people. His guidance and continuous insights have inspired us to glide the health sector into a modern and innovative service.

I am pleased that this report is published with an analysis of the inputs, outputs and the outcomes of the national health system. I would like to congratulate all those who have contributed to this report. I convey my sincere gratitude to the staff and management of the various organisations in the health sector for facilitating the compilation of this fifth Health Report of the Maldives. I specially thank Mr. Ahmed Afaal, Assistant Director for his dedicated efforts to compile this report and also the staff of the Health Information and Research Section of the Ministry of Health for their diligent work.

July 01, 2004

Ahmed Abdullah
Minister of Health

Acknowledgements

The Health Report 2004 is published due to the relentless efforts and cooperation of many. At first, I would like to thank the Hon. Minister of Health, Ahmed Abdullah for his encouragement, continuous guidance and support towards completing this report.

I wish to express my appreciation to Dr. Sheena Moosa, Ms. Maimoona Aboobakuru, Mr. Ahmed Waheed, Ms. Sonia Ali, and Ms. Miruza Mohamed for their insights and support in compiling this report.

This report would not have been complete without the support of all the generous staff at the Health Information and Research Unit who has given their time and effort to collect and generate the required data. I wish to convey my special thanks to Ms. Mariyam Mohamed for her input in compiling the statistical tables that support this report.

I take this opportunity to profoundly thank all those who provided assistance in compiling this report. Many of the staff who participated in the collection, processing, tabulating and forwarding the required data, at all levels of the health system deserve appreciation for their efforts.

It is felt that this health report will benefit all those who work towards the advancement of the Maldives health system. It is encouraged that both technical

and non-technical personnel use the evidence in this report to its optimum in their efforts to health development in the Maldives and elsewhere.

July 01, 2004

Ahmed Afaal

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Introduction

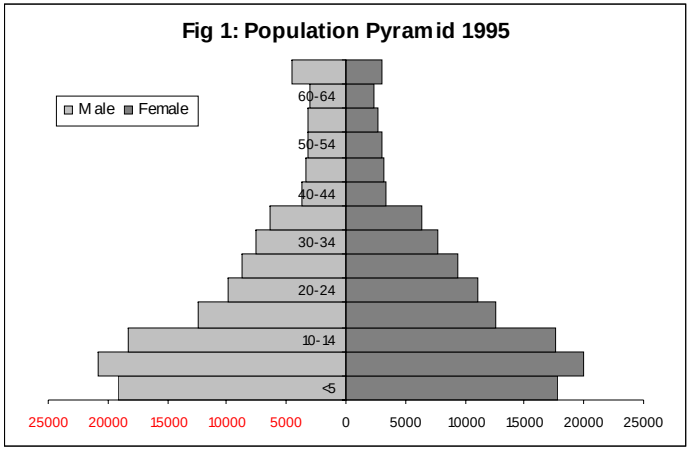
Geography

The Republic of Maldives is an archipelagos nation situated on the equator at approximately 7^{o} North 0^{o} South latitudes and between 72^{o} to 73^{o} Eastern longitudes. It consists of 1,190 low lying garland islands naturally divided into 26 atolls that stretch to 820 km from north to south and 120 km east to west. Although the country has a large number of islands, only 200 are inhabited and are divided into 20 administrative Atolls, each locally administering a group of islands. A further 111[1] islands are used for hotel, industrial and other purposes and 87[2] of these islands are exclusively used as tourist resorts. Due to the fragile nature of these islands, the Maldives practice a stringent environmental protection policy where by all development activities must be subject to sound environmental management regimes and practices and all existing and future development activities are designed and managed to minimize the negative impact of environment on human health[3]. The climate is generally warm with an average temperature fluctuation between 29 to 32 degrees Celsius.

Population Trends

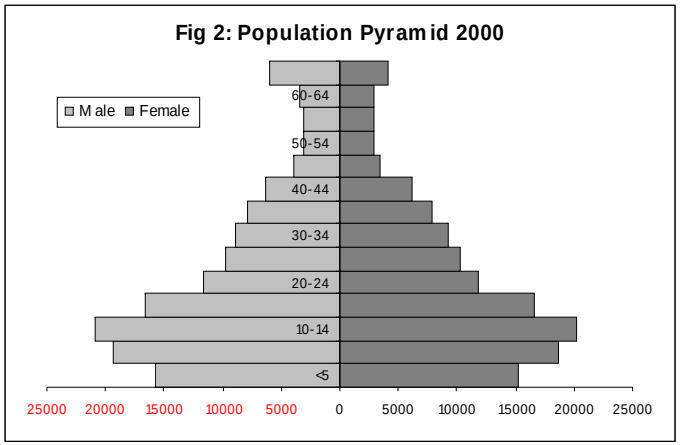
The population of Maldives have grown at a high rate averaging at 3.2% per annum between 1977-1985 censuses. After reaching a peak of 3.4% per annum between 1985 and 1990, came down to 2.8% in 1995 and further decreased to 1.96% in 2000[4]. Although the population in the age groups 1-4 has decreased in 1995 when compared to 1990, the largest birth cohorts during the 1980 to 1990 period will enter the reproductive age group within the next few years. This has implications for the future population growth in the form of a possible “baby boom”. The population pyramids for 1995 and 2000 show this movement.

Fig 1: Population Pyramid 1995

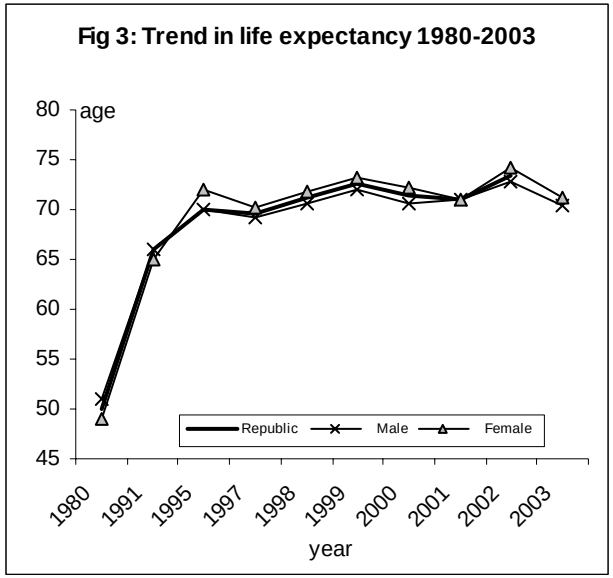


The total population of the country stood at 270,101 in year 2000 with some 74,000 people living in the capital island of Malé and the remaining population scattered in rural or sub-urban islands[4]. Many of these islands have considerably small populations with 71% of the islands having a de facto population less than 1000 people and only one island – the capital Malé has a population over 10,000[4].

In 1985 the sex ratio was 108 males per 100 females and by year 2000 this ratio decreased to 104 males per 100 females. The age structure of the



Maldivian population remains youthful with some 41% under the age of 15 and 6% over 65[4 5]. The average life expectancy at birth is 73 years with 74 years for women and 73 years for men in 2002. In 2003 the male and female life expectancy stands at 70 and 71 years respectively. It is important though, to note that estimates of life expectancy for Maldives by the WHO stand lower than these figures at almost 63[6] for both males and females. The sharp decrease in the population growth rate and a steady increase in life expectancy will lead to a gradually increasing elderly population. It is estimated that with the current growth rate, the population will reach 500,000 in about three decades[5].



The Economy

The Maldives is faced with the challenge of a narrow economic base with a limited amount of human resources that is insufficient to sustain a dynamic, knowledge-based economy and the domestic market forces are too small to stimulate economic growth. These weaknesses are

further aggravated by the fact that the country is dependent heavily on two major industries – tourism and fisheries. Furthermore, the smallness and the scattered nature of settlements pose considerable diseconomies of scale. Thus a decline in any of the two industries will have serious implications on the provision of public services, employment, development activities and the overall standard of living. Despite these challenges, the Maldives have made significant achievements in economic and social development. During the period 1997 to 2000 the GDP grew at an average annual rate of 6.8 percent which is significantly higher compared to the South Asian average of 5.9% and that of least developed countries (LDC) which stood at 4.5% during the same period[1]. The expansion of the tourism sector and growth in the transport and telecommunications sector has contributed to the sustenance of GDP growth. Some 34% of the contributions are form the tourism industry and almost 16% from the transport and telecommunications industry whereas the traditional stronghold of fisheries contributes only about 7 percent[1].

Unemployment rates, census 1985 - 2000

Sex and locality	Unemployment rate (%)			
	1985	1990	1995	2000
Republic	1.5	0.8	0.8	2.0
Malé	1.1	1.5	1.7	2.9
Atolls	0.6	0.6	0.4	1.5
Female				
Republic	2.0	1.3	1.3	2.7
Malé	0.3	1.5	2.9	3.7
Atolls	0.5	1.2	0.6	2.3
Male				
Republic	1.4	0.7	0.6	1.6
Malé	1.7	1.5	1.3	2.6
Atolls	0.7	0.4	0.2	1.1

Source: Analytical Report Census 2000

Apart from bank profit taxes, there is no direct taxation such as income tax, corporation or land tax. Other conventional revenue sources such as VAT and sales tax are also non-existent and hence a large percentage of public finance is through indirect tax such as import duties and tourism. Over 50% of public revenue in year 2000 was generated from tourism tax and other tourism related services and imports while public enterprise and non-tourism related imports generated a further 25% of the revenue[1]. The revenue from resort rent alone accounted for some US$ 35 million in year 2000. Furthermore during the last five years the annual domestic revenue increased steadily to Rf 2347.0 million, approximately US$ 200 million in year 2000[1]. Nonetheless, foreign borrowings have also increased and overseas development assistance (ODA) declined. At the end of year 2000, it is estimated that the external debt rose to $155 million and ODA declined form US$ 46 million in 1995 to US$ 31 million[1].

Employment, income and poverty

At the end of year 2000, the total employment in the Maldives accounted for some 85,356 people[7]. The Labour force participation rate has increased from 49.5 in 1990 to 54.8 by end of 2000[7]. In this

same period, the unemployment rate has also risen from 0.8 to 2.0, with the atolls having a rate of 1.5 and Malé having a rate of 2.7[7]. Table 1 shows the detailed unemployment statistics for the country.

During the past decade, expatriate employment has increased. By year 2000, 27,000 expatriates were employed and are increasing[1]. Efforts have been made under labour regulations to encourage more local employment. However, expatriate employment is required and will benefit the country in highly skilled areas such as doctors, nurses and teachers until such time the Maldives becomes self sufficient in providing such skilled labour. At present the bulk of expatriate employment is in the un-skilled sector. Poor working conditions and long working hours make locals reluctant to take up these types of jobs for the given benefits and wages[1]. The hurdle is further raised by the increase in the number of school leavers joining the work force. It is estimated that by the end of 2002 some 16,000 students will complete higher secondary education and join the work force[1]. The sixth NDP has developed strategies to address this issue by proposing to restrict expatriate employment.

The year 2000 census showed that a total of 160,173 people received some form of income. Analysis of income data shows that over half (50.8%) of the earning population got less than Rf500 per month which is approximately US$42. More women (69%) and more people in the rural areas (54%) fall into this category. In 1998 it was estimated that the average household income is about Rf24 per person per day which is approximately US$2[8]. The per capita income in Malé is Rf35 and that in the islands is Rf20 which is approximately US$3 and US$1.7 respectively. It is reported that the median is a better indicator of income and it stands at Rf26 and Rf15 per person per day for the capital and the islands respectively[8].

There is greater public awareness for seeking appropriate / available services

The VPA concluded that income poverty exists all over the country. In calculation the income poverty levels, three arbitrary cut-off amounts

were taken into account. The atoll median of Rf15 per person per day was taken as the maximum poverty line and the lowest poverty line was set at Rf7.5 (approximately US$1.3 and US$0.65 respectively). Thus half of the atoll population fall under this line by definition and about 15% of the atoll population fell under the lowest poverty line. The middle poverty line was set at Rf10 per person per day. Using these figures, it was estimated that there is a 15% prevalence of income poor in the Maldives earning about US$ 0.65 per person per day. The capital island of Malé contribute to about 15% of the income poor and 20% of the income poor is distributed amongst two islands, the capital and Hinnavaru in Lhaviyani Atoll[8]. However, 43% of the surveyed population reported that their household income rose within the past 5 years, 42% reported an unchanged income status and 14% reported a decrease[8].

The Health System

The health system in the Maldives has an inclination towards a totally integrated[9] system where most of the financing, provision and stewardship is the responsibility of the government. However, the public integrated system is supplemented by a mosaic of private clinics ranging from single doctor consultations to poly clinics with laboratory services and some with inpatient capacity. The system is further complemented by different NGO's participating in public health functions, a competitive pharmaceuticals market, traditional medicine to some extent and a major private tertiary hospital. The pharmaceutical industry falls into the category of a full market system.

The public sector

The public sector operates a centralised hierarchical system. The system is organised into five tiers comprising of the central, regional, atoll, sub-atoll and island level services, arranged to follow a referral pathway from the island level through to the central level. However, patients are neither required nor do they follow this pathway and can enter the system at any point.

The MOH is the main policy making body responsible for health planning and development. The Department of Public Health (DPH), Indira Gandhi Memorial Hospital (IGMH), the National Thalassaemia Centre (NTC) and the Maldives Water and Sanitation Authority (MWSA) and the Public Health Laboratory (PHL) comprise the main

Telemedicine service between IGMH and regional hospital was launched in 2002

administrative bodies under the MOH. The DPH is responsible for prevention and control of communicable diseases and health promotion. It is also the main administrative body charged with delivering services through atoll health centres and at island level. The IGMH serves as the major tertiary referral hospital and has a capacity of 236 beds. It also serves as the first point of entry to the health service for majority of the people in the capital island. The MWSA has a mandate of planning and regulation of water and sanitation services. A joint venture company – Malé Water and Sewerage Company Limited is responsible for provision of water and sewage management for the capital island.

