MALDIVES HEALTH STATISTICS 2015 - 16

HEALH STATISCTICS 2015– 16

Published by:

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Date of Publication: May 2019
ISBN Number:178-LBK/2019/064

Maldives Health Statistics Book Development Team appreciates the data contribution from different departments, divisions and offices *(especially different programs of Health Protection Agency, National Bureau of Statistics and Department of National Registration).*

ACKNOWLEDGEMENTS

The Maldives Health Statistics 2015-2016 was prepared by the Health Information and Research Section of the Ministry of Health, Maldives. This publication was made possible through valuable contribution of the required information from several concerned authorities and stakeholders. This list includes public and private health care institutions, National Bureau of Statistics (NBS), Department of National Registration (DNR), departments and divisions of Ministry of Health including Health Protection Agency (HPA) and Maldivian Blood Services (MBS).

Data from health facilities are based on monthly reports complied with support from various staff from these facilities. We sincerely acknowledge the continued assistance and dedication extended by the responsible staff assisting in this process. Additionally, the demographic data was a compilation done by NBS. We extend our sincere gratitude to the staff of NBS for their sustained cooperation in providing such vital data.

Further, a good amount of information contained in this publication was taken from the National Vital Statistics System (VSS). The data for this system was obtained from the National Vital Registration System (VRS) managed by DNR. We gratefully acknowledge the support provided by VRS staff at the DNR. Lastly, our sincere appreciation goes to the hardworking staff of Health Information and Research Section, Ministry of Health for compiling the data, and making this publication possible.

Health Information and Research Section,
Policy Planning and International Health Division,
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EXECUTIVE SUMMARY

The ninth series of Maldives Health Statistics book is published with the main objective of providing easy access to up-to-date comprehensive statistical information on various aspects of health. Apart from prologue, this book contains 5 key chapters; Natality, Morbidity, Mortality, Public health, Health service delivery and human resource. A summary of the key areas discussed in each chapter is provided below:

Chapter 1: Natality
This chapter covers life expectancy over the years from 1977 to 2016, for males and females. However, fertility indices are reported from MDHS 2016-17, while most of the other data on births, birth outcomes, birth weight, birth attendants and age of mother gives up to date information from the vital registration system of the Maldives.

Chapter 2: Mortality
Similar to chapter 1, this chapter uses information from information from the vital registration system of the Maldives. This chapter includes Crude death rates, under 5 deaths, infant deaths, neonatal deaths, maternal deaths, age specific mortality and leading causes of deaths for 2015.

Chapter 3: Morbidity
The third chapter covers diseases reported to mainly programmatic and surveillance records shared by the communicable disease programme of the Health Protection Agency. This includes up to date data on Dengue, Diarrhea, Chikungunya, Tuberculosis, Leprosy, HIV, Syphilis, STIs and Anemia among women. This chapter also covers burden of diseases and principal diagnosis of admissions at tertiary hospitals of Maldives.

Chapter 4: Public Health
Practices of community is normally gathered from surveys. Except data on immunization coverage which is gathered by the program of Health Protection Agency, all the other data including, breastfeeding, malnutrition among children, Vitamin A, Deworming, Contraceptive Uses and Unmet need for family planning data is presented from Maldives Demographic Health Survey 2016-17.

Chapter 5: Health Service Delivery and Human Resources
The use of health services and resources is normally measured by the load of patients a facility delivers its service. This chapter covers the outpatients, inpatients and medical staff in each of the public health facility. The analysis in chapter is based on the data collected from Health Facilities by Health Information and Research Section, Ministry of Health.

Each chapter is supported by graphs, tables and references .

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KEY HEALTH INDICATORS

Indicators	Data Source & Year	Data Value	
Health System Strengthening		**2011**	**2014**
Total health Expenditure per Capita	National Health Accounts, 2014	818.27	12,617.69
Health Expenditure as Per cent of GDP	National Health Accounts, 2014	9.20%	9.10%
Govt. Expenditure on Health	National Health Accounts, 2014		
Out of Pocket Expenditure	National Health Accounts, 2014	49.0%	29.5%
Health Workforce & Services		**2015**	**2016**
Number of beds per 10,000 people	Administrative Data, Health Information & Research Unit	49.54	49.41
Number of Doctors per 10,000 people	Administrative Data, Health Information & Research Unit	23.27	22.96
Number of Nurses per 10,000 people	Administrative Data, Health Information & Research Unit	66.46	74.32
Number of Health facilities per 100,000 people	Administrative Data, Health Information & Research Unit	54.85	53.86
Number of Health facilities per 100,000 people	Administrative Data, Health Information & Research Unit	89.73	97.28
Number of Pharmacies per 10,000 people	Administrative Data of Maldives Food and Drug Authority, 2016, 2016	-	6.12
Mortality		**2015**	**2016**
Crude Death Rate	Vital Registration System, 2015 and 2016	3.00	3.00
Maternal Mortality Rate	Vital Registration System, 2015 and 2016	72	44
Under 5 Mortality Rate	Vital Registration System, 2015 and 2016	11	9
Infant Mortality Rate	Vital Registration System, 2015 and 2016	9	8
Neonatal Mortality Rate	Vital Registration System, 2015 and 2016	5.3	5.33
Health Research		**2015**	**2016**
Total Submitted to NHRC	Administrative Data, Health Information & Research Unit	17	15
Total Approved by NHRC	Administrative Data, Health Information & Research Unit	11	12

SUSTAINABLE DEVELOPMENT GOALS—HEALTH INDICATORS

TARGETS	INDICATORS	PROXY INDICATOR	YEAR	DATA SOURCE	VALUE
2. Zero hunger					
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	2.2.1 Prevalence of stunting among children under 5 years of age		2016/ 2017	MDHS	15.3
	2.2.2 Prevalence of malnutrition among children under 5 years of age[1]		2016/ 2018	MDHS	14.1
	a) Prevalence of wasting among children under 5 years of age		2016/ 2019	MDHS	9.1
	b) Prevalence of overweight among children under 5 years of age		2016/ 2020	MDHS	4.9
3. Good health and well-being					
3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	3.1.1 Maternal mortality ratio		2016	VRS	44
	3.1.2 Proportion of births attended by skilled health personnel		2016	VRS	95%
3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	3.2.1 Under-five mortality rate		2016	VRS	9
	3.2.2 Neonatal mortality rate		2016	VRS	5.3

3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	3.3.1 Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations	AIDS prevalence rate	2017	HPA	0.001
	3.3.2 Tuberculosis incidence per 1,000 population		2016	HPA	49
	3.3.3 Malaria incidence per 1,000 population		2015	HPA	Eliminated
	3.3.4 Hepatitis B incidence per 100,000 population		No data	HPA	N/A
	3.3.5 Number of people requiring interventions against neglected tropical diseases	Number Dengue cases reported	2017	HPA	998
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	3.4.1 Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	Percentage of death by NCD	2017	HPA	81.00%
	3.4.2 Suicide mortality rate		2017	Maldives Police Service	3.25
3.5 Strengthen the prevention and treatment of substance abuse, including narcotic	3.5.1 Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders	Number of treatments centres	2011/2012	National Drug use survey	4
	3.5.2 Harmful use	Drug prevalence in	2011/2012	National Drug use	6.64%

3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	3.7.1 Proportion of women of reproductive age (aged 15 -49 years) who have their need for family planning satisfied with modern methods		2016/ 2017	MHHS	29.40%
	3.7.2 Adolescent birth rate (aged 10-14 years; aged 15-19 years) per 1,000 women in that age group	Birth rate (under 20 years of age) per 1,000 women in that ag group	2015	VRS	2.22%
3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health -care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	3.8.1 Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)	Percentage of Maldivians who can access essential health services through Aasandha Scheme	2017	Aasandha	100.00%
	3.8.2 Proportion of population with large household expenditures on health as a share of total household expenditure or income		2016	HIES	6.00%
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	3.9.1 Mortality rate attributed to household and ambient air pollution				No Data
	3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)				VRS does not show links
	3.9.3 Mortality rate attributed to unintentional poisoning				Limited data: might need further review