The Public Health Laboratory established in 1999 ensures quality of food, water and drugs. It became the national certifying authority for fish exports in the country in the year 2000.

The Maldives College of Higher Education (MCHE) plays an important role in the health system. The FHS under the college is mandated to produce a large number of allied health professionals to support the system. Diploma level nurses, laboratory technicians, pharmacists, community health workers (CHW), family health workers (FHW) and trained birth attendants (TBA) are the main educational programmes run through this faculty.

At the regional level, six regional hospitals are situated strategically within the country each covering two to five atolls. These hospitals provide curative services for their respective regions and act as the first proper curative service referral centres with some major specialties.

The inpatient capacity of these hospitals varies between 35 and 50 beds. Apart from curative services, the hospitals provide outreach services for atoll hospitals and health centres and also supervise the health activities within the region. Each hospital is also attached with the public health unit (PHU) that coordinates preventive services within the respective region.

Since year 2000 the main health centre of each atoll have been transformed in to mini hospitals to form a new tier (3rd tier), called atoll hospitals with an operation theatre providing to enable emergency obstetric surgeries. Further to this they provide specialized obstetric and gynaecological and general consultation and laboratory services as well as health promotion and prevention.

The sub-atoll health centres provide only very basic curative services and are staffed with a general doctor, a CHW and few nurses and administrative staff. Some centres have laboratory and blood transfusion services as well.

At the island level, many islands do not have infrastructure for healthcare services. An annex of the island offices are used by the FHW to deliver preventive care within the island. FHW's are trained to provide preventive care and maternal and child health services. The TBA's attend deliveries within the islands. In the recent past, some islands have been provided with separate infrastructure known as health posts providing a safer environment for deliveries, maternal and child care at island level.

The private sector

The private sector has grown rapidly in the past decade. At present there is one major tertiary hospital and 50 different clinics throughout the country. The private clinics provide services ranging from inpatient care to sports medicine and even traditional medicine as well as alternative forms of medicine. These clinics are either one doctor practices or group practices and many of them have their own laboratories capable of performing simple investigations. Many of these clinics are owned and run by public sector doctors on a part time basis. Only 13 of the 50 clinics operate in rural areas.

A number of independent laboratory services also exist. Currently there are 18 such laboratories and 4 of them operate in rural areas. The pharmacies in Maldives operate as a complete market. However, since no products are manufactured in the country, all products have to be imported and hence quite costly. Some pharmacies operate at a large scale with a number of outlets of the same chain. The State Trading Organisation (STO) Public Limited Company has a single pharmacy and one wholesale unit. These pharmacies operate in full competition with

the private sector and hence do not provide any subsidies. However, all pharmacy outlets have to be registered separately in order for them to be operated. There are 182 pharmacy outlets of which 117 serves the rural population. Apart from the clinics and pharmacies, a significant number of traditional healers also practice in the country. There is only one recognised traditional medicine clinic in the country.

A large number of NGOs and community actions groups such as youth clubs also operate in the country and quite a number of these groups have health promotion in their mandates. There are some prominent NGOs such as SHE, FASHAN, Care Society, Maldives Eye Society, Maldives Association for the Handicapped and Cancer and Diabetic Society who are formed exclusively for health promotion purposes. SHE's services include reproductive health services and Thalassaemia prevention and treatment, FASHAN has its programmes based on adolescent health issues including HIV/AIDS prevention, Care Society addresses issues of disabilities and mental health and the other two associations' mandates are self explanatory.

Regulatory Mechanisms

The Maldives have very few laws relating to specific health issues. A general law on safety issues address some areas such as tampering medicines and deliberate spreading of disease. According to the Law on Vital Registrations, the MOH has the responsibility to develop and implement any rules and regulations on the matter. Some issues are covered by presidential decrees which mainly relate to the public sector. However, many rules and regulations are issued by the MOH to address health issues that are mostly administrative.

Recognising this infancy in the regulatory mechanism, measures have been taken to address the issue. In 1999, the president formed three important bodies, namely the Maldives Medical Council (MMC), the Maldives Nursing Council (MNC) and the Maldives Board for Health Sciences (MBHS) to address regulatory issues in healthcare. The MMC has a mission to maintain professional and service standards for medical care, enforce ethical codes, authorize medical practice and register practitioners. The MNC has mandates to improve the standard of nursing and midwifery education and practice, and to regulate nursing personnel through licensing and also to prepare and implement a code of ethical and professional conduct for nurses. The MBHS relates to the regulatory matters on all other allied health professional and their practice in the country. However, these boards are also at an infant stage and are not functioning at its optimum due to lack of human and other resources.

The MOH prescribes regulations for the administration of private health facilities in the country. The conditions in these regulations have to be met in order for the businesses to operate. Under the health facilities

regulations, all facilities have to be registered and have to send quarterly reports as well as incidences of communicable and other diseases that require immediate notification. The pharmaceuticals regulation requires that all pharmacies are registered and all imports to the country are declared for inspection at the point of entry.

Management training is given a priority focus in human resource development

Furthermore, pharmacies are inspected regularly to check conformity to the regulations. An approved drug list supplements the regulation and is updated regularly. Further to these regulations, the DPH regulates the operations of all restaurants and fast food outlets with registration and regular inspection.

Recognising the weaknesses in the mechanism, the Sixth National Development Plan has proposed to develop of a comprehensive legal framework. Negligence and malpractice, patient protection, medical records, practitioner licensing and healthcare financing are all included as areas for legislation[1].

Inputs and Performance

Human resources for health

The Maldives has seen a rapid increase in medical personnel in the last 10 years. The establishment of IGMH in 1995, expansion of regional hospitals and the recruitment of doctors to health centres saw an influx of medical personnel rising by almost 56% between 1994 and 1999. In 2003 there were 315 doctors including specialists of whom 87.9% are employed by the government and 79.4% are expatriates. This represents a patient to doctor ratio of 858. At the end of 2003, the bed capacity in the country is 643 representing 420 people per hospital bed. Other health professionals include 785 nurses, 454 paramedics, 119 CHW, 333 FHW and 409 TBA. Training of health personnel is given major emphasis by the health sector. In year 2003 alone 30 people were sent abroad for training in different areas of health. A large percentage of the training is in the area of medicine to which a lot of

emphasis is given. In year 2002 and 2003, 31 MBBS doctors returned to the country after graduation and 16 new students were sent for medical training. During this same period, 12 specialist doctors also returned from training and joined the workforce. It is now felt that the area of health management should be given more attention in future.

Expenditure and Revenue Trends

Although the government policy on health services has remained steady for the past decade the expenditure as a percentage of the national budget declined from 11.26 to 9.44 from 1996 to 2002 respectively. Despite this decline, the amount allocated (in monetary terms) for health expenditure has increased considerably. The health expenditure increased by Rf 124.1 million, from 1996 to 2002 respectively. Although the per capita health expenditure as of national budget dropped by Rf 34.4 from 2000 to 2001, it increased by Rf 34.2 from 2001 to 2002 respectively. In 2003, approximately 10.6 percent of the national budget was allocated to the health sector. The total health expenditure in 2003 stood at approximately Rf 315[10] million. About 85% of this expenditure was spent on recurrent expenditure and 15% as capital expenditure. In an attempt to classify the expenditure into health functions, the following rough breakdown is derived. These figures should be interpreted with caution since some of the support services and public health expenditure may still be classified into curative and vice versa. It is seen that a large percentage of expenditure is on curative services, contributing 57% of the total health expenditure. About 21% was spent on support services and 22% on preventive health.

Performance comparisons

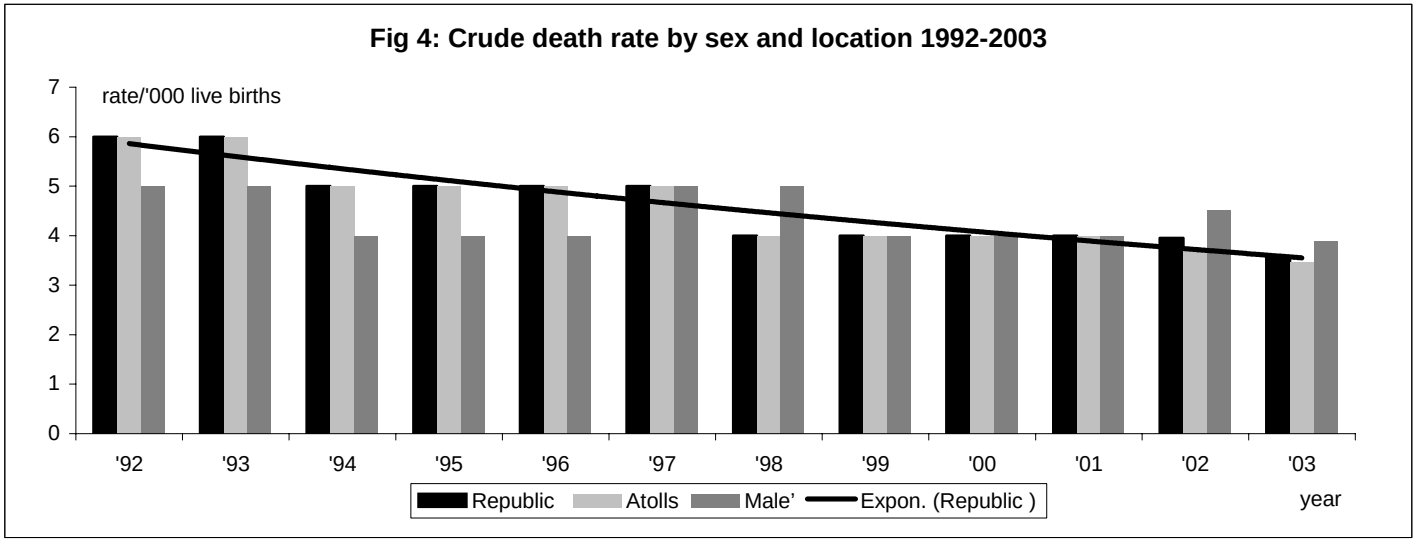
In 2000, Maldives was ranked 147 both on the level of health and overall system performance in the international comparisons of WHO[6]. However, when compared with other South East Asian countries and the scenario show a lot of scope for improvement with the Maldives at a considerably low rank. In terms of fairness in financial contribution though, the Maldives faired quite well with one other country in the region having better contribution rates and in regard to responsiveness level, the Maldives topped the chart among its neighbouring countries[6]. It can be said that the Maldives need to further strengthen its healthcare system by some favourable reform processes.

Trends in Mortality

Crude Death Rate

The Crude Death Rate (CDR) has remained pretty stable for both Malé and the atolls within the last decade. However, a steady exponential decline in the crude death rate is seen within the period as illustrated. Improved health services and the control of communicable diseases would have contributed to this scenario. The rate of decline has somewhat stagnated during the 90s, probably because the more cost-effective public interventions such as immunization and ORS therapy have already been utilized to their full potential. Moreover, the differences in the rates between Malé and the atolls have also reduced. Further reduction in death rates would require careful investment especially in the area of non communicable disease control. Better prevention and control of such disease would perhaps prove to be more cost effective than expensive capital investment in treatment, although such investments may be inevitable in the near future.

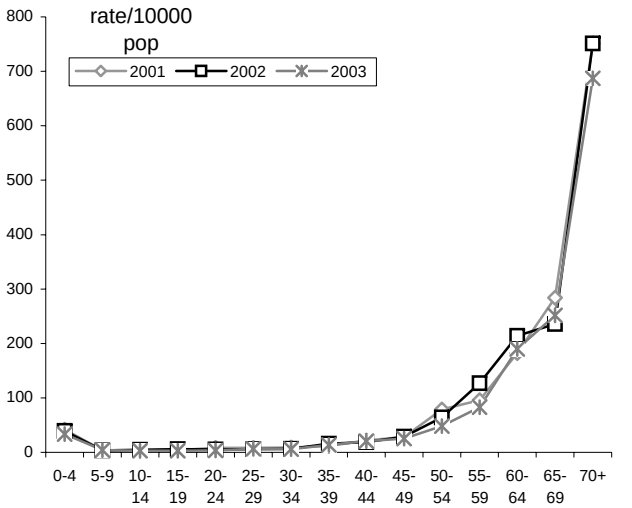
Fig 4: Crude death rate by sex and location 1992-2003



Age Specific Mortality

The age specific mortality rate shows a normal u-shaped curve. It is expected that the mortality will be higher in the 0-4 age group and then consistent for the middle age groups. Furthermore, the female mortality is also low in the middle age groups, which is also normal, indicating that maternal mortality has also been quite stable. Furthermore, unlike many South East Asian countries[11], there are no sex differences in age specific mortality at ages under five.

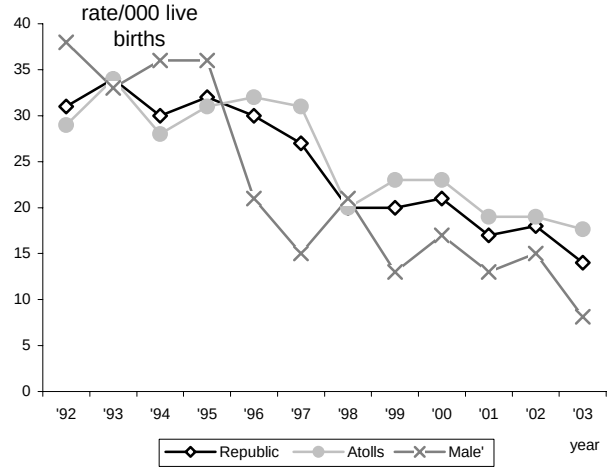
Fig 5: Age specific mortality rate 2001-2003



Infant Mortality

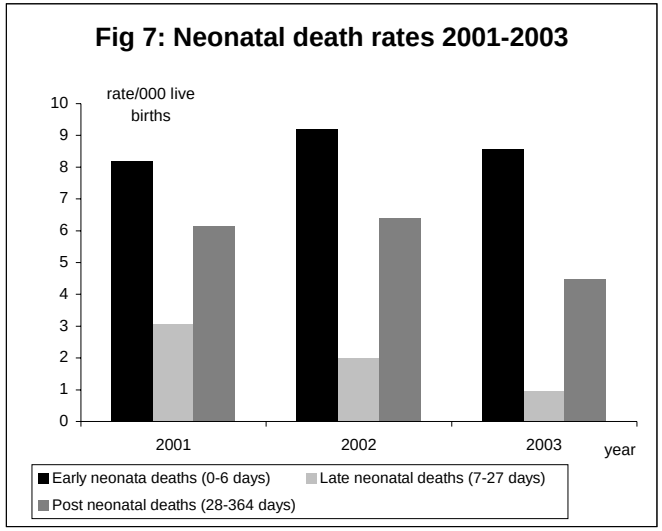
Infant mortality forms a significant part of the overall mortality, and therefore crude and age specific death rates follow similar trends. Within the last decade, infant mortality rate has fallen steadily but not at a rate as fast as that in the previous decade. In 1992, infant mortality stood at 30/1000 live births where as by 2002 the rate declined to 18/1000 live births and by 2003 it further declined to 14/1000 live births. However, there are some urban and rural differences in infant mortality. In the atolls the infant mortality rate

Fig 6: Infant mortality rate '92-'03



stands at 19/1000 and 18/1000 live births in year 2002 and 2003 respectively where as in Malé the figure stands at 15/1000 live births and 8/1000 live births. Despite this, it can be said that urban and rural differences in infant mortality has virtually disappeared although some barriers to accessing health care services such as lack of regular and proper transportation are still a reality. Comprehensive reproductive health services universal immunisation coverage can be regarded the key to narrowing these differences.

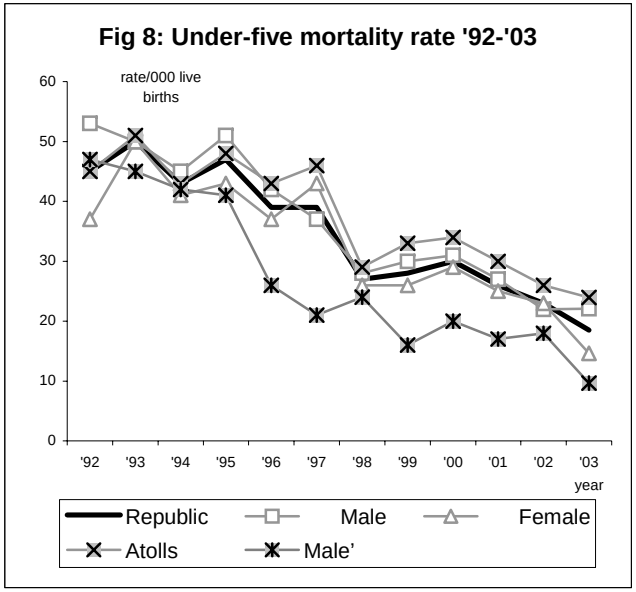
Infant deaths contributed to about 7% of all deaths in the country in 2003. Of these infant deaths, some 61% occurred during the early neonatal period (0-6 days after birth). This high proportion of early neonatal deaths reflects the inadequacy of newborn care. High



prevalence of anaemia among pregnant women and other morbid conditions during pregnancy contribute to mortality of both mothers and infants.

Under-five mortality

The under-five mortality rate has also declined substantially during the last decade, from 45 per thousand live births in 1992 to 23 in 2002 and to 18 by 2003. The male and female under-five mortality has also decreased to 22/1000 and 15/1000 live births respectively. This shows great achievements in the management of childhood diseases such as acute respiratory infections and diarrhoea and also reflects once again on the achievement of universal immunisation. However, the under five mortality for the atolls is higher than that of Malé, with 26/1000 and

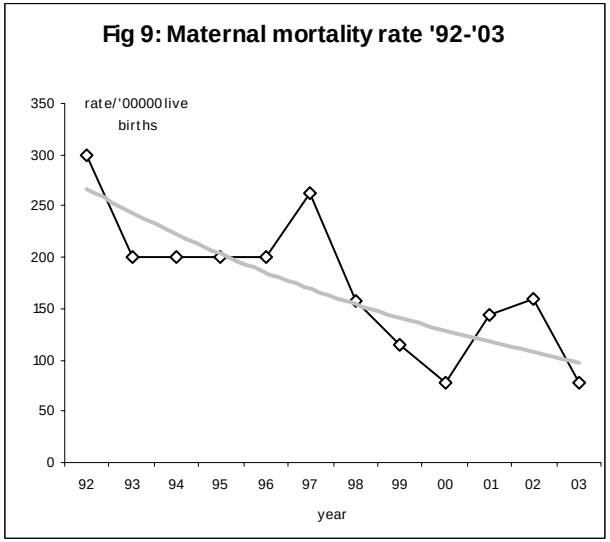


24/1000 live births for atolls in 2002 and 2003 and 18/1000 and 10/1000 live births for Malé. Further awareness and improvements in water and sanitation would yield even better results.

Maternal Mortality

The last decade has also seen a decrease in maternal mortality although not as steeply as that of infant and under five mortality. Since 1998 inquiry into each maternal death is carried out and the process is continued to date. In light of these inquiries, interventions were made and have shown a decrease in many preventable maternal deaths. Despite this, the reduction is not uniform, but hovers between a 100 to 200 deaths per 100,000 live births showing an exponential decrease in

Fig 9: Maternal mortality rate '92-'03



the maternal mortality ratio. In 2002 the MMR stood at 160/100000 live births and in 2003 it stood at 78/100000 live births. This indicates that maternal health services have improved within the country. Identification of high risk pregnancies and its management and improved access to and service quality of health facilities at the peripheral level can be said to have contributed to these achievements.

Focus on maternal health and interventions to decrease maternal morbidity such as the high rate of anaemia which stands at 55%[12] for pregnant women, will be imperative in further reducing maternal mortality.

Disease Specific Mortality

The leading classified cause of death in years 2001 to 2003 is diseases of the circulatory system contributing to 30 to 40 percent of all deaths. Neoplasm and diseases of the digestive system are the next major causes of mortality but contributes to less than 6% of the total mortality. The apparent evidence of this the fact that the number of deaths that are not classified has decreased dramatically.

When compared 1999, the percentage of unclassified deaths have decreased from 12% to about 5%.

It is envisaged that with further intervention, the distribution of deaths within the different causes will also slightly change. Efforts are still needed to reduce symptomatic classification in reporting and also to unacceptable classifications for mortality coding such as heart attack and cardio pulmonary arrest which would definitely have lead to over reporting of mortality due to diseases of the circulatory system and other heat diseases.

Leading causes of death 2001-2003

Disease Classification	2001		2002		2003	
	no.	%	no.	%	no.	%
Diseases of the circulatory system	330	30.53	315	28.3	428	41.88
Symptoms , signs and abnormal clinical and laboratory findings, not elsewhere classified	182	16.84	186	16.71	160	15.66
Diseases if the respiratory system	82	7.59	114	10.24	111	10.86
No Data or Not Stated	83	7.63	80	7.19	48	4.70
Neoplasm	55	5.09	60	5.39	41	4.01
Other forms of heart diseases	85	7.86	83	7.46	33	3.23
Diseases of the nervous system	19	1.76	23	2.07	28	2.74
Diseases of the genitourinary system	39	3.61	37	3.32	26	2.54
Certain Infectious and parasitic diseases	31	2.87	55	4.94	23	2.25
Endocrine, nutritional and metabolic diseases	27	2.5	29	2.61	23	2.25
Certain conditions originating in the perinatal period	45	4.16	33	2.96	22	2.15
External causes of morbidity and mortality	21	1.94	28	2.52	22	2.15

Burden of Disease

Communicable Diseases

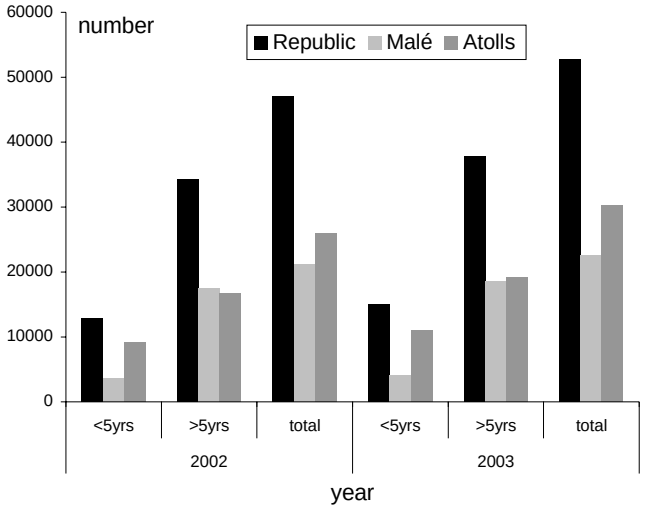
The Maldives saw the introduction of modern medicine in the 1960s. Since then service delivery systems have been established for both curative and preventive health and continuously upgraded based on the primary health care concept. As a result the Maldives has achieved many notable achievements particularly in the control of communicable diseases.

A notable success has been the eradication of malaria. The Maldives has been recognised a malaria free country since 1984 and no indigenous cases of malaria have been found since then. With the success of the EPI program, vaccine preventable diseases have also been controlled to such an extent that diseases like polio, neonatal tetanus, whooping cough and diphtheria are on the brink of elimination. Other EPI targeted diseases like measles and hepatitis B, which were included relatively late, will take longer to reach the same level of success. Although, Maldives has achieved significant success in control of diseases like tuberculosis, leprosy and filarial, these diseases continue to persist and new diseases like HIV/AIDS, dengue, influenza and scrub typhus have emerged on the scene.

Acute Respiratory Infections

Acute respiratory infections (ARI) are by far the most consistently and extensively reported condition. In year 2002 alone roughly 900 cases were reported to the ARI surveillance system per week compared to approximately 370 cases per week in year 2001. The under five year old population was hit hard with an incidence rate of 414 per 1000

Fig 10: ARI incidence 2002-2003



population in this age group while the above five years incidence was 197/1000 population in that age group (year 2000 census population taken as a reference). The incidence was high in Malé with a rate of 285/1000 population where as in the atolls the rate stood at 132/1000 population relating to a total incidence of 174/1000 population. This high rate of reporting was mainly due to incidence of outbreak proportions towards the middle of the year. Investigations into this outbreak revealed that this was an outbreak of influenza[13].

Similarly in year 2003, ARI was reported to have a high incidence with an increase of 6% compared to that of 2002[14]. ARI contributed to 41% of all reported communicable diseases. In 2003, the under-five incidence in Malé were 3 times more at risk than above fives and in the islands the under-five risk was 4 times more than the above five year olds. A total of 52,828 incidences of ARI were reported with 22,613 incidences and 30,215 incidences in the atolls[14]. In 2003 also the incidence was high in Malé with a rate of 305/1000 population where as in the atolls the rate was 154/1000 population. The total incidence of ARI in 2003 was 196/1000 population.

The Department of Public Health manages the ARI control activities through its child health programmes. Under this program the WHO guidelines for the management of ARI have been introduced in a number of health care institutions in the country. Many peripheral level health care providers have been trained in the proper management of ARI and have been provided with timers for managing the cases. They have also been trained to refer complicated cases to higher tiers of the system. Furthermore, under the ARI control initiative, most health

facilities at the atoll level (tier 4 and upwards) have been equipped with nebulisation equipment and oxygen concentrators.

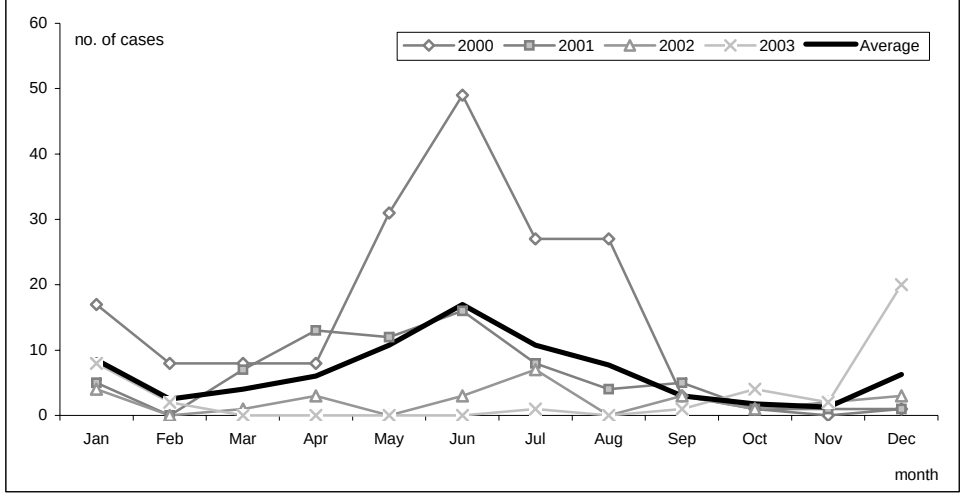
Viral Fever

In the recent past viral fever is becoming more prevalent in the country. In 2001 viral fever was reported to have reached epidemic proportions with some 11,510 cases. In year 2002, viral fever remained to be a problem once again reaching epidemic proportions. Similar to ARI, the epidemic was highest during the mid portion of the year. However, this upsurge in events was reported in conjugation with the outbreak of influenza during this time of the year as referred in the previous section. Once again the epidemic hit hard on the under five age group with an incidence 352/1000 population in Malé and 205/1000 population in the atolls respectively when compared to the rest of the population where the where the rates were 121/1000 population in Malé and 98/1000 population in the atolls[13]. In 2003, the number of cases reported was about 10% fewer whereas in the atoll it was 10% higher compared to 2002. Similar to 2002, the under-fives were at a higher risk with an incidence of 296/1000 population in Malé and 398/1000 population in the atolls.