3.A Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	3.A.1 Age-standardized prevalence of current tobacco use among persons aged 15 years and older	Age-standardized prevalence of current tobacco use among persons aged 13 - 17 years	2016/ 2017	MDHS	22.50%
		Males	2016/ 2018	MDHS	
		Females			
3.B Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all	3.B.1 Proportion of the population with access to affordable medicines and vaccines on a sustainable basis	Number of pharmacies (ALL inhabited islands have at least one pharmacy)	2017	MFDA	339
	Proportion of the target population covered by all vaccines included in their national programme[6]		2016/ 2017	MDHS	72.7
	a) Coverage of DPT containing vaccine (3rd dose)[7]		2016/ 2018	MDHS	85
	b) Coverage of measles containing vaccine (2nd dose)[8]		2016/ 2019	MDHS	75.3
	3.B.2 Total net official development assistance to medical research and basic health sectors				No Data
3.C Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	3.C.1 Health worker density and distribution	Number of health workers (doctors and nurses) per 10,000 population	2017	Health Information & Research Section, Ministry of Health	103.61
3.D Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks	3.D.1 International Health Regulations (IHR) capacity and health emergency preparedness	International Health Regulations (IHR) capacity and health emergency preparedness plan prepared and implementation started	2017	HPA	1

4. Quality education					
4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education	4.2.1 Proportion of children under 5 years of age who are developmentally on track in health, learning, and psycho-social well-being, by sex[9]		2016/ 2017	MDHS	92
5. Gender equality					
5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	5.2.1 Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months[10,11]		2016/ 2017	MDHS	16.7
	a) Physical violence		2016/ 2018	MDHS	5.5
	b) Sexual violence		2016/ 2019	MDHS	0.7
	c) Psychological violence		2016/ 2020	MDHS	14.1
5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation	5.3.1 Proportion of women aged 20-24 years who were married or in a union before age 15 and before age 18		2016/ 2021	MDHS	
	a) Before age 15		2016/ 2022	MDHS	0
	b) Before age 18		2016/ 2023	MDHS	2.2
	5.3.2 Proportion of girls and women aged 15-49 years who have undergone female genital cutting		2016/ 2024	MDHS	12.9
5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences	5.6.1 Proportion of women aged 15-49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care[12]		2016/ 2025	MDHS	53.9
5.B.1 Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women	5.B.1 Proportion of individuals who own a mobile telephone[13]		2016/ 2026	MDHS	96.1[a]
	a) Proportion of women who own a mobile telephone[14]		2016/ 2027	MDHS	
	b) Proportion of men who own a mobile telephone[15]		2016/ 2028	MDHS	

6. Clean water and sanitation					
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1 Proportion of the population using safely managed drinking water services[14]		2016/2017	MDHS	98.6
	6.2.1 Proportion of the population using safely managed sanitation services, including a handwashing facility with soap and water[15]		2016/2018	MDHS	98.3
	a) Male'		2016/2019	MDHS	
	b) Atolls		2016/2020	MDHS	
7. Affordable clean energy					
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Proportion of population with access to electricity		2016/2017	MDHS	99.8
	7.1.2 Proportion of population with primary reliance on clean fuels and technology[16]		2016/2018	MDHS	99
8. Decent work and economic growth					
8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all	8.10.2 Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider[17]		2016/2017	MDHS	68.5[a]
16. Peace, justice, and strong institutions					
16.9 By 2030, provide legal identity for all, including birth registration	16.9.1 Proportion of children under 5 years of age whose births have been registered with a civil authority		2016/2017	MDHS	98.8
17. Partnerships for the goals					
17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology	17.8.1 Proportion of individuals using the Internet[20]		2016/2017	MDHS	82.6[a]

Notes:

na = Not applicable

1 Defined as the sum of the prevalence of wasting and the prevalence of overweight

2 Expressed in terms of deaths per 1,000 live births for the 5-year period preceding the survey

3 Age-specific fertility rate for girls age 10-14 for the 3-year period preceding the survey, expressed in terms of births per 1,000 girls age 10-14

4 Age-specific fertility rate for women age 15-19 for the 3-year period preceding the survey, expressed in terms of births per 1,000 women age 15-19

5 Data are not age-standardised and are available for women and men age 15-49 only.

6 Percentage of children age 12-23 months who received BCG, hepatitis B (birth dose), three doses of Pentavalent, three doses of polio vaccine, and one dose of measles

7 Percentage of children age 12-23 months who received three doses of DPT containing vaccine (Pentavalent)

8 Percentage of children age 24-35 months who received two doses of measles containing vaccine

9 Measured for children age 36-59 months

10 Data are available for women age 15-49 who have ever been in union only.

11 In the DHS, psychological violence is termed emotional violence.

12 Data are available for currently married women who are not pregnant only.

13 Data are available for women and men age 15-49 only.

14 Measured as the percentage of de jure population using an improved water source, i.e., whose main source of drinking water is a household connection (piped), public tap or standpipe,
tubewell or borehole, protected dug well, protected spring, or rainwater collection. Households using bottled water for drinking are classified as using an improved or unimproved source
according to their water source for cooking and handwashing.

15 Measured as the percentage of de jure population using an improved sanitation facility, i.e., whose household has a flush or pour flush toilet to a piped water system, septic tank or
pit latrine; ventilated improved pit latrine; pit latrine with a slab; or composting toilet and does not share this facility with other households.

16 Measured as the percentage of the population using clean fuel for cooking.

17 Data refer to women and men age 15-49 who have and use an account at a bank or other financial institution; information on use of a mobile-money-service provider is not available

18 Data are available for women and men age 15-49 who have used the internet in the past 12 months.

a The total is calculated as the simple arithmetic mean of the percentages in the columns for males and females

CHAPTER ONE

NATALITY

LIFE EXPECTANCY AT BIRTH

Table 1-1: Life expectancy by gender

Quick Facts	2015	2016
Male	73.1	73
Female	74.6	74.7

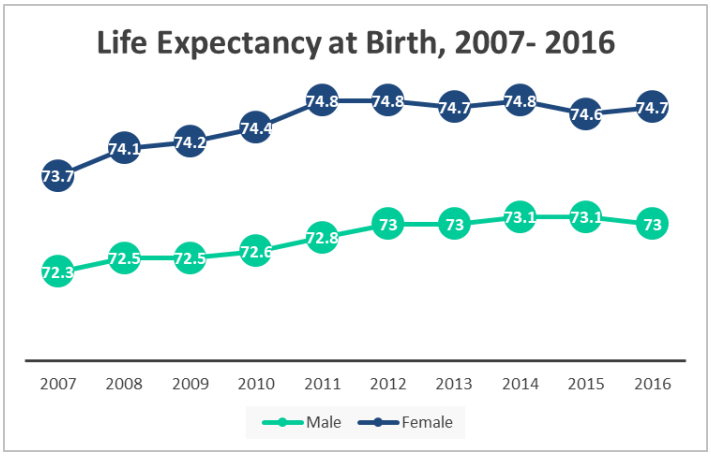

Figure 1-1: Life expectancy at birth, 2007-2016

Table 1-2: Life expectancy at birth, 1977—2016

Life Expectancy at Birth	1977	2016
Female	46	74.7
Male	48.5	73
Gap (Female to Male)	-2.5	1.7

A Maldivian girl who was born in the year 2016 can be expected to live to around 74 – 75 years while a Maldivian boy who was born in the same year can be expected to live to around 73 years.

Although in 1977, a Maldivian boy who was born that year was expected to live 2.5 years longer than a Maldivian girl born in the same year, a change in this trend can be observed over the years that followed. At present a Maldivian girl born in a particular year can be expected to live 1 – 2 years longer than a Maldivian boy born in the same year.

The analysis is based on the life tables shared and verified by National Bureau of Statistics.

FERTILITY INDICES

Table 1-3: Fertility indices by locality, MDHS 2016-17

	REPUBLIC	MALE	ATOLLS
TFR	2.1	1.8	2.5

DEFINITIONS

Total Fertility Rate [TFR] is defined in MDHS 2016-17 as "The average number of children a woman would have by the end of her childbearing years (15-49 years) if she bore children at the current age-specific fertility rates."

The total fertility rate (TFR) calculated from survey data is 2.1 children per woman, which means that the Maldives has reached what is known as replacement level fertility, or the level at which a population exactly replaces itself from one generation to the next.

Fertility is higher among women in Malé region than among women in other atolls; on average, women in other atolls will give birth to 2.5 children in their lifetime compared with 1.8 children for women in Malé

The TFR has declined in the Maldives in the last 7-8 years.

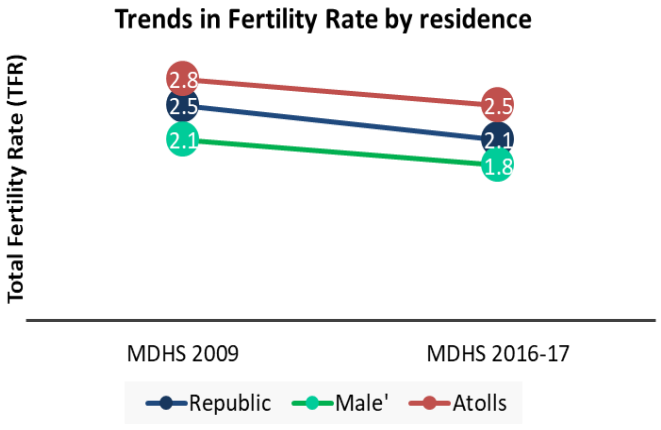

Figure 1-2: Trends in fertility rate by residence, 2009-2016/17

CRUDE BIRTH RATE

Table 1-4: Crude Birth Rate

Quick Facts	2015	2016
CBR for the population	20	19

DEFINITIONS

CRUDE BIRTH RATE [CBR] is defined as "the number of live births, of a given geographic area in a given year, per 1000 mid-year total population of the same geographic area in the same year".

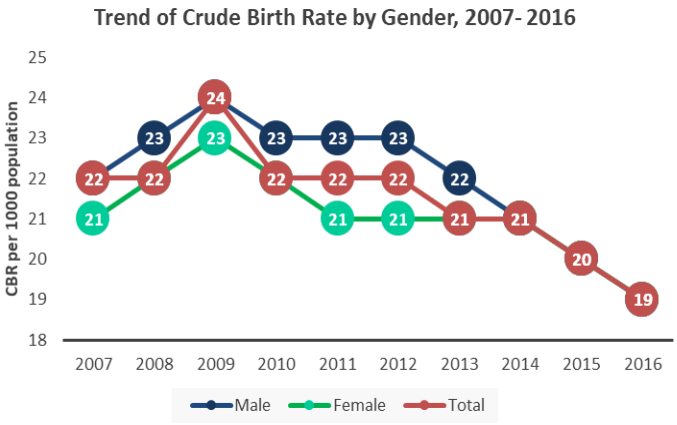

Figure 1-3: Trend of Crude Birth Rate by gender, 2007-2016

Over the past 10 years, Maldives have experienced a declining Crude Birth Rate (CBR) where it peaked in 2009 with 24 live births per 1000 population and started declining with the lowest being in 2016 with 19 live births per 1000 population.

TOTAL BIRTHS

Table 1-5: Total Births

Quick Facts	2015	2016
Total Births	7033	6797
Number of Live Births	6986	6756
Number of Still Births	47	41

Table 1-6: Percentage of live births and stillbirths, 2012-2016

Year/ Birth Category	2012	2013	2014	2015	2016
Live Births (%)	99.3	99.3	99.5	99.3	99.4
Stillbirths (%)	0.7	0.7	0.5	0.7	0.6

Total births in Maldives are an aggregated data of all births recorded for Male' and Atolls in the Vital Registration System. It also includes all reported births that had occurred abroad.

The analysis is based on primary data available from Vital Registration System of Maldives.

LIVE BIRTHS

Table 1-7: Live births and stillbirths, 2015-2016

QUICK FACTS	2015	2016
Number of Births	7,033	6,797
Number of Live Births	6,986	6,756
Percentage of Live Births	99.30	99.40
Number of Stillbirths	4700	4100
Percentage of Stillbirths	0.70%	0.60%
Percent of Male Live Births	50.50%	50.20%
Percent of Female Live Births	49.50%	49.80%
Live Births in Male'	4,390	4,265
Live Births in Atolls	2,223	2,147
Live Births Abroad	373	344

Only reported births that had occurred abroad are included in the total number of births abroad. As no data is available on the number of stillbirths that had occurred abroad, this information is not reflected in the birth data.

Less than 1 percent of births in Maldives results in stillbirths. This trend is similar over the past 5 years.

A similar trend has been observed over the past 5 years with a significant majority of live births occurring in the capital city of Maldives.

Almost 2 in 3 live births in Maldives occurred in Male'

Almost 1 in 3 live births in Maldives occurred in Atolls

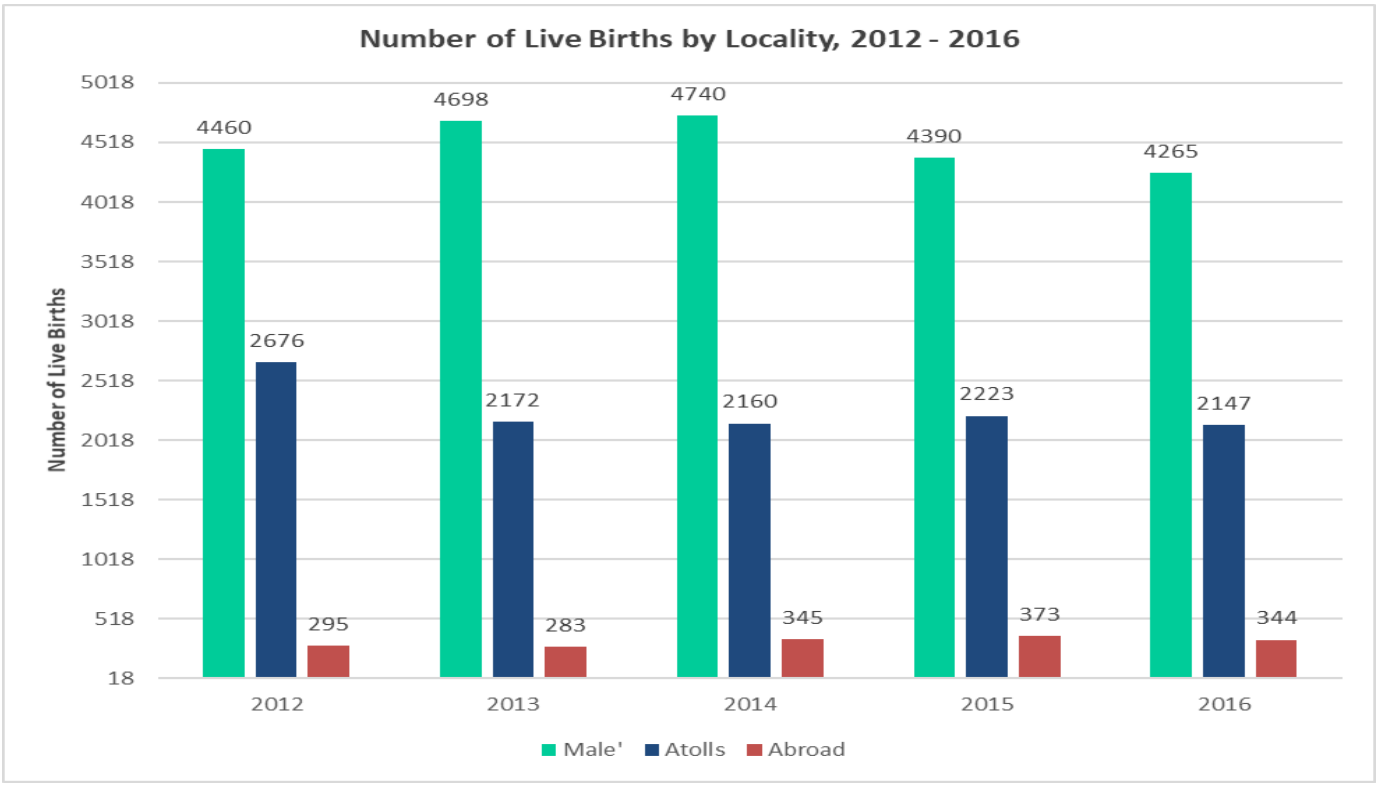

Figure 1-4: Number of live births by locality, 2012-2016

PLACE OF DELIVERY &BIRTH OUTCOMES

Table 1-8: Number of stillbirths by place of delivery, 2015-2016

Quick Facts	2015	2016
Number of Stillbirth	47	41
Number of stillbirths delivered at IGMH	20	15
Number of stillbirths delivered at Hulhu-male' Hospital	3	1
Number of stillbirths delivered at Private Hospitals	8	7
Number of stillbirths delivered at Region-al Hospitals	8	10
Number of stillbirths delivered at Atoll Hospitals	6	6
Number of stillbirths delivered at Health Centers	2	2

DEFINITIONS

STILLBIRTH is defined by World Health Organization as "a baby born with no signs of life at or after 28 weeks' gestation".