Dengue and Dengue Haemorrhagic Fever

Dengue fever is endemic in the country, though no clear-cut epidemic pattern has been identified. Aedes aegypti and Aedes albopictus, the main vectors for the disease, are widespread in the country. The first cases of dengue were identified in 1979. Following this, in 1988 a major epidemic of dengue hemorrhagic fever occurred with more than 200 cases and 9 deaths. Since then there have been no major outbreaks, although sporadic cases have been reported. However, in the last three to four years dengue fever (DF) and dengue haemorrhagic fever (DHF) has been notified. In 2003, 38 cases of DF/DHF were reported and in year 2002, 27 cases of DF/DHF were notified compared to 180 and 73 cases in 2000 and 2001 respectively. There is a consistency seen in

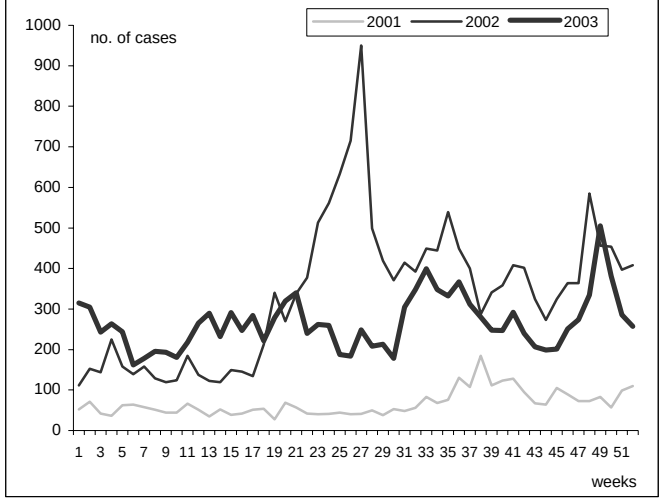
Fig 11: Reported cases of dengue 2000-2003



the incidence of DF/DHF where the highest incidence rates are seen during the months of June and July where the country experience monsoonal rains.

On average, 17 cases of DF/DHF were reported in June during the 2000-2003 period and about 11 cases were reported in May and July during the same period.

Fig 12: Weekly incidence of diarrhoea 2001-2003



Diarrhoea

The diarrhoea situation has been quiescent throughout the 90's, with no major epidemics. On the other hand the incidence rate had continued at a steady level during the early 90's at around 65 per 1000 population. Thereafter it started declining and stood at 30/1000 in 2000. The case fatality rate remained below 1/1000 population except for 1999 where the case fatality was 1.22/1000 population. However no clear trend is seen in the case fatality rate per 1000 population during the decade.

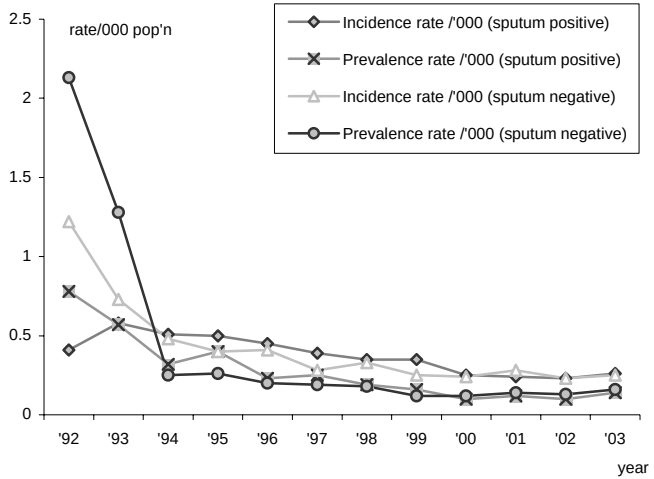
The diarrhoeal diseases control program is implemented by the DPH. The main thrust of the program is on health education and the promotion of ORS. ORS is now available in all the islands. On a broader level, water supply and sanitation are being improved throughout the country. This however, is a complex issue as the discharge of sewage into the sea and septic tanks causes environmental problems and contamination of ground water through seepage. Extra effort is required to address the growing problem of water contamination and improvement of sanitation systems. With emphasis on awareness on home management of diarrhoeal diseases, for the most part, oral re-hydration therapy is used, especially at the grass roots level. However, at the regional and central levels there is still too much emphasis on the irrational use of antibiotics for the treatment of diarrhoea.

Year 2002 show an increase in the incidence of diarrhoea. Compared to 2001, where the incidence was 30.8/1000 population, the 2002 incidence rose to 65.2/1000 population classifying it to epidemic proportions. Sporadic outbreaks were reported from the atolls throughout the year. Similar to ARI and DF/DHF, diarrhoea incidence also peaked during the middle of the year. Furthermore, the under five incidence rate was six times greater than that of the over five ages. The under five diarrhoea incidence for 2002 was 203/1000 population where as the rest was 33/1000 population[13]. Figure 12 shows the weekly distribution of diarrhoea cases in years 2001 to 2002.

Tuberculosis

Tuberculosis incidence and prevalence rates have shown steady declining trends during the 90's. Incidence rate of sputum positive cases has nearly halved from 0.4/1000 to 0.2/1000 population within the last decade. Along with this, the sputum positive prevalence rate has also declined from 0.7/1000 to 0.1/1000 population. During this same

Fig 13: Incidence and prevalence of TB '92-'03



period, the incidence of sputum negative cases declined from 1.2/ 1000 to 0.2/1000 population, along with a decline in prevalence from 2.1/1000 to 0.1/1000 population.

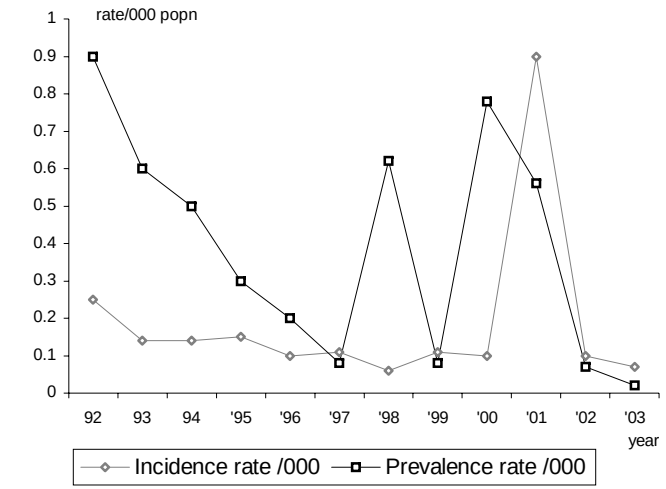
Going back into history, Chest Clinic records show that in 1963 there were 8 TB cases under treatment, amounting to a prevalence rate of 0.08 per thousand populations. From then onwards till the mid 1970s the prevalence rate continued to rise, perhaps due to improved case finding. Finally it stabilized at between 1.5 and 2 per 1000 population and remained so till the 1990s, after which both the incidence and prevalence have shown the above downward trends. The case fatality for the country as a whole had reduced to 5 percent by the end of 1995 and by the end of 2002 no case fatality was reported. In 2003, the sputum positive incidence was 0.26/1000 population and the sputum negative incidence was 0.25/1000 population.

Interestingly, the reported TB statistics show an apparent absence of the disease in the under 5 population. This may very well be a real decline in childhood TB due to high BCG vaccine coverage.

The main factors contributing to the spread of tuberculosis in the Maldives are overcrowding and people's attitude towards the disease. TB is still a stigmatised disease and patients hesitate to seek early treatment. Denial and discontinuation of treatment is also common. Open cases thus remain untreated in the community, resulting in disease propagation and drug resistance. Chest Clinic of DPH manages the TB control program in the Maldives. It registers TB patients and manages their treatment using the DOTS strategy. All medicines and

tests for management of tuberculosis are provided free. All medical practitioners, private and government, notify their cases to the Chest Clinic. From the islands, sputum samples are collected and sent to the Public Health Laboratory in Malé for diagnosis and confirmation. The atoll health centres maintain stocks of TB drugs to treat cases diagnosed and handed over by the Chest Clinic. At the end of 2002 there were 60 cases under treatment.

Fig 14: Incidence and prevalence of leprosy '92-'03



Leprosy

The Maldives is well within the leprosy elimination target set by WHO. In 2002 the incidence rate was 0.1/1000 population and the prevalence rate 0.07/1000 population. In 2003, the 0.07/1000 population and the prevalence rate was 0.02/1000 population. However, new cases continue to be detected at more or less a steady rate. In fact, since 1993, the incidence rate has stagnated at around 30/1000 population. Between 1994 and 1997, the prevalence rate plunged from 0.5 to 0.08/1000 population. This corresponded with the period of changeover to the new MDT regimen, which allowed patients to be discharged after shorter periods of treatment.

According to historical tradition, the Maldives has had leprosy for several centuries. The story goes that more than three hundred years ago, a French ship carrying leprosy-infected slaves was wrecked on the reefs of Huvadoo atoll. The slaves were interned at nearby Villingili from where the disease was supposed to have spread to other islands. In more recent times leprosy patients were isolated in two islands of the same atoll. In 1959 the Government shifted the patients to Villivaru and Biyaadoo near Male' and provided them with basic amenities and health care. The internment of leprosy patients was discontinued in 1977 following the advice of WHO.

The leprosy control project was launched in 1976 with assistance from the Danish Scouts Aid and the WHO. One of the most important activities of the program was a nationwide survey conducted between 1976 and 1980. The survey established a leprosy prevalence rate of 13.2 per 1000 population. Although the disease was widely dispersed among the islands, high prevalence areas were identified in Haa Alif, Noonu, Lhaviyani, Gaaf Alif, Gaaf Dhaalu, and Faafu atolls. The paucibacillary form of the disease predominated in the country,

accounting for 86.5 percent of the cases. The sex ratio of leprosy patients was found to be approximately 2:1 with more cases among the males. This sex difference is more pronounced in multi-bacillary leprosy. The survey also showed that the deformity rate was very low among patients registered after 1975. Plantar ulcers were virtually non-existent, and the few deformities that were seen among more than 50 patients reviewed during the survey were due to early involvement of the ulna nerve. This indicated that the case-finding program was effective and patients were being detected early and put on regular and efficient treatment.

No indigenous case of poliomyelitis was reported since 1978

The first major breakthrough in leprosy control followed the introduction of multi-drug therapy in 1983. Since then the prevalence rate declined steadily to reach 0.1 at the end of 2000. However, the incidence rate continued to remain almost stationary between 0.3 and 0.1 per 1000 throughout the period. In 1996, twenty-six new cases were detected. These trends indicate that though the target of zero transmission is within reach, case finding would need to be accelerated in order to achieve it.

The leprosy elimination program is implemented by the DPH through its Skin Clinic in Male'. The Skin Clinic serves as a national reference centre for leprosy cases. The clinic also maintains a registry of leprosy cases and supervises their treatment. All medicines are supplied free of cost. At the atoll level, the health centres with the help of the regional hospitals carry out leprosy control activities. Active case finding is organized by the DPH through surveys in islands and schools.

Vaccine preventable diseases

Throughout the 90's, the Maldives has maintained vaccine coverage well above the universal coverage rate. The figures for individual antigens in 2002 and 2003 were BCG for 98.5% and 98.0%, DPT

97.5% and 97.5%, polio 97.5% and 97%, measles 96.9% and 96% and tetanus 94% and 95% respectively. 97.5% coverage in Hepatitis B is also achieved in 2003.

Historically, vaccination was first started following a poliomyelitis epidemic in 1967. Following that, vaccination of Malé school children was carried out periodically. However, the first systematic nationwide vaccination campaign was launched in 1976 along with the TB and leprosy surveys. When the surveys were completed in 1980, immunization was also interrupted. The program was later re-launched in 1985 using a central mobile team approach. Phasing out the central mobile teams, EPI activities were later decentralized to the health centre level. With these developments, coverage increa

sed rapidly achieving Universal Immunization status in 1989. To help maintain this high coverage, the Ministry of Education introduced immunization as an entry criterion to all government schools.

DPH implements the EPI program. It maintains a central cold store for vaccines, supplying regional hospitals at 3 monthly intervals. Mobile teams then organize vaccination rounds at regional and atoll levels. In Malé, IGMH and Malé Health Centre carry out vaccination on a regular basis. In addition to routine vaccination, DPH organizes supplementary national immunization days. Currently the EPI program includes BCG, OPV, measles, DPT, hepatitis B and TT for pregnant women. Since year 2000, all vaccines are supplied free by the government and procured through UNICEF.

Vaccine coverage 1992 - 2003

	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03
BCG	99%	89%	98%	99%	96%	98%	99%	99%	99.5%	98%	98.5%	98.0%
DPT 3	98%	90%	96%	99%	96%	97%	97%	97%	98%	98%	97.5%	97.5%
Polio 3	98%	98%	97%	94%	95%	96%	95%	97%	98%	97%	97.5%	97.0%
Measles	98%	86%	96%	94%	95%	96%	98%	99%	99%	98%	96.9%	96.0%
Tetanus	95%	94%	94%	96%	97%	98%	94%	97%	97%	97%	94.0%	95.0%
Hepatitis B	-	21%	63%	-	-	50%	45%	90%	96%	98%	97.5%	97.5%

With rising immunization coverage, polio, diphtheria, whooping cough and neonatal tetanus have been practically eliminated. No indigenous cases of poliomyelitis have been reported since 1978. The same is true for pertussis and diphtheria. Very few cases of neonatal tetanus (NNT) have been reported in recent years, the last in 1994. Unlike the above diseases, measles still

continues to be a problem. The last major outbreak occurred in 1995, with 3,070 cases reported. There were no deaths during the outbreak.