LIVE BIRTH is defined by World Health Organization as "the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life – e.g. beating of heart, pulsation of the umbilical cord or definite movement of voluntary muscles - whether or not the umbilical cord has been cut or the placenta is attached".

Table 1-9: Comparison between IGMH and home deliveries, 2015-2016

COMPARISON BETWEEN HEALTH FACILITY & HOME DELIVERIES - 2015 - 2016				
	2015		2016	
	HEALTH FACILITY	HOME	HEALTH FACILITY	HOME
Number of Deliveries	2,507	10	2,438	2
Percent of Live Births Delivered	99.2%	100%	99.38%	100%
Percent of Stillbirths Delivered	0.8%	0%	0.62%	0%

NOTE: Since majority of deliveries in Maldives (especially the complicated deliveries) occurred in Male', it is likely to skew the result towards more stillbirths occurring at Male'. Hence, there is a need to explore birth outcomes by place of delivery to determine its effect on birth outcomes.

NO stillbirth occurred at home during 2015 & 2016

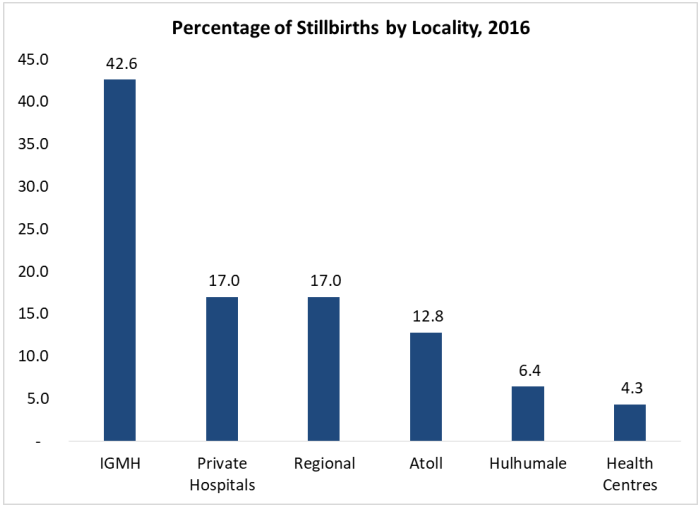

Figure 1-5: Percentage of stillbirths by locality, 2012-2016

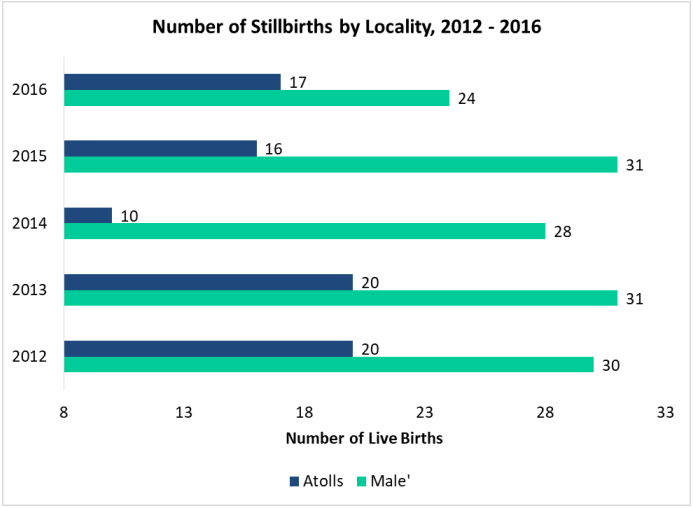

Figure 1-6: Number of stillbirths by locality, 2012-2016

The analysis is based on primary data available from Vital Registration System of Maldives.

BIRTH WEIGHT

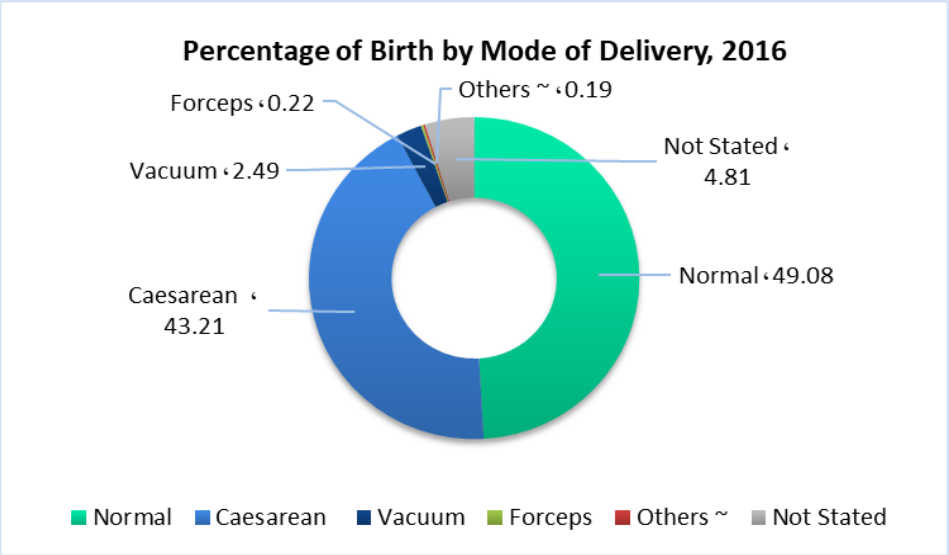

Figure 1-7: Percentage of birth by mode of delivery, 2016

More than 1 in 2 births in Maldives occurs via normal deliveries.

MODE OF DELIVERY & BIRTH OUTCOME

Table 1-10: Number of births and mode of delivery , 2015-2016

QUICK FACTS	2015	2016
Total Number of births	7033	6,797
Normal delivery	3466	3,336
Caesarean	3014	2,937
Assisted vaginal (Vacuum)	148	169
Assisted vaginal (Forceps)	21	15
Other mode of deliveries	22	13
Not stated	362	327

More than 2 in 5 births or livebirths in Maldives are delivered by Cesarean section.

All stillbirths have been delivered either via normal deliveries or by Cesarean, whereas, some level of assisted vaginal deliveries (vacuum and forceps) can be observed for live births.

The predominant mode of deliveries across all types of health facilities are normal deliveries and Caesareans. In most types of public health facilities (except regional hospitals) normal deliveries precedes Caesareans.

The mode of delivery of all the births that had occurred in Maldives is known. The 4.8% of live births for which the type of delivery is not stated are from reported live births that had occurred abroad. Also, no data is available on the stillbirths that had occurred abroad. Hence, this information is not reflected in the birth outcome data.

However, the predominant mode of delivery for live births were also either normal deliveries or Cesarean.

There are no facilities to accommodate complicated deliveries in health centers and these cases are referred to other types of health facilities. Hence, all births that are delivered in health centers are normal deliveries.

The analysis is based on primary data available from Vital Registration System of Maldives.

BIRTH WEIGHT

Table 1-11: Mean Birth Weight (in Grams) by Birth Outcomes 2015—2016

QUICK FACTS in MBW	2015	2016
ALL Births	3377	3057
All Male Births	3406	3098
All Female Births	3346	3014
All Live Births	3385	3061
All Male Live Births	3417	3105
All Female Live Births	3353	3018
All Stillbirths	2098	2295
All Male Stillbirths	2097	2065
All Female Stillbirths	2098	2514

DEFINITIONS

In this section, birth weights are classified as follows:

NORMAL BIRTH WEIGHT [NBW]- any baby having a body weight between the range of 2500 grams and 3999 grams at birth is classified as having a normal birth weight.

LOW BIRTH WEIGHT [LBW]- any baby having a body weight below 2500 grams at birth is classified as having a low birth weight.

HIGH BIRTH WEIGHT [HBW]- any baby having a body weight greater than or equal to 4000 grams at birth is classified as having a high birth weight.

On average, a baby born in 2016 in Maldives had a normal birth weight regardless of sex and type of birth (i.e. live or stillbirth).

Stillbirths tend to have a lower mean birth weight when compared to live births while females tend to have a slightly lower birth weight when compared to males. These trends have been similar over the past three years .

MEAN BIRTH WEIGHT BY LOCALITY

Table 1-12: Birth weights , 2015—2016

ALL BIRTHS	2015	2016
All babies born with low birth weight	11.02% (N=733)	10.15% (N=657)
All babies born with normal birth weight	85.92% (N=5716)	86.74% (N=5613)
All babies born with high birth weight	3.07% (N=204)	3.11% (N=201)
Not Stated	4.77% (N=333)	4.22% (N=285)

There is no significant difference between the mean birth weight of births that had occurred in Male' and atolls. On average, all live births that had occurred in Male' and within atolls in 2015 and 2016 fall under normal weight range.

The mean birth weight of all stillbirths that had occurred in Male' falls under low birth weight while the mean birth weight of all stillbirths that had occurred in atolls fall under normal weight range.

Table 1-13: Birth weights by locality, 2015—2016

QUICK FACTS	2015	2016
Percentage of all babies born in Male' with low birth weight	10.89% (N=478)	10.50% (N=448)
Percentage of all babies born in Male' with normal birth weight	85.99% (N=3775)	86.17% (N=3675)
Percentage of all babies born in Male' with high birth weight	3.12% (N=137)	3.33% (N=142)
Percentage of all babies born in Atolls with low birth weight	10.90% (N=242)	8.99% (N=193)
Percentage of all babies born in Atolls with normal birth weight	86.13% (N=1913)	88.36% (N=1897)
Percentage of all babies born in Atolls with high birth weight	2.97% (N=66)	2.65% (N=57)

The analysis is based on primary data available from Vital Registration System of Maldives.

MODE OF DELIVERY

Table 1-14: Median birth weights, 2015-2016

QUICK FACTS - MEDIAN BIRTH WEIGHTS				
Birth Category	**2015**		**2016**	
	Male'	Atolls	Male'	Atolls
All Births	3080 (NBW)	3100 (NBW)	3080 (NBW)	3080 (NBW)
All Male Births	3080 (NBW)	3100 (NBW)	3080 (NBW)	3080 (NBW)
All Female Births	3080 (NBW)	3100 (NBW)	3080 (NBW)	3050 (NBW)
All Live Births	3080 (NBW)	3100 (NBW)	3080 (NBW)	3080 (NBW)
All Male Live Births	3080 (NBW)	3100 (NBW)	3080 (NBW)	3050 (NBW)
All Female Live Births	3080 (NBW)	3100 (NBW)	3080 (NBW)	3050 (NBW)
All Stillbirths	3060 (NBW)	3060 (NBW)	3060 (NBW)	3060 (NBW)
All Male Still-births	3060 (NBW)	3060 (NBW)	3060 (NBW)	3060 (NBW)
All Female Still-births	3050 (NBW)	3060 (NBW)	3060 (NBW)	3050 (NBW)

Table 1-15: Birth weight by locality, 2015-2016

Republic	**2015**	**2016**
Low birth weight	11.02% (N=733)	10.15% (N=657)
Normal birth weight	85.92% (N=5716)	86.74% (N=5613)
High birth weight	3.07% (N=204)	3.11% (N=201)
Male'	**2015**	**2016**
Low birth weight	10.89% (N=478)	10.50% (N=448)
Normal birth weight	85.99% (N=3775)	86.17% (N=3675)
High birth weight	3.12% (N=137)	3.33% (N=142)
Atolls	**2015**	**2016**
Low birth weight	10.90% (N=242)	8.99% (N=193)
Normal birth weight	86.13% (N=1913)	88.36% (N=1897)
High birth weight	2.97% (N=66)	2.65% (N=57)

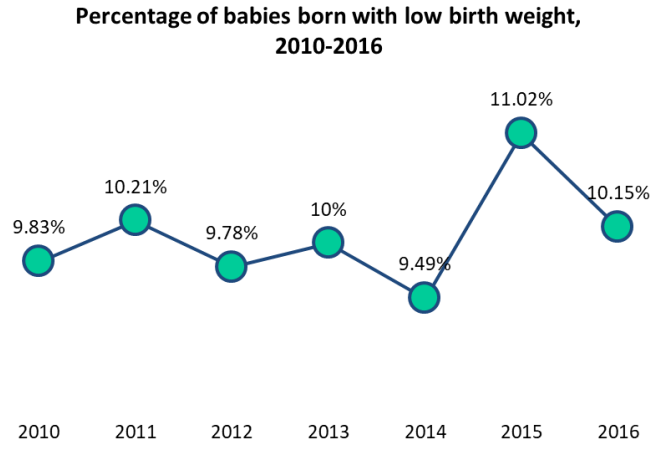

Figure 1-8: Percentage of babies born with low birth weight, 2012-2016

More than 8 in 10 babies are born in Maldives with normal birth weight while almost 1 in 11 babies are born in Maldives with low birth weight.

A similar trend of babies born with low birth weight can be observed over the past 5 years.

Low Birth Weight (< 2500 grams)

Normal Birth Weight (2500 - 3999 grams)

High Birth Weight (> 4000 grams)