Year 2002 experienced an outbreak of measles. A total of 915 cases were reported. Similar to many other outbreaks, the peak of the outbreak was towards the middle of the year. Some 64% of all reported cases were in adolescents between the ages of 10 to 14. Only 2% of the under 1 year were effected reassuring the universal vaccination coverage status. In 2003 only 75 cases of measles were reported.

DPH has established a system of daily reporting for diseases like poliomyelitis, diphtheria, neonatal tetanus and whooping cough. It also maintains a surveillance system for AFP. Since year 2001, the Maldives is undertaking the Phase I activities of the global polio eradication programme.

At present studies are being undertaken to introduce new vaccines such as HiB and Rubella.

Scrub Typhus

The Maldives has a history of scrub typhus recorded in several literatures. An outbreak of 114 cases was reported among British Troops stationed in Addu Atoll during the Second World War. However, recent information is not available until the outbreak in 2002. It is thought that the combination of terrain, geographical location. Climatic conditions and the presence of a variety of rats and rodents are factors that provide appropriate conditions for the incidence of scrub typhus in the country.

A total of 78 cases were reported in 2002 and 10 of the 17 died resulting in a case fatality rate of 9%. Most of the fatal cases had multiple organ failure, acute respiratory distress syndrome, septicaemia and in few cases jaundice. Most of the reported cases were in the age group between 5 to 14 years. There was no clear evidence of person to person transmission. Investigations confirmed the disease was spread by mites from rodents. It is generally assumed that the disease has been present over the years but was not properly diagnosed. Hence, orientation sessions were conducted for health professionals on the issue and diagnosis guidelines were developed and implemented. This was coupled with intensive general awareness on prevention of scrub typhus.

In 2003 the number of reported case increased to 258 with 4 cases from Malé and 254 from the atolls. This is a 43% increase from year 2002. However, the management of scrub typhus has been improved

showing the decline in case fatality which has reduced from 9% in 2002 to 2% in 2003.

HIV/AIDS and STIs

The AIDS situation in the Maldives continues to be under control. The cumulative total of positive cases since the beginning of the screening programme in 1991, stood at 11 at the end of 2003. On the other hand, due to a very active screening program, a cumulative total of 123 positive cases have been found among immigrant workers in the country of which 13 were in year 2003. This was a larger number than 2002 where the number of case found was 11.

The main thrust of the HIV/AIDS control program is on health education through approaches such as peer education in schools, through training and school curricular and public education via the mass media and group education. Protecting the rights of people living with HIV and providing health care and counselling to them are other important aspects of the program. In 1999 the reproductive Health Baseline Survey yielded over 99% awareness among the general public on HIV/AIDS transmission. In addition, Universal Infection Control has been introduced in the health care facilities and safe blood has been made available in all the hospitals in the country.

The program relies on screening of high risk groups to monitor the AIDS situation within the country. HIV screening is included in the medical check up of all foreigners who seek employment in the Maldives that is required to obtain a work permit. Also, Maldivians returning after spending more than a year abroad are screened.

Surveillance of sexually transmitted infections as not been so far undertaken in a manner that enables establishment of proper trends. Syphilis screening has been part of medical checkups in the country since early 1980s. The results show a very low incidence. No reliable data exists on the prevalence or incidence of other sexually transmitted diseases. However, discussions with doctors and CHWs reveal that STIs are low in general, however, certain STIs are now detected more frequently. Due to the legal issues involved, STIs are often not reported and many who suspect themselves infected seek treatment abroad. STIs are managed using the syndromic approach and reportable from health centres and island health posts.

Even today, there are many difficulties and sensitivities involved in providing explicit information and promoting condom use. Such difficulties hamper the process of changing sexual behaviour to prevent HIV/AIDS and STIs. Universal Infection Control is still not practiced as per the guidelines in all health care settings. This is partly due to lack of awareness among health care providers.

Maldives called for an emergency meeting of health ministers of SAARC for regional action against SARS

A survey to assess the prevalence of RTI/STIs amongst women of reproductive age (16-49 years) attending the Indira Gandhi Memorial Hospital (IGMH) in Male' and the regional hospitals in Hdh. Kulhudhuffushi, Gdh.Thinadhoo and S.Hithadhoo in December 2001. Prevalence was zero for HIV infection, 0.9% for treponemal antibodies, 4.1% for gonorrhoea and 2.9% for chlamydial infection. The prevalence of Hepatitis B was 1.3% and HSV 2 was 3.4%. The prevalence of trichomonas vaginalis was 1.2% and for candida infection 11.5%[15].

Severe Acute Respiratory Syndrome (SARS)

In year 2003, the world witnessed an epidemic of SARS. The Maldives complied with all international recommendations during this threatening epidemic. A stringent screening programme was put in place in a successful attempt to prevent SARS from being transmitted into the country. Observed quarantine, and 10 day screening was conducted at all ports of entry to the country. No cases of SARS have been reported in the country.

Furthermore, the President of Maldives His Excellency Mr. Maumoon Abdul Gayoom took a much needed initiative to gather the health ministers of the south Asia region for an emergency meeting for coordinated regional action against SARS. A declaration on regional cooperation on the prevention and management of SARS was passed in this meeting.

Screening for SARS at Malé International Airport

Non-communicable diseases

Non-communicable diseases like heart disease, cancer and diabetes have emerged as major health concerns for the Maldives. This is partly due to the control of the endemic communicable diseases resulting in increased life expectancy and a consequently increased population of the elderly. Other reasons for the increased attention to these diseases are the increased awareness among the population and the availability of better diagnostic facilities resulting in increased case detection. The Maldives like many other countries is now in a transition period from communicable to non-communicable diseases, having to cope for double burden of diseases.

Cancer

Cancer and diabetes are emerging areas of concern. The exact situation is not clear due to lack of reliable data. In 2002, 28 of the 245 institutional deaths at IGMH were due to cancers. This accounts for 11.43% of deaths in IGMH compared to 9.05% in year 2000.

For developing countries, the estimated number of new cases of cancer per 100,000 of the population is about 100 to 180 cases. Extrapolating this estimate to the Maldives population of about 280,000, it is estimated that somewhere between 280 to 500 cases will be seen every year with over a 1,000 patients under treatment at a given point in time. Fortunately, however anecdotal evidence and available data suggest that the incidence and prevalence of cancer in the Maldives is not as sizeable as these projections.

It is likely that this trend will further rise as infant mortality is reduced and life expectancy increased. In addition, universal immunisation, control of communicable diseases and better management of other infectious diseases and lifestyle changes will all contribute to the

increase in the incidence of cancer. Lung and oral cancers are expected to increase in conjunction with tobacco use. Early marriage, multiple partners and multi-parity is likely to contribute to higher incidences of cervical cancer.

Although a cancer registry exists at the Pathology Laboratory at Indira Gandhi Memorial Hospital, this register falls short of completeness and hence hinders accurate estimations of the incidence and prevalence of cancers in the country. Despite this, the burden of cancers is evident from the gradual increase in cancer mortality both in hospital and nationally. For instance, within the last 3 years (2000-2002) a total of 74 cancer deaths contributing to approximately 11.14% of total hospital deaths that occurred at IGMH. It is interesting to note that in year 2001 a comparatively large number of cancer deaths occurred where as the total death count was lower. Refer table 4 for details.

Percentage of cancer deaths at IGMH

	2001	2002	2003	Total
Cancer Deaths	26	28	29	83
Total Deaths	198	245	202	645
Percentage	13	11.43	14.36	12.86

Source: IGMH, 2003, 2004

The national cause specific mortality rate also shows increasing contribution from cancers. In 1995, mortality due to cancer stood at 1.5% which rose to 5.09% by the end of year 2001 and by 2002 and 2003, the figure stood at 5.39% and 4.01% respectively.

Cardiovascular Diseases

Cardiovascular diseases dominate the mortality and morbidity from non-communicable diseases. Accounting for 28% of the total deaths in IGMH during the period 2002, it is the single most frequent cause of death if stroke, hypertension, and ischemic heart disease are grouped together. Ischemic heart disease accounted for 14.69% of cardiovascular deaths in IGMH during the year 2002. Many of the affected are of productive age, resulting in significant economic consequences due to loss of income in addition to the expenses of managing the moribund population. Diseases of the circulatory system and other forms of heart diseases, contributed to over 35 percent of all deaths during 2001 to 2003 year period. In year 2001, these conditions contributed to 38.4% of deaths and in 2002 and 2004 these figures stood at 35.8% and 45.1% respectively.

Deaths due to cardiovascular diseases

Disease Classification	2001		2002		2003	
	no.	%	no.	%	no.	%
Diseases of the circulatory system	330	30.53	315	28.3	428	41.88
Other forms of heart diseases	85	7.86	83	7.46	33	3.23
Total cardiovascular diseases	415	38.39	398	35.76	461	45.11

High prevalence of smoking and increasing affluence has brought in labour saving gadgets, which have taken away the last remaining opportunities for physical activity, both at work and at the domestic front. The situation is further aggravated by a shift in dietary habits towards fast foods and high calorie intake.

Diabetes

Diabetes has also emerging as one of the leading causes of morbidity.

Particular attention must be given for the case of the chronically ill.

Though exact figures are not available, it is estimated the diabetes prevalence could be as high as 6-8 percent of the population. The incidence of juvenile diabetes is relatively low in the Maldives. Recognizing the graveness of the problem a special Diabetes clinic has been established at IGMH. An NGO – Cancer and Diabetic Society was registered in 2000 with the objectives of creating awareness among the community. Increased effort is required in order to establish a better surveillance mechanism on the incidence and prevalence of diabetes and its risk factors. In 2003, endocrine, nutritional and metabolic disease contributed to about 8% of all deaths at IGMH. Throughout the country, these conditions contributed to about 2% of all death in the years 2001 to 2003.

Renal Failure

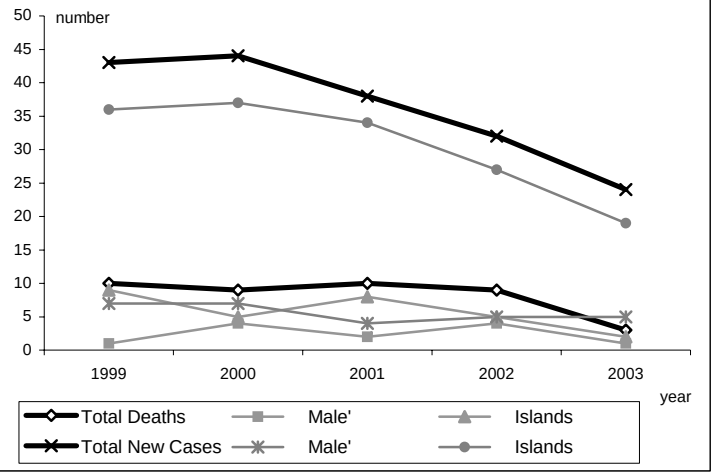
Chronic renal failure has been reported more frequently in recent years. It has not been satisfactorily established whether this is due to better diagnostic facilities or whether it is due to a real increase in incidence. It has been suggested that streptococcal nephritis and environmental factors could be implicated There is no reliable data on the prevalence of the condition. In year 2002, diseases of the genitourinary system accounted for about 9% of all institutional deaths in IGMH. It is estimated that about 30 new cases of chronic renal failure would be diagnosed every year. With effective renal replacement therapy, the total caseload prevalence is bound to result

in an enormous financial burden. At present, facilities for peritoneal and haemodialysis are available at IGMH and ADK hospital. As far as transplantation is concerned, the feasibility of it must be determined based on the demand. During the years 2001 to 2003, mortality due to diseases of the genitor urinary system, which includes renal failure contributed to 3.6%, 3.2% and 2.5% in 2001, 2002 and 2003 of all deaths in the country respectively.

Thalassaemia

Thalassaemia is an inherited haematological disorder. Originally thought to be endemic to the Mediterranean region, the disease was later found to be widespread in South and Southeast Asia. The Maldives has one of the highest known incidences of thalassaemia anywhere in the world. It is estimated that one out of every six Maldivians is a thalassaemia carrier. About 60 - 70 children are diagnosed every year with the disease. In 1988 there were 55 children with thalassaemia major under treatment at the Central Hospital in Male'. By the end of 2002 a total of 501 thalssaemics were registered and by the end of 2003 the number rose to 525. At the end of 2003, 373 thalassaemics were living with 42 of them over the age of 16.

Fig 15: Incidence and mortality by thalassaemia '99-03



The National Thalassaemia Centre was opened in 1994 to coordinate thalassaemia control efforts and streamline case management. The NTC works as a day-care centre and provides free treatment. It has facilities for safe blood transfusion, thalassaemia screening and Desferral infusion. At present thalassaemia diagnosis and treatment are concentrated mainly in Male' and, to some extent, in the regional hospitals, posing considerable problems for those from other islands. Up grading of health centres has enabled checking of haemoglobin levels at these health centres and establishment of Atoll hospitals has enabled blood transfusion at the atoll level.

The NTC faces considerable challenges, one of which is the lack of an organized blood donation service and central blood banking system. Another is shortage of funds. Treating thalassaemia is an expensive proposition. The drug Desferal is expensive and so is the pump used

for its infusion. Due to non availability of facilities for component separation, the patients also require expensive leukocyte filters. It is estimated that even at the present level of spending about $3000 are spent annually on each patient. The expenditure is expected to rise with the introduction of more costly technologies and with the diagnosis of more cases.