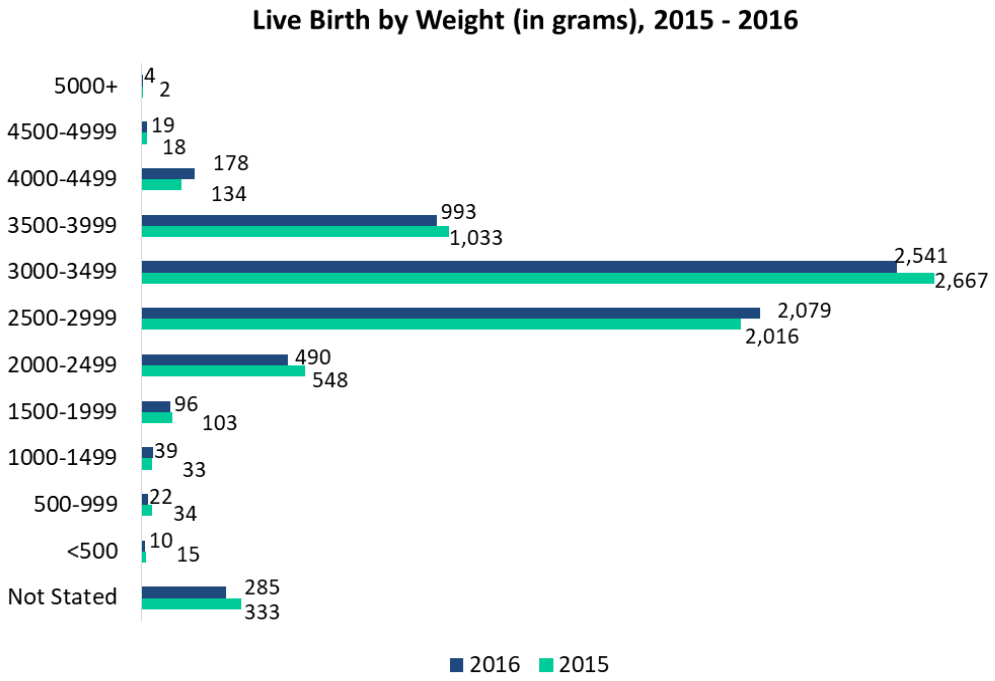

Figure 1-9: Live birth by weight (in grams), 2015-2016

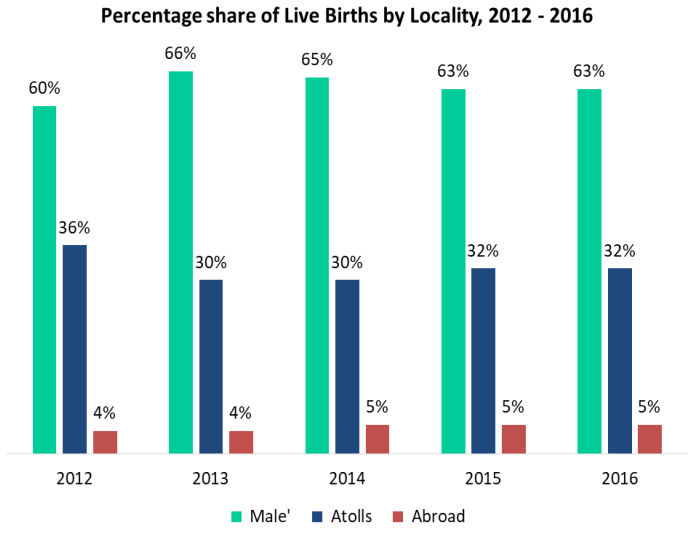

Figure 1-10: Percentage share of live births by locality, 2012-2016

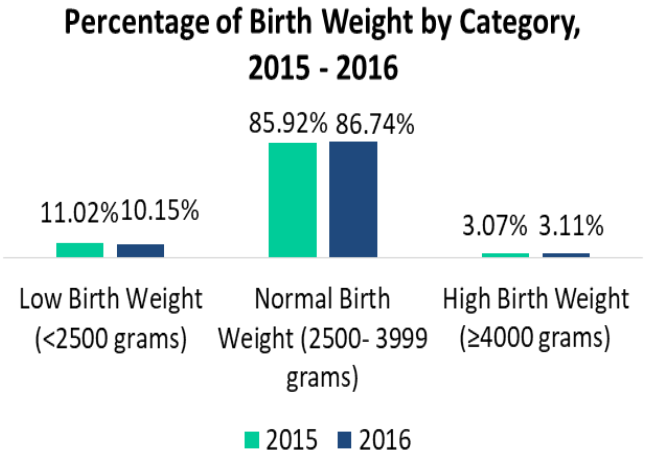

Figure 1-11: Percentage of birth weight by category, 2015-2016

The analysis is based on primary data available from Vital Registration System of Maldives.

AGE OF MOTHER AT TIME OF DELIVERY

Table 1-16: Age of mother at time of delivery, 2015-2016

Age of mother (years)	2015 (%)	2016 (%)
0-14	0	0.01
15-19	2.22	1.99
20-24	25.25	22.41
25-29	34.57	35.42
30-34	24.62	26.2
35-39	10.54	11.12
40-44	2.49	2.52
45-49	0.23	0.19
>50	0.04	0.01
Not Stated	0.04	0.13

Over the past 10 years, the percentage of live births given by mothers aged below the age of 20 years of age have decreased from 4.21 percent in 2007 to 2.00 percent in 2016.

Since 2009, a gradual decline in the percentage of live births given by mothers aged below 20 years can be observed.

Around 2% of live births in Maldives occurs to mothers aged below 20 years. More than 83% of live births in Maldives occurs to mothers aged between 20-34 years.

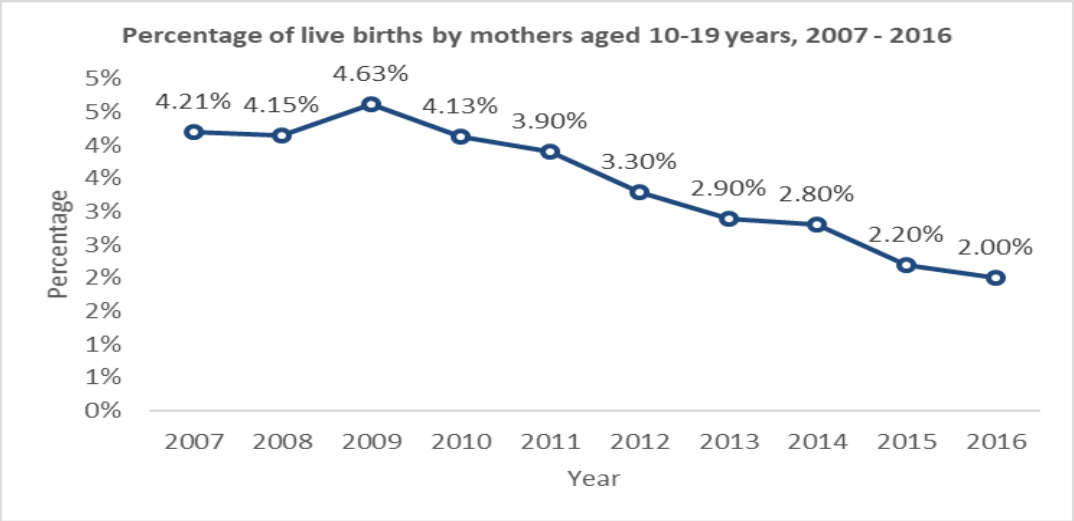

Figure 1-12: Percentage of live births by mothers aged 10-19 years, 2007-2016

BIRTH ATTENDANT

Table 1-17: Birth attendants, 2015-2016

QUICK FACTS	2015	2016
Number of births attended by doctors	4975	4832
Number of births attended by nurses	1693	1633
Number of births attended by community health workers	4	2
Number of births attended by family health workers	3	0
Number of births attended by traditional birth attendants	11	6
Number of births attended by others	0	0
Number of births attendants not stated*	345	324

*Note: These are births that occurred abroad

Almost 95 per cent of births have been attended by a skilled health professional and around 71 percent births have been attended by a doctor while less than 1 percent of births have been attended by traditional birth attendants.

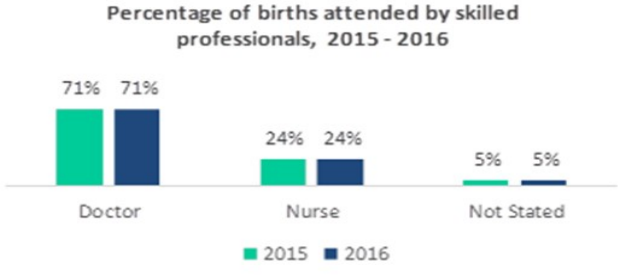

Figure 1-13: Percentage of births attended by skilled professionals, 2015-2016

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SUMMARY TABLES - NATALITY

Table 1-18: Life Expectancy at Birth, 2007 -2016

Year/ Sex	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Male	72.3	72.5	72.5	72.6	72.8	73	73	73.1	73.1	73
Female	73.7	74.1	74.2	74.4	74.8	74.8	74.7	74.8	74.6	74.7

Table 1-19: Age-specific and Total Fertility Rates by residence from MDHS 2016-17

Age-group	Male'	Atolls	Republic
15-19	4	17	10
20-24	53	139	99
25-29	127	141	135
30-34	101	116	110
35-39	58	56	56
40-44	11	19	16
45-49	0	5	3
TFR	**1.8**	**2.5**	**2.1**

Table 1-20: Trend of Crude Birth Rate per 1000 population in Maldives, 2007- 2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Crude Birth Rate	22	22	24	22	22	22	21	21	20	19

Table 1-21: Number of Percentage of live and still births by locality, 2012 - 2016

Year/ Place of Birth	2012	2012	2013	2013	2014	2014	2015	2015	2016	2016
	Number	%	Number	%	Number	%	Number	%	Number	%
REPUBLIC										
Live Births	7431	99.3	7153	99.3	7245	99.5	6986	99.3	6756	99.4
Stillbirths	50	0.7	51	0.7	38	0.5	47	0.7	41	0.6
Total Births	7481	100	7204	100	7283	100	7033	100	6797	100
MALE'										
Live Births	4460	99.3	4698	99.3	4740	99.4	4390	99.3	4265	99.4
Stillbirths	30	0.7	31	0.7	28	0.6	31	0.7	24	0.6
Total Births	4490	100	4729	100	4768	100	4421	100	4289	100
ATOLLS										
Live Births	2676	99.3	2172	99.1	2160	99.5	2223	99.3	2147	99.2
Stillbirths	20	0.7	20	0.9	10	0.5	16	0.7	17	0.8
Total Births	2696	100	2192	100	2170	100	2239	100	2164	100
ABROAD										
Live Births	N/A	283	N/A	345	N/A	N/A	373	N/A	344	N/A
Stillbirths	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Births	N/A	283	N/A	345	N/A	N/A	373	N/A	373	N/A

Table 1-22: Number of Live Births by Sex and Locality, 2012 – 2016

Year/ Sex	2012	2013	2014	2015	2016
REPUBLIC					
Male	3890	3720	3706	3530	3390
Female	3541	3433	3539	3456	3366
Total	7431	7153	7245	6986	6756
MALE'					
Male	2300	2456	2434	2205	2153
Female	2160	2242	2306	2185	2112
Total	4460	4698	4740	4390	4265
ATOLLS					
Male	1414	1118	1092	1138	1068
Female	1262	1054	1068	1085	1079
Total	2676	2172	2160	2223	2147
ABROAD					
Male	176	146	180	187	169
Female	119	137	165	186	175
Total	295	283	345	373	344

Table 1-23: Live and Stillbirths by place of delivery, 2014 – 2016

Delivery	Total Births	Live Births	Still Births	Total Births	Live Births	Still Births	Total Births	Live Births	Still Births
Year & Birth Outcome/ Place of	2014			2015			2016		
IGMH	2833	2807	26	2507	2487	20	2438	2423	15
Hulhumale' Hospital	172	172	0	158	155	3	201	200	1
Private Hospital	1757	1755	2	1751	1743	8	1646	1639	7
Regional Hospitals	1422	1416	6	1278	1270	8	1237	1227	10
Atoll Hospitals	648	646	2	871	865	6	858	852	6
Health Centers	85	84	1	75	73	2	68	66	2
Home	15	14	1	10	10	0	2	2	0
Other	6	6	0	10	10	0	3	3	0
Births occurred abroad							344	344	NA

Table 1-24: Number and Percentage of Live Births by Mode of Delivery and Place of Birth, 2015

Mode of delivery/ Place of Birth	Normal		Caesarean #		Vacuum		Forceps		Others ~		Not Stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
IGMH	1451	58.34	1018	40.93	6	0.24	0	0	12	1.48	0	0	2487	100
Private Hospital	812	46.59	807	46.3	120	6.88	3	0.17	1	0.06	0	0	1743	100
Hulhumale' Hospital	92	59.35	63	40.65	0	0	0	0	0	0	0	0	155	100
Regional Hospitals	558	43.94	678	53.39	15	1.18	14	1.1	5	0.39	0	0	1270	100
Atoll Hospitals	430	49.71	420	48.55	7	0.81	4	0.46	4	0.46	0	0	865	100
Health Centers	73	100	0	0	0	0	0	0	0	0	0	0	73	100
Others*	20	100	0	0	0	0	0	0	0	0	0	0	20	100
Abroad	3	0.8	8	2.14	0	0	0	0	0	0	362	0	373	100
TOTAL	3439	49.23	2994	42.86	148	2.12	21	0.3	22	0.31	362	5.18	6986	100

* Includes, on dhoani, home, ambulance, not stated and others

Includes emergency and unspecified caesareans

~ Includes induced and spontaneous abortion and breech deliveries

Table 1-25: Number and Percentage of Live Births by Mode of Delivery and Place of Birth, 2016

Mode of delivery/ Place of Birth	Normal		Caesarean #		Vacuum		Forceps		Others ~		Not Stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
IGMH	1292	53.32	1123	46.35	4	0.17	0	0	4	0.17	0	0	2423	100
Private Hospital	872	53.2	617	37.64	146	8.91	4	0.24	0	0	0	0	1639	100
Hulhumale' Hospital	128	64	71	35.5	0	0	0	0	1	0.5	0	0	200	100
Regional Hospitals	537	43.77	672	54.77	9	0.73	6	0.49	3	0.24	0	0	1227	100
Atoll Hospitals	413	48.47	422	49.53	8	0.94	5	0.59	4	0.47	0	0	852	100
Health Centers	65	98.48	0	0	0	0	0	0	1	1.52	0	0	66	100
Others*	5	100	0	0	0	0	0	0	0	0	0	0	5	100
Abroad	2	0.58	14	4.07	1	0.29	0	0	0	0	327	95.06	344	100
TOTAL	3314	49.05	2919	43.21	168	2.49	15	0.22	13	0.19	327	4.84	6756	100

* Includes, on dhoani, home, ambulance, not stated and others

Includes emergency and unspecified caesareans

~ Includes induced and spontaneous abortion and breech deliveries

Table 1-26: Number and Percentage of Stillbirths by Mode of Delivery and Place of Birth, 2015

Mode of delivery/ Place of Birth	Normal		Caesarean #		Vacuum		Forceps		Others ~		Not Stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
IGMH	12	60	8	40	0	0	0	0	0	0	0	0	20	100
Private Hospital	4	50	4	50	0	0	0	0	0	0	0	0	8	100
Hulhumale' Hospital	2	66.67	1	33.33	0	0	0	0	0	0	0	0	3	0
Regional Hospitals	3	37.5	5	62.5	0	0	0	0	0	0	0	0	8	100
Atoll Hospitals	4	66.67	2	33.33	0	0	0	0	0	0	0	0	6	100
Health Centers	2	100	0	0	0	0	0	0	0	0	0	0	2	100
Others*	0	0	0	0	0	0	0	0	0	0	0	0	0	100
Abroad	0	0	0	0	0	0	0	0	0	0	0	0	0	100

* Includes, on dhoani, home, ambulance, not stated and others

Includes emergency and unspecified caesareans

~ Includes induced and spontaneous abortion and breech deliveries

Table 1-27: Number and Percentage of Stillbirths by Mode of Delivery and Place of Birth, 2015

Mode of delivery/ Place of Birth	Normal		Caesarean #		Vacuum		Forceps		Others ~		Not Stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
IGMH	9	60	6	40	0	0	0	0	0	0	0	0	15	100
Private Hospital	5	71.43	1	14.29	1	14.29	0	0	0	0	0	0	7	100
Hulhumale' Hospital	1	100	0	0	0	0	0	0	0	0	0	0	1	0
Regional Hospitals	3	30	7	70	0	0	0	0	0	0	0	0	10	100
Atoll Hospitals	2	33.33	4	66.67	0	0	0	0	0	0	0	0	6	100
Health Centers	2	100	0	0	0	0	0	0	0	0	0	0	2	100
Others*	0	0	0	0	0	0	0	0	0	0	0	0	0	100
Abroad	0	0	0	0	0	0	0	0	0	0	0	0	0	100

* Includes, on dhoani, home, ambulance, not stated and others

Includes emergency and unspecified caesareans

~ Includes induced and spontaneous abortion and breech deliveries

Table 1-28: Number and Percentage of Total Births (Live and Still births) by Mode of Delivery and Type of Health Facility, 2015

Mode of delivery/ Place of Birth	Normal		Caesarean #		Vacuum		Forceps		Others ~		Not Stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
IGMH	1463	58.36	1026	40.93	6	0.24	0	0	12	0.48	0	0	2507	100
Private Hospital	816	46.6	811	46.32	120	6.85	3	0.17	1	0.06	0	0	1751	100
Hulhumale' Hospital	94	59.49	64	40.51	0	0	0	0	0	0	0	0	158	0
Regional Hospitals	561	43.9	683	53.44	15	1.17	14	1.1	5	0.39	0	0	1278	100
Atoll Hospitals	434	49.83	422	48.45	7	0.8	4	0.46	4	0.46	0	0	871	100
Health Centers	75	100	0	0	0	0	0	0	0	0	0	0	75	100
Others*	20	100	0	0	0	0	0	0	0	0	0	0	20	100
Abroad	3	0.8	8	2.14	0	0	0	0	0	0	362	97.05	373	100
Total	3466	49.28	3014	42.86	148	2.1	21	0.3	22	0.31	362	5.15	7033	100

* Includes, on dhoani, home, ambulance, not stated and others

Includes emergency and unspecified caesareans

~ Includes induced and spontaneous abortion and breech deliveries

Table 1-29: Number and Percentage of Total Births (Live and Still births) by Mode of Delivery and Type of Health Facility, 2016

Mode of delivery/ Place of Birth	Normal		Caesarean #		Vacuum		Forceps		Others ~		Not Stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
IGMH	1301	53.36	1129	46.31	4	0.16	0	0	4	0.16	0	0	2438	100
Private Hospital	877	53.28	618	37.55	147	8.93	4	0.24	0	0	0	0	1646	100
Hulhumale' Hospital	129	64.18	71	35.32	0	0	0	0	1	0.5	0	0	201	0
Regional Hospitals	540	43.65	679	54.89	9	0.73	6	0.49	3	0.24	0	0	1237	100
Atoll Hospitals	415	48.37	426	49.65	8	0.93	5	0.58	4	0.47	0	0	858	100
Health Centers	67	98.53	0	0	0	0	0	0	1	1.47	0	0	68	100
Others*	5	100	0	0	0	0	0	0	0	0	0	0	5	100
Abroad	2	0.58	14	4.07	1	0.29	0	0	0	0	327	95.06	344	100
Total	3336	49.08	2937	43.21	169	2.49	15	0.22	13	0.19	327	4.81	6797	100