In an effort to control thalassaemia government has approved prenatal diagnosis and medical termination of pregnancy of affected foetuses.

Preventive Health Services

Nutritional Disorders

Nutritional disorders are common in the Maldives. New impetus for nutrition interventions were brought about in light of a number of research studies in the last 10 years. The national goals on nutrition include access to food security, development of a comprehensive nutritional package, prevention and control of micronutrient deficiencies, promotion of exclusive breastfeeding, promotion of healthy weaning practices and nutritional supplementation and improvement of health and nutrition status of mothers (Health Master Plan 1996-2005). The Department of Public Health, along with all the other preventive health programmes implement a comprehensive nutrition programme for addressing these issues.

World Declaration unanimously adopted in the International Conference on Nutrition in December

1992, called forth countries to formulate national plan of actions for nutrition for elimination of hunger and all forms malnutrition. Following this, Maldives developed its first comprehensive national nutrition plan of action 1997-2000. Nutrition promotion has been given a priority focus in the national development agenda. Thus, during 2001 and 2002, the second national nutrition strategic plan for 2002 – 2007 was developed. The plan gives priority focus in the reduction of malnutrition and micronutrient deficiencies, increasing accessibility to essential food, improved food quality and safety for consumer protection, promotion of exclusive breastfeeding up to 6 months of age, and reduction of low birth weight. With strong collaboration of Ministry of Education, the nutrition programmes continues to provide Vitamin A supplementation and de-worming to school children. Since its launching in the year 2000, two doses of vitamin A have been given at 6 monthly intervals every year to pre and primary school children. De-worming tablets also have been given to primary school children every year at 6 monthly intervals. Vitamin A supplementation and de-worming is also given to children through the immunization programme which would cover children of the eligible age who are not in school.

Abiding by the international code for breast milk substitutes, Maldives prohibits promotion of any infant formula and under the Baby Friendly Hospital Initiative (BFHI), six government hospitals - Indira Gandhi Memorial Hospital, Kulhuduffushi Regional Hospital, Ungoofaru Regional Hospital, Muli Regional Hospital, Thinadhoo Regional Hospital and Hithadhoo Regional Hospital - are declared Baby Friendly by the end of 2002. The Baby Friendly Initiative is to promote and strengthen exclusive breastfeeding. In the years 2001 and 2002, nurses and relevant staff at various hospitals have been given training in breastfeeding counselling giving a special focus on maternity care workers.

Vitamin A supplementation is given to school children

A comprehensive package of IEC materials was produced in the year 2002, which focused on several area of nutritional promotion.

The evaluation on the use and impact of IEC materials indicate that a fairly high proportion of people are aware of nutritious food and food sources for the prevention of micro nutrient deficiencies.

The Multiple Indicator Cluster Survey II conducted in 2001 revealed that 30% of children under 5 years are underweight and 25% are stunted. Nine percent (9%) of these children are severely under nourished and the wasting prevalence stood at 13%.

Furthermore, the survey identified that anaemia is also a major problem among women. The results showed that 50% of women in the reproductive age (15-49) and 56% of the pregnant women were anaemic respectively.

Improvement in the health status of the population largely depends on the preventive health services delivered in various forms at all levels of the health care delivery system.

Health Promotion

Health promotion is given a high priority for sustainable health gains and enhancing healthy behaviour in the population. Health Promotion in the country is geared by the many preventive health programmes

implemented by the various efforts made by the government, non governmental organisations and the community groups.

A health promotion network was established in 2002. This network consists of members from government agencies, UN agencies, NGOs and individuals who are interested in health promotion activities. Group emails and informative and participatory meetings on specific areas of health are the key strategy for health promotion used in the group.

The Department of Public Health takes the major responsibility in carrying out promotive, preventive and rehabilitative health care service in the country. The main preventive health services encompass around disease control and immunization, reproductive health and family planning, maternal and child health, nutrition and food safety as well as primary health care at the periphery.

IEC materials form an important tool in creating Awareness and health literacy

Information, Education and Communication (IEC)

IEC represents an important component of all heath promoting projects. Various IEC activities have been implemented for creation of awareness among the general public on priority health issues. Health awareness is provided through collaborative action by government agencies, non governmental organisations, and private sector and community groups. National TV and Radio play a vital role in the creation of health awareness. The Health Education Unit at the Ministry of Health acts as the main focal point for awareness creation.

In the year 2002, major focus for IEC material production was given in the area of tobacco use prevention, Nutrition, and non-communicable diseases prevention and healthy lifestyle. IEC materials developed by the Health Education Unit are mainly in the form of leaflets, posters and billboards. In addition two editions of the health bulletin 'Dhulhaheyo' were

published. Regular health awareness programs were broadcasted by the national TV and Radio on various health issues, main focus of which was also on the above areas.

A survey was conducted in September 2002, to assess the use of IEC materials and awareness created through the printed IEC materials. The results show that the materials produced prove to be an effective mean for creating awareness. And very importantly, the materials are a useful resource for use by health workers in creating health awareness among the community. As expressed by 97% of health workers, IEC materials are a useful mean for promoting good health. Eighty nine percent said the materials contained adequate information for people to know and 59% indicated that the materials contained information people need to know.

World no tobacco day is celebrated all over the country as a means to advocate tobacco control

Tobacco control

Tobacco consumption remains a major health concern in the Maldives. It is estimated that 37.4 percent of the male population and 15 percent of the female population are tobacco users (Smoking Survey 2001, DPH). These proportions of tobacco users show a dramatic decline in tobacco consumption from that prevailed in 1997 (Smoking Survey, 1997, DPH) which indicate that 57% males and 30% females were tobacco users. Tobacco control is given a high priority by the government and main emphasis is given for raising awareness among the public on the harmful effects of tobacco and promote community action for controlling tobacco use.

Community initiatives against tobacco

Tobacco free island status was first achieved by the citizens of the island Madifushi in 1993. Two more islands followed suit later – Beinmadhoo in Haa Alif Atoll in 1993 and Hathifushi of Haa Alif Atoll in 2000. In 2001 Nolhivaramfaru in Haa Dhaal Atoll also declared

themselves tobacco free. It is envisaged that more islands will follow suit.

Women's committees of islands also have taken encouraging roles creating awareness among women. As a result 6 islands have declared all their women quitting tobacco use. Ministry of Health awarded these community groups special certificates in acknowledgement of their active participation in the national campaign. At the end of 2003, the islands of Guraidhoo and Kinbidhoo in Thaa Atoll, Meedhoo in Seenu Atoll, Naalaafushi in Meemu Atoll, Dharaboodhoo in Faafu Atoll and Nadalla in Gaafu Dhaal Atoll all had their women quit tobacco use.

Since the year 2000, the Ministry of Health has been issuing certificates to households who meet the criteria set by the Ministry as tobacco free. The first of these was issued in the year 2000. By the end of the year 2003 a total of 715 certificates have been issued to smoke free households in various parts of the country.

Private sector initiatives

The ADK Hospital began presenting the "ADK Quit Smoking Award" in 1998 for the most outstanding person or organization working against tobacco control. A total sum of Rf 25,000 is rewarded to the selected person, organisation or community group every year since 1998. If the award is won by an individual person, one of free health services are provided from the hospital in addition to the prize money. If a party is not able to bring about a significant impact from their activities within a year, the prize money is donated to the children's' fund.

Anti-tobacco school initiative

An anti-tobacco school program was launched on 1 August 2000 inaugurated by His Excellency the President Maumoon Abdul Gayoom. The programme continues its efforts to discourage tobacco use among the public. Under the programme school children carries out a child parent education programme for making adults to quit tobacco use.

The students are awarded for their outstanding performance in this regard. In the year 2001, Dr. Mohammed Latheef, Minister of Education was awarded WHO's Tobacco-Free World Award due to his valuable work against tobacco specially anti-tobacco school program.

Participation in international forums and action against tobacco

Quit and Win is an international tobacco cessation competition organized by the KTL (Public Health Institute) of Finland every 2 years. Maldives participated in the competition in 2000 and 2002. A total number of 2347 persons representing 1764 men and 583 women took part in the competition in 2002.

Maldives has participated in the formulation of the Frame Work Convention on Tobacco Control (FCTC). Most of the measures and tobacco control activities mentioned in the FCTC are implemented in the Maldives. World No Tobacco Day is celebrated every year with special emphasis given to mass awareness creation through entertainment and physical action as well as awareness workshops and sessions.

Food Safety

The Food Safety Programme looks into the food hygiene aspects in the commercial food serving establishments ensuring safety for customers as a preventative service for the public and creating awarenss.

Food safety standards and inspection guidelines have been developed and regular inspection is carried out by public health inspectors. Awareness creation workshops of managers of food serving establishments have continued to be carried out throughout the past few years. Customer awareness has also been given a priority attention by the programme. With enhanced food safety standards and regulations and continued awareness creation, the food service industry is now well aware and cautious on the safety of food provided. And as part of the food safety programme, all commercial food advertisements are screened for inappropriate and misleading health messages.

In the year 2002, awareness workshops were conducted in Seenu, Gnaviyani and Haa Dhaal atolls for primary level health care workers on various food and water borne diseases. For awareness creation among food service workers and customers, posters distributed to restaurants and tea shops. Messages were developed and broadcasted through radio and TV on food hygiene. A total of 230 food advertisements were screened out of which 35 were not approved.

The Public health laboratory carries out quality control measures randomly by testing foods available in the market as well as drinking water.

Better nutrition needs to be promoted for combating malnutrition in the community

Reproductive Health and Family Planning

Priority focus has been given to improve the health status of women and children. Providing access to quality maternal health services is seen to result in the improvement of health status of women and children.

Access to maternity care has been increased by the establishment of 10 atoll hospitals and increasing the number of regional hospitals from 5 to 6 during the period 2001 and 2003. The regional hospitals provide specialty care in gynaecology and obstetrics and paediatric services. Atoll hospitals are also equipped and manned to perform emergency obstetric and gynaecology services.

To improve the quality of care provided in this area, the reproductive health programme has developed standard guidelines to be followed by all concerned service providers at all levels of health care delivery system. The MICS II identified indicators showing improvement and areas to focus with regard to maternal and child health services.

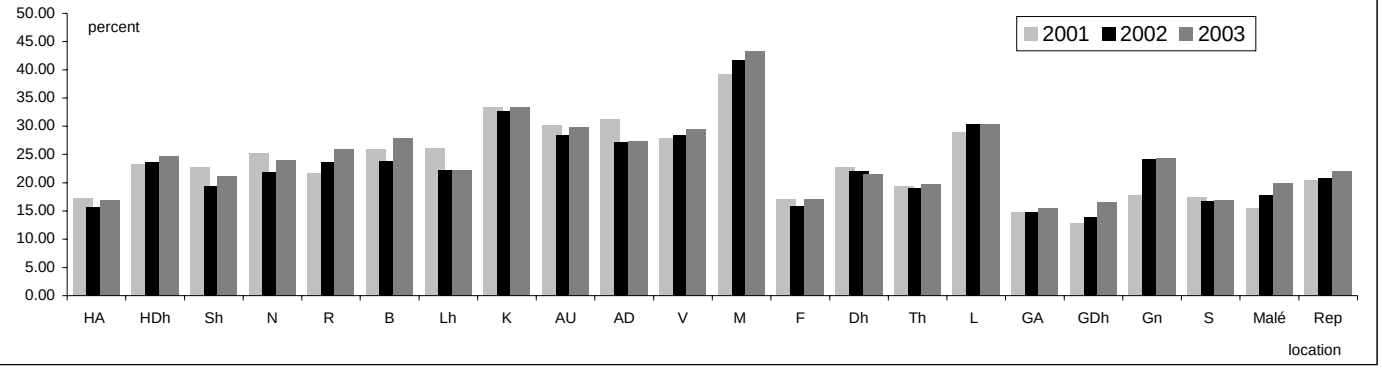
Antenatal care and care during delivery are very important aspects that have considerable influence on pregnancy outcome. According to MICS II, 76.5% of women who delivered a live baby had been examined by a doctor, which shows, as the survey reported seeking medical advice during pregnancy is common in the Maldives. As per assistance during delivery, 48% of deliveries were conducted by a doctor which also means about this proportion of deliveries in the country are institutional deliveries. Overall, it was found that 97% of deliveries were attended by trained personnel (doctors, nurses, health workers and trained foolhumas).

Routinely reported data for 2003 shows that 48.9% of all deliveries are attended by a doctor and 23.6% attended by a staff nurse in the country. In Male' these figures stand at 45% births attended by a

Family planning & family responsibilities are gradually taken up by males.

doctor and 42.4% attended by a staff nurse. In the islands, 51.4% of births were attended by doctors and 11.9% by a staff nurse. Intensive work has also been put to increase access to modern methods of family planning. Training and supplies have been provided by the RH programme to increase the method mix to 3 (pills, injection and condoms) at the island level.

Fig 17: Contraceptive user rate 2001-2003



Training was provided for health workers on planning, counselling and IEC along with development of IEC guidelines which would enhance quality in the service.

With the increasing number of hospital facilities accessibility to IUD and surgical interventions for family planning methods increased. The contraceptive user rate was increased from 18.6% in 2000 to 20.8% in 2002 to 22.1% in 2003. There are wide variations in the use of contraceptives in different atolls. User rates in Haa Alif, Faafu, Thaa, Gaaf Alif, Gaaf Dhaal and Seenu has a contraceptive user rate less than 20%.

The contraceptive prevalence rate estimated in 1999 by the Reproductive Health Baseline Survey was 42% for modern methods.

Water and Sanitation

Access to safe drinking water

The Multiple Indicator Cluster Survey conducted in 2001 shows that 76.5% of the households in the country have access to safe drinking water including rain water. Safe drinking water has been provided to 100% of households in Male' and Villingili with Desalinated Water. Large variations are seen in the accessibility of safe water in the different regions with the lowest in the North region. The use of well water for drinking fell from 19% in 1995 to 16% in 2001. Well water is unsuitable for drinking in most parts of the country due to increased salinity and unhealthy state of ground water.

Protection of health from childhood
ensures healthy living

Provision of HDPE tanks

To provide rain water storage facility in the islands, government built ferrous cement community tanks. However, due to difficulties of maintenance these were later phased out and replaced by HDPE tanks. A project which began in the 1994, HDPE tanks are provided to the island community both as community tanks and individually owned tanks. These tanks are sold to individual applicants on the basis of instalment payments. To date the HDPE tanks provided to the atolls give a total storage capacity of over 18.5 million litres.

Sanitary means of excreta disposal

The MICS II survey found out that 80.5% households have access to sanitary means of excreta disposal. The use of Pit latrines or Gifili as a mean of excreta disposal has declined from 18% in 1995 to 3.2% in 2001(MICS I, 1995; MICS II 2001). The pit latrines had been hazardous as they are often close to household wells and contaminate the water with fecal matter. According to MICS II, a large proportion of households in the country today use toilets that flush to pit, which is also a risk to the ground water. Only 22% of households in the country use toilets which flush to sewage system or septic tank. In the atolls this proportion ranges from 3.3% to 11.4% while in Male the facility is available for over 99% of households. Use of beach as a toilet facility is seen to have declined from 24% in 1995 to 18% in 2001.

Statistical Tables

Table 1: Crude birth rate per 1000 population 1992 - 2003												
	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03
Republic	35	33	30	27	26	24	21	19	20	18	18	18
Male	36	33	30	27	26	24	22	19	20	18	18	18
Female	35	32	30	28	26	23	21	19	20	18	17	17
Atolls	40	36	33	30	33	24	21	18	19	16	15	15
Male							21	19	20	16	16	16
Female							21	18	19	16	15	15
Malé	23	23	21	22	22	23	22	21	21	22	24	24
Male							23	22	20	22	24	24
Female							20	20	22	22	25	25

Table 2: Crude death rate per 1000 population and still birth rate per 1000 live births, 1992 - 2003												
	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03
Republic	6	6	5	5	5	5	4	4	4	4	4	4
Male	6	6	6	5	5	5	4	4	4	4	5	5
Female	5	5	4	4	4	4	4	3	3	3	3	3
Atolls	6	6	5	5	5	5	4	4	4	4	4	4
Male	7	7	6	5	5		4	4	4	4	4	4
Female	5	5	5	4	4		4	3	3	4	3	3
Malé	5	5	4	4	4	5	5	4	4	4	5	5
Male	6	5	5	5	5		5	5	5	4	5	5
Female	5	4	4	4	4		4	4	3	3	4	4
Still birth rate	20	24	21	22	22	25	20	18	15	17	10	11

Table 3: Infant mortality rate per thousand live births, 1992 - 2003												
	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03
Republic	31	34	30	32	30	27	20	20	21	17	18	14
Male	34	35	31	32	34	27	20	21	22	17	19	15
Female	27	33	28	31	25	27	21	19	20	18	16	13
Atolls	29	34	28	31	32	31	20	23	23	19	19	18
Male	33	36	30	31	37	32	21	23	23	19	18	17
Female	25	33	27	30	27	31	19	23	23	20	21	18
Malé	38	33	36	36	21	15	21	13	17	13	15	8
Male	39	33	40	37	24	13	18	16	19	13	21	13
Female	36	34	32	36	17	17	25	10	15	14	9	3

Table 4: Under-five mortality rate per thousand live births, 1992 - 2003												
	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03
Republic	45	50	43	47	39	39	27	28	30	26	23	18
Male	53	50	45	51	42	37	28	30	31	27	22	22
Female	37	50	41	43	37	43	26	26	29	25	23	15
Atolls	45	51	43	48	43	46	29	33	34	30	26	24
Male	54	52	46	52	44	43	31	33	33	32	21	27
Female	36	50	41	44	41	49	26	32	34	29	31	21
Malé	47	45	42	41	26	21	24	16	20	17	18	10
Male	50	42	43	44	32	17	21	20	26	18	24	14
Female	44	48	40	39	20	25	27	12	15	16	11	4

Table 5: Life expectancy at birth										
	1980	1991	1995	1997	1998	1999	2000	2001	2002	2003
Republic	50	66	70	69.62	71.12	72.6	71.4	71	73.43	
Male	51	66	70	69.2	70.59	72.1	70.7	71	72.8	70.40
Female	49	65	72	70.15	71.82	73.2	72.2	71	74.18	71.29
Rural	49	64	70							
Urban	50	65	70							

Table 6: Neonatal and Postnatal Death Rate per 1000 live births, 1991 - 2003														
		'91	'92	'93	'94	''95	'96	'97	'98	'99	'00	'01	'02	'03
Early Neonatal Deaths Rate	Republic	15	14	15	15	19	16	15	12	10	12	8	9	9
(0 – 6 d)	Malé	18	19	22	23	29	9	9	14	6	13	7	9	3
	Atolls	14	13	14	14	16	17	17	11	12	12	9	9	18
Late Neonatal Deaths Rate	Republic	6	3	6	4	4	3	2	2	3	2	3	2	1
(7 – 27 d)	Malé	2	4	6	8	4	3	6	3	3	1	4	2	1
	Atolls	7	3	6	4	4	3	3	2	3	3	3	2	1
Post Neonatal Deaths Rate	Republic	17	13	13	11	9	11	10	11	7	7	6	6	4
(28 – 364 d)	Malé	12	14	6	12	3	9	5	4	4	3	3	4	2
	Atolls	17	13	15	11	10	12	12	7	8	8	8	8	9
Neonatal Deaths Rate	Republic	22	17	21	19	23	19	17	14	13	14	11	11	10
(0 – 27 d)	Malé	21	24	28	24	33	12	10	17	9	14	10	11	3
	Atolls	22	16	19	18	20	20	19	13	15	15	12	12	19
Perinatal Deaths Rate	Republic	40	38	45	40	45	40	29	34	31	29	28	21	21
(0 – 27 d)	Malé	52	55	50	49	-	87	24	34	25	29	26	18	8
	Atolls	38	34	44	38	-	27	31	34	33	29	29	23	41

Table 7: Age specific mortality rate per 10000 population 2001 - 2003									
	2001			2002			2003		
Age Group	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
0-4	42	43	41	39	39	39	33	41	26
5-9	4	4	4	3	3	3	4	6	2
10-14	3	4	2	5	5	5	3	4	3
15-19	4	7	1	6	6	6	3	6	1
20-24	8	10	5	6	7	4	3	4	3
25-29	8	6	9	6	8	5	6	8	5
30-34	9	10	7	6	3	9	6	5	7
35-39	12	11	12	16	18	14	14	16	11
40-44	22	21	23	19	26	11	21	25	16
45-49	28	30	26	29	33	25	25	21	30
50-54	79	86	71	64	59	71	48	62	33
55-59	96	111	81	127	151	103	83	99	67
60-64	182	194	168	214	206	222	190	178	203
65-69	284	256	309	236	278	185	251	269	231
70+	751	736	775	751	790	692	687	661	726

Table 8: Maternal mortality rate per 100000 live births 1997 - 2003							
	1997	1998	1999	2000	2001	2002	2003
MMR	261.69	158.09	114.83	77.70	143.38	160.3	77.82

Table 9: Percentage of births by births weight, 2003

Locality	Sex	BIRTH WEIGHT IN GRAMS												
		< 500	500-999	1000-1499	1500-1999	2000-2499	2500-2999	3000-3499	3500-3999	4000-4499	4500-4599	5000+	Not stated	TOTAL
Republic	**Both Sexes**	**0.1**	**0.2**	**0.5**	**0.9**	**7.4**	**33.4**	**38.6**	**15.3**	**2.7**	**0.3**	**0.2**	**0.5**	**100.00**
	Female	0.0	0.2	0.5	0.9	8.2	35.7	38.4	13.4	1.8	0.2	0.1	0.5	47.9
	Male	0.1	0.2	0.5	0.8	6.6	31.4	38.8	17.0	3.5	0.3	0.3	0.6	52.1
Atolls	**Both Sexes**	**0.06**	**0.06**	**0.41**	**0.82**	**7.81**	**34.04**	**39.07**	**14.17**	**2.20**	**0.31**	**0.22**	**0.82**	**100.00**
	Female	0.00	0.13	0.39	0.98	8.52	35.72	38.78	13.08	1.30	0.26	0.13	0.72	48.39
	Male	0.12	0.00	0.43	0.67	7.14	32.46	19.35	15.19	3.05	0.37	0.31	0.92	51.61
Malé	**Both Sexes**	**0.05**	**0.36**	**0.71**	**0.92**	**6.67**	**32.47**	**37.91**	**17.10**	**3.41**	**0.25**	**0.10**	**0.05**	**100.00**
	Female	0.11	0.22	0.75	0.86	7.76	35.56	37.82	14.01	2.59	0.22	0.00	0.11	47.23
	Male	0.00	0.48	0.68	0.96	5.69	29.70	37.99	19.86	4.15	0.29	0.19	0.00	52.77

Table 10: Percentage of live and still births attended by type of professional

Locality	Live Births						Still Births					
	TBA	Nurse	Staff Nurse	Doctor	Other	Not Stated	TBA	Nurse	Staff Nurse	Doctor	Other	Not Stated
Republic	17.90	7.39	23.58	48.94	0.68	0.33	16.90	12.68	30.99	36.62	0.00	23.94
Malé	0.15	12.37	42.39	44.99	0.00	0.05	0.00	28.57	50.00	17.86	0.00	3.57
Atolls	28.87	4.31	11.93	51.39	1.10	0.50	27.91	2.33	18.60	48.84	0.00	37.21

Table 11: Number of live births by age of mother 2000 - 2003								
Age group	No. of live births							
	2000	%	2001	%	2002	%	2003	%
10-14	6	0.12	0	0	5	0.08	2	0.04
15-19	497	9.36	507	10.38	374	577	277	5.40
20-24	1729	32.54	1500	32.86	1605	24.76	1700	33.10
25-29	1426	26.84	1336	27.35	1383	21.34	1456	28.35
30-34	938	17.66	896	18.35	977	15.08	1021	19.88
35-39	541	10.18	497	10.18	490	7.56	555	10.81
40-44	155	2.92	133	2.73	136	2.10	111	2.16
45-49	21	0.40	14	0.29	18	0.28	11	0.22
50-54	1	0.02	2	0.04	3	0.05	4	0.08

Table 12: TB situation in the Maldives, 1991 - 2003													
	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03
Total cases under treatment	676	673	443	142	163	108	115	98	73	60	71	60	82
Incidence rate /'000 (sputum positive)	0.55	0.41	0.58	0.51	0.5	0.45	0.39	0.35	0.35	0.25	0.24	0.23	0.26
Prevalence rate /'000 (sputum positive)	1.23	0.78	0.57	0.32	0.4	0.23	0.25	0.19	0.16	0.1	0.12	0.1	0.14
Incidence rate /'000 (sputum negative)	1.15	1.22	0.73	0.48	0.4	0.41	0.28	0.33	0.25	0.24	0.28	0.23	0.25
Prevalence rate /'000 (sputum negative)	1.84	2.13	1.28	0.25	0.26	0.2	0.19	0.12	0.12	0.12	0.14	0.13	0.16

Table 13: Leprosy incidence & prevalence rates, 1991-2003													
	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03
Total cases under treatment	279	265	165	152	113	71	21	17	23	21	15	19	6
New cases under treatment	58	57	34	35	37	26	31	18	32	27	25	29	20
Incidence rate /000	0.26	0.25	0.14	0.14	0.15	0.1	0.11	0.06	0.11	0.10	0.90	0.10	0.07
Prevalence rate /000	1	0.9	0.6	0.5	0.3	0.2	0.08	0.62	0.08	0.78	0.56	0.07	0.02

Table 14: Incidence and case fatality rates for diarrhea, 1991-2003													
	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03
Total cases	14387	13143	12334	15493	16202	11364	10557	11118	6566	8076	8329	17350	13854
Incidence rate /'000 population	64.4	56.94	51.7	63	65	44.4	40.8	41.6	23.7	30.02	30.83	65.23	51
Case fatality /'000 population	1.88	0.61	0.81	0.13	0.25	0.53	0.47	0.09	1.22	0.62	0.00		0.07

Table 15: HIV surveillance, 1991-2003													
	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03
Screened	7119	4206	4525	4814	26720	33725	43912	45912	45913	47280	43329	41200	45739
Positive (nation)	1	0	1	1	4	2	2	0	0	1	0	0	1
Positive (foreign)	0	0	0	0	1	12	20	16	19	18	13	11	13

Table 16: Cause specific death rates 2001-2003						
Disease Classification	2001		2002		2003	
	No.	%	No.	%	No.	%
Diseases of the circulatory system	330	30.5	315	28.3	428	41.88
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	182	16.8	186	16.7	160	15.66
Diseases of the respiratory system	82	7.59	114	10.2	111	10.86
No Data or not stated	83	7.63	80	7.19	48	4.70
Neoplasm	55	5.09	60	5.39	41	4.01
Other forms of heart diseases	85	8.86	83	7.46	33	3.23
Diseases of the nervous system	19	1.76	23	2.07	28	2.74
Diseases of the genitourinary system	39	3.61	37	3.32	26	2.54
Certain Infectious and parasitic diseases	31	2.87	55	4.94	23	2.25
Endocrine, nutritional and metabolic diseases	27	2.5	29	2.61	23	2.25
Certain conditions originating in the perinatal period	45	4016	33	2.96	22	2.15
External causes of morbidity and mortality	21	1.94	28	2.52	22	2.15
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	28	2.59	15	1.35	16	1.57
Diseases of the digestive system	7	0.65	22	1.98	11	1.08
Injury, poisoning and certain other consequences of external causes	11	1.02	10	0.9	9	0.88
Mental and behavioral orders	3	0.28	3	0.27	7	0.68
Other disorders originating in the perinatal period	2	0.19	2	0.18	5	0.49
Pregnancy, childbirth and puerperium	6	0.56	9	0.81	4	0.39
Diseases of the skin and subcutaneous tissue	0	0.00	1	0.09	2	0.20
Digestive system disorders of fetus and newborn	4	0.37	2	0.18	2	0.20

Table 17: Communicable disease reported in 2003						
Disease	No. of cases - Malé		No. of cases - Atoll		Total	Percentage score
	<5yrs	>5yrs	<5yrs	>5yrs		
Acute respiratory infection	4078	18535	10968	19247	52828	41.339%
Viral fever	1745	6672	9958	21517	39892	31.216%
Conjunctivitis	469	2989	2476	11886	17820	13.944%
Diarrhea	942	3955	3246	5722	13865	10.850%
Chicken pox	95	1040	32	461	1628	1.274%
Pyrexia of unknown origin	18	749	0	0	930	0.728%
Scrub typhus	0	3	32	223	258	0.202%
Hand foot and mouth disease	0	0	151	33	184	0.144%
Hepatitis	0	76	0	84	160	0.125%
Typhoid fever	0	7	5	76	88	0.069%
Measles	4	8	12	51	75	0.059%
Dengue/dengue haemorrhagic fever	4	14	1	19	38	0.030%
Leptospirosis	0	6	0	7	13	0.010%
Meningitis	1	4	1	7	13	0.010%
Acute flaccid paralysis	0	0	0	1	1	0.001%
TOTAL	7519	34058	26882	59334	127793	100.000%

Table 18: Thalassaemia situation 1999-2003					
	1999	2000	2001	2002	2003
Total no. of registered cases	387	431	469	501	525
Total Deaths	10	9	10	9	3
Malé	1	4	2	4	1
Islands	9	5	8	5	2
Total New Cases	43	44	38	32	24
Malé	7	7	4	5	5
Islands	36	37	34	27	19

Source: NTC 2004

Table 19: Percentage of different classifications of thalassaemia 1999-2003														
YEAR	Total Screened	B-THAL MAJOR	B-THAL NON-CARRIER	B-THAL CARRIER	A-THAL CARRIER	Hb-E B THAL	E-HOMOZYGOUS	Hb-E TRAIT	Hb-D TRAIT	Hb SICKEL B-THAL	Hb S TRAIT	Hb S DISEASE	IRON DEFICIENCY	INCONCLUSIVE
1999	1559	1.73	57.40	21.90	7.38	0.26	0.00	1.86	0.06	0.19	0.00	0.00	2.31	7.12
2000	1712	1.52	57.50	22.60	6.02	0.29	0.00	0.82	0.18	0.12	0.00	0.00	2.86	7.77
2001	1554	1.54	59.50	21.20	4.50	0.13	0.00	1.35	0.64	0.06	0.00	0.00	3.86	6.82
2002	2219	0.72	59.70	18.20	0.41	0.23	0.05	1.22	0.32	0.05	0.00	0.00	3.92	14.96
2003	2907	0.38	54.50	18.30	0.07	0.17	0.10	0.58	0.41	0.00	0.28	0.00	4.06	20.95

Source: NTC 2004

Table 20: Contraceptive user rate (%) by urban, rural and sex, 1992-2003

Year	Republic			Malé			Atolls		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
1992	9.6	-	-	-	-	-	-	-	-
1993	10.8	-	-	-	-	-	-	-	-
1994	12.2	-	-	-	-	-	-	-	-
1995	14.7	18.4	81.6	11.5	23.8	76.2	16	16.9	83.1
1996	16.6	18.2	81.8	13.4	26.6	77.4	17.9	16.9	83.1
1997	18.1	18.7	81.3	13.3	19.9	80.1	20.1	18.4	81.6
1998	18.5	18.6	81.4	13.6	15.2	84.8	20.4	19.4	80.6
1999	19.3	19.5	80.5	15.7	18.8	81.2	20.7	19.7	80.3
2000	18.9	19.7	80.4	13.1	11.7	88.3	22.8	21.6	78.4
2001	20.4	22.8	77.2	15.6	18.9	81.1	22.3	23.9	76.1
2002	20.8	22.3	77.7	17.8	13.5	86.5	21.9	25.0	75.0
2003	22.1	21.1	78.9	20.0	13.7	86.3	23.2	23.4	76.6

Table 21: Contraceptive user rate by atolls, 1998-2003						
Atoll Name	Percent					
	1998	1999	2000	2001	2002	2003
Haa Alif	16.4	14.6	15.3	17.24	15.7	17.0
Haa Dhaal	16.1	18.2	20.3	23.22	23.6	24.7
Shaviyani	24.9	24.8	22.6	22.82	19.4	21.2
Noonu	24.0	26.4	25.9	25.27	21.8	24.0
Raa	19.6	19.8	21.4	21.77	23.6	26.0
Baa	24.7	23.5	21.0	25.88	23.9	27.9
Lhaviyani	26.8	21.9	24.8	26.12	22.2	22.2
Kaafu	34.1	34.1	32.5	33.41	32.7	33.3
Alifu Uthuru	28.3	30.9	28.2	30.14	28.4	29.8
Alifu Dhekunu	26.9	31.0	31.8	31.21	27.1	27.3
Vaavu	23.6	26.2	29.1	27.85	28.5	29.5
Meemu	33.3	35.5	29.8	39.28	41.7	43.3
Faafu	12.5	16.9	17.1	17.09	15.8	17.1
Dhaal	25.9	25.5	21.8	22.74	22.1	21.5
Thaa	18.3	16.9	12.3	19.43	19.0	19.7
Laamu	24.0	25.6	24.1	29.02	30.4	30.3
Gaaf Alif	10.8	15.3	15.5	14.86	14.8	15.6
Gaaf Dhaal	14.6	12.5	12.7	12.77	14.0	16.6
Gnaviyani	12.8	13.5	15.1	17.84	24.1	24.3
Seenu	16.6	15.4	16.2	17.44	16.7	16.9
Malé	13.6	15.7	14.8	15.58	17.8	20.0
Republic	18.5	19.3	18.6	20.42	20.8	22.1

Table 22: Drug abuse cases reported by age '91-'03					
Year	Age				
	<16	16-24	25-39	40+	Total
1991	0	1	10	0	11
1992	3	30	5	0	38
1993	11	88	53	3	155
1994	6	70	49	7	132
1995	13	98	20	6	137
1996	22	128	81	10	241
1997	18	175	89	9	291
1998	51	235	135	39	460
1999	28	153	96	25	302
2000	9	179	138	30	356
2001	5	57	124	9	195
2002	11	212	164	29	416
2003	37	192	167	23	419

Source: Ministry of Defense and National Security 2004

Table 23: Drugs seized in the Maldives, 1991-2003													
DRUGS	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Brown Sugar	0	0	513.1	37.9	23.8	87.77	460.5	0	0	285.85	0	0	0
Opium	0	0	0	0	0	0	0	1.01	0	0	0	0	0
Cocaine	0	0	8000	0	0	0	0	0	0.3	0	0	0	0
Hashish	10000	0	0	0	0	3	3	13.96	4.21	0	2.91	0.7	0
Hashish Oil	196.8	388.4	3.2	264.8	18.4	0.6	1750.8	96.81	4.7	145.6	0	0.1	21.5
Cannabis Herb	74	1446.7	2166	371.8	0	0.76	16.6	0.94	21.62	17.3	3.5	71.61	0
Cannabis Seed	0	1.2	0	0	0	0.1	0	0.02	0	0	0	0	5.85
Cannabis paint	0	0	0	0	0	0	0	0	0	0	0	0	0
Heroine	0	0	0	0	0	0	0	0	357.39	0	167.62	295.11	187.58
Diazepam	0	0	0	0	0	0	0	0	140tabs	18tabs	0	0	0
Amphetamine	0	0	0	0	0	0	0	0	0.5	0.1	0	0	0

All Quantities are given in grams, Source: Drug control Bureau, Police Headquarters, 2004

Table 24: Imports of tobacco by weight, Maldives, 1991-2003						
YEAR	Tobacco leaves by weight	# cigars	# cheroots	# cigarettes	Chewing tobacco by weight	Smoking tobacco by weight
1991	61024	1117162	200	188857014	17	4025
1992	64244	296015	945	190499540	15	29
1993	37155	4871247	150000	245111976	15	-
1994	70126	4577	63284	178330252	45	79423
1995	62573	160456	85000	231730658	45	55509
1996	37649.82	143422	286178	273542911	-	4815.1
1997	57933.95	4993920	144080	334580980	245	4958.82
1998	45060.03	377091	68347	292689860	90	3994
1999	61547.68	24426	834845	347622780	180	4179.65
2000	24449.06	304266	2188139	252638840	3246.65	3127.08
2001	44168.7	187156	4056070	223540520	2405.28	2988.06
2002	45533.88	315080	251900	229788400	8398.13	6247.8
2003	30598.25	289183	67625	226903220	4718.08	6470.4

Table 25: Health personnel by expatriates and locals 2003

	Public sector				Total public sector		Total private sector		Total
	Malé		Atolls						
	Exp	Local	Exp	Local	Exp	Local	Exp	Local	
Doctors (MBBS)	20	27	111	2	131	29	8	1	169
Doctors (Specialists)	48	25	44	0	92	25	19	10	146
Staff Nurse	122	162	118	33	240	195	37	1	473
Nurse	4	71	16	213	20	284	1	7	312
Lab. Technicians	17	38	38	10	55	48	10	1	114
Lab. Assistants	0	13	1	8	1	21	0	0	22
Physiotherapists	6	1	3	0	9	1	2	0	12
Radiographers	9	5	10	0	19	5	5	1	30
Microscopist	0	8	0	0	0	8	0	0	8
Microbiologist	0	2	0	0	0	2	0	0	2
Food Technologist	0	2	0	0	0	2	0	0	2
Dentists	0	4	0	0	0	4	4	0	8
Dental Mechanic	1	1	0	0	1	1	1	0	3
Dental Hygienists	0	2	0	0	0	2	0	0	2
Dental Therapist	0	0	0	0	0	0	0	0	0
Dietician	0	0	0	0	0	0	0	0	0
Pharmacists / Pharmacy Asst. *	0	0	0	0	0	0	174	74	248
CHW	0	10	0	109	0	119	0	0	119
FHW	0	0	0	333	0	333	0	0	333
Foolhumas	0	0	0	409	0	409	0	0	409
Total	227	371	341	1117	568	1488	261	95	2412

Note: Paramedical staff of pvt. Clinics not included except ADK, AMDC, The Clinic and Vaaly Medicals
* registered number only

Table 26: Health Expenditure 2003		
	2003	%
Ministry of Health	**65,197,519.40**	**20.34**
Capital	25,645,625.03	
Recurrent	39,551,894.37	
DPH	**65,574,170.81**	**20.46**
Capital	922,320.38	
Recurrent	64,651,850.43	
IGMH	**118,239,421.28**	**36.89**
Capital	16,493,288.30	
Recurrent	101,746,132.98	
Regional Hospitals	**39,262,811.99**	**12.25**
Capital	3,188,706.03	
Recurrent	36,074,105.96	
Atoll Hospitals	**18,176,367.54**	**5.67**
Capital	1,696,233.85	
Recurrent	16,480,133.69	
Malé Health Centre	**1,125,729.06**	**0.35**
Capital	29,345.00	
Recurrent	1,096,384.06	
MWSA	**1,286,905.86**	**0.40**
Capital	78,360.00	
Recurrent	1,208,545.86	
K. Villingili Health Centre	**322,555.23**	**0.10**
Capital	185,000.00	
Recurrent	137,555.23	
NTC	**7,854,686.85**	**2.45**
Capital	95,657.00	
Recurrent	7,759,029.85	
Public Health Lab.	**3,451,984.42**	**1.08**
Capital	269,298.80	
Recurrent	3,182,685.62	
TOTAL	**320,492,152.44**	
Capital	48,603,834.39	**15.17**
Recurrent	271,888,318.05	**84.83**

Table 27: Health Expenditure by functions, 2003		
	2003	%
Ministry of Health	**65,197,519.39**	-
Curative	23274271.51	-
Supportive	26389100.19	-
Preventive	15534147.69	-
DPH	**65,574,171.00**	-
Curative	2100000.00	-
Supportive	38351679.00	-
Preventive	25122492.00	-
Regional Hospitals	**39,262,811.99**	-
Curative	3,163,396.14	-
Supportive	14,963,368.02	-
Preventive	21,136,047.83	-
Atoll Hospitals	**18,176,367.54**	-
Curative	2,055,366.29	-
Supportive	4,744,122.62	-
Preventive	11,376,878.63	-
K. Villingili Health Centre	**156,055.23**	-
Curative	133,892.73	-
Supportive	21,360.00	-
Preventive	802.50	-
NTC	**7,854,686.85**	-
Curative	5,362,088.86	-
Supportive	1,563,504.01	-
Preventive	929,093.98	-
Public Health Lab.	**3,451,984.42**	-
Curative	3,451,984.42	-
Supportive	-	-
Preventive	-	-
TOTAL	**200,799,325.48**	-
Curative	39,670,772.36	**19.76**
Supportive	86,780,671.10	**43.22**
Preventive	74,347,882.02	**37.03**

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