* Includes, on dhoani, home, ambulance, not stated and others

Includes emergency and unspecified caesareans

~ Includes induced and spontaneous abortion and breech deliveries

Table 1-30: Number and Percentage of Births by Birth Weight and Locality, 2012- 2016

Year/ Locality & Birth Weight	2012		2013		2014		2015		2016	
	Number	%	Number	%	Number	%	Number	%	Number	%
REPUBLIC										
Low Birth Weight (<2500 grams)	698	9.78	688	10	659	9.49	733	11.02	657	10.15
Normal Birth Weight (2500- 3999 grams)	6210	87.05	5992	87.09	6033	86.88	5716	85.92	5613	86.74
High Birth Weight (≥4000 grams)	226	3.17	200	2.91	252	3.63	204	3.07	201	3.11
Not Stated	0	0	0	0	0	0	333	4.77	285	4.22 *
MALE'										
Low Birth Weight (<2500 grams)	445	9.98	516	10.98	470	9.92	478	10.89	448	10.5
Normal Birth Weight (2500- 3999 grams)	3895	87.33	4066	86.55	4103	86.56	3775	85.99	3675	86.17
High Birth Weight (≥4000 grams)	120	2.69	116	2.47	167	3.52	137	3.12	142	3.33
Not Stated	0	0	0	0	0	0	0	0	0	0
ATOLLS										
Low Birth Weight (<2500 grams)	253	9.46	170	7.83	181	8.38	242	10.9	193	8.99
Normal Birth Weight (2500- 3999 grams)	2315	86.57	1918	88.31	1894	87.73	1913	86.13	1897	88.36
High Birth Weight (≥4000 grams)	106	3.96	84	3.87	84	3.89	66	2.97	57	2.65
Not Stated	0	0	0	0	0	0	2	0.09	0	0

* birth weight data is not available, for births occurred abroad

Table 1-31: Number and Percentage of Live Births by Age of Mother, 2013- 2016

Year/ Locality	2013		2014		2015		2016	
Age of mother	Number	%	Number	%	Number	%	Number	%
10-14	1	0.01	0	0	0	0	1	0.01
15-19	203	2.8	201	2.77	155	2.22	134	1.98
20-24	2134	29.8	1960	27.05	1764	25.25	1514	22.41
25-29	2465	34.5	2555	35.27	2415	34.57	2393	35.42
30-34	1503	21	1662	22.94	1720	24.62	1770	26.2
35-39	659	9.2	654	9.03	736	10.54	751	11.12
40-44	180	2.5	198	2.73	174	2.49	170	2.52
45-49	7	0.1	10	0.14	16	0.23	13	0.19
>50	0	0	0	0	3	0.04	1	0.01
Not Stated	0	0	5	0.07	3	0.04	9	0.13
Total	7153	100	7245	100	6986	100	6756	100

Table 1-32: Number and Percentage of Births by Type of Health Professional Attended, 2015

Type of Health Professional Attended	Republic		Male'		Atolls		Abroad	
	No.	%	No.	%	No.	%	No.	%
LIVE BIRTHS								
Doctor	4946	70.8	2871	65.4	2044	91.95	31	8.31
Nurse	1676	23.99	1518	34.58	158	7.11	0	0
Community Health Worker	4	0.06	0	0	4	0.18	0	0
Family Health Worker	3	0.04	0	0	3	0.13	0	0
Traditional Birth Attendant (Foolhuma)	11	0.16	0	0	11	0.49	0	0
Other	2	0.03	0	0	1	0.04	1	0.27
Not Stated	344	4.92	1	0.02	2	0.09	341	91.42
Total	**6986**	**100**	**4390**	**100**	**2223**	**100**	**373**	**100**
STILLBIRTHS								
Doctor	30	63.83	18	58.06	12	75	N/A	N/A
Nurse	17	36.17	13	41.94	4	25	N/A	N/A
Community Health Worker	0	0	0	0	0	0	N/A	N/A
Family Health Worker	0	0	0	0	0	0	N/A	N/A
Traditional Birth Attendant (Foolhuma)	0	0	0	0	0	0	N/A	N/A
Other	0	0	0	0	0	0	N/A	N/A
Not Stated	0	0	0	0	0	0	N/A	N/A
Total	**47**	**100**	**31**	**100**	**16**	**100**	**N/A**	**N/A**
TOTAL BIRTHS								
Doctor	4976	70.75	2889	65.35	2056	91.83	31	8.31
Nurse	1693	24.07	1531	34.63	162	7.24	0	0
Community Health Worker	4	0.06	0	0	4	0.18	0	0
Family Health Worker	3	0.04	0	0	3	0.13	0	0
Traditional Birth Attendant (Foolhuma)	11	0.16	0	0	11	0.49	0	0
Other	2	0.03	0	0	1	0.04	1	0.27
Not Stated	344	4.89	1	0.02	2	0.09	341	91.42
Total	**7033**	**100**	**4421**	**100**	**2239**	**100**	**373**	**100**

Table 1-33: Number and Percentage of Births by Type of Health Professional Attended, 2016

Type of Health Professional Attended	Republic		Male'		Atolls		Abroad	
	No.	%	No.	%	No.	%	No.	%
LIVE BIRTHS								
Doctor	4800	71.05	2867	67.22	1909	88.91	24	6.98
Nurse	1624	24.04	1397	32.75	227	10.57	0	0
Community Health Worker	2	0.03	0	0	2	0.09	0	0
Family Health Worker	0	0	0	0	0	0	0	0
Traditional Birth Attendant (Foolhuma)	6	0.09	0	0	6	0.28	0	0
Other	0	0	0	0	0	0	0	0
Not Stated	324	4.8	1	0.02	3	0.14	320	93.02
Total	6756	100	4265	100	2147	100	344	100
STILLBIRTHS								
Doctor	32	78.05	15	62.5	17	100	Still births are not reported	
Nurse	9	21.95	9	37.5	0	0		
Community Health Worker	0	0	0	0	0	0		
Family Health Worker	0	0	0	0	0	0		
Traditional Birth Attendant (Foolhuma)	0	0	0	0	0	0		
Other	0	0	0	0	0	0		
Not Stated	0	0	0	0	0	0		
Total	41	100	24	100	17	100		
TOTAL BIRTHS								
Doctor	4832	71.09	2882	67.2	1926	89	24	6.98
Nurse	1633	24.03	1406	32.78	227	10.49	0	0
Community Health Worker	2	0.03	0	0	2	0.09	0	0
Family Health Worker	0	0	0	0	0	0	0	0
Traditional Birth Attendant (Foolhuma)	6	0.09	0	0	6	0.28	0	0
Other	0	0	0	0	0	0	0	0
Not Stated	324	4.77	1	0.02	3	0.14	320	93.02
Total	6797	100	4289	100	2164	100	344	100

CHAPTER TWO

MORTALITY

MORTALITY (DEATHS)

DEFINITION

According to CDC, Mortality Rate is a measure of the frequency of occurrence of death in a defined population during a specified interval. Morbidity and mortality measures are often the same mathematically; it's just a matter of what you choose to measure, illness or death. The formula for the mortality of a defined population, over a specified period of time, is:

(Deaths occurring during a given time period /
Size of the population among which
the deaths occurred) $\times 10^{n}$

When mortality rates are based on vital statistics (e.g., counts of death certificates), the denominator most commonly used is the size of the population at the middle of the time period. Thus, for calculations, mid-year population of Maldivians are used in this chapter.

Currently, a main for establishing and monitoring public health policies is information derived from Causes of Death statistics. While this type of source is well established and provides reliable and comparable public data collection for all deaths in the country, Cause of Death data does not provide information on incidence and prevalence of diseases and in particular lacks information on comorbidities that would be necessary for a comprehensive picture of public health.

CRUDE DEATH RATE

Table 2-1: Crude death rate, 2015-2016

QUICK FACTS	2015	2016
Crude Death Rate for the total population	3	3
Crude Death Rate for male population	4	4
Crude Death rate for female population	3	3

DEFINITIONS

Crude Death Rate is defined by U.S. Census Bureau as "The average annual number of deaths during a year per 1000 population at mid-year".

Over the past decade, Crude Death Rate has been fairly consistent with 4 deaths per 1000 population for males and 3 deaths per 1000 population for females. Similarly, the Total Crude Death Rate had fluctuated slightly between 3 and 4 deaths per 1000 population during the past 10 years.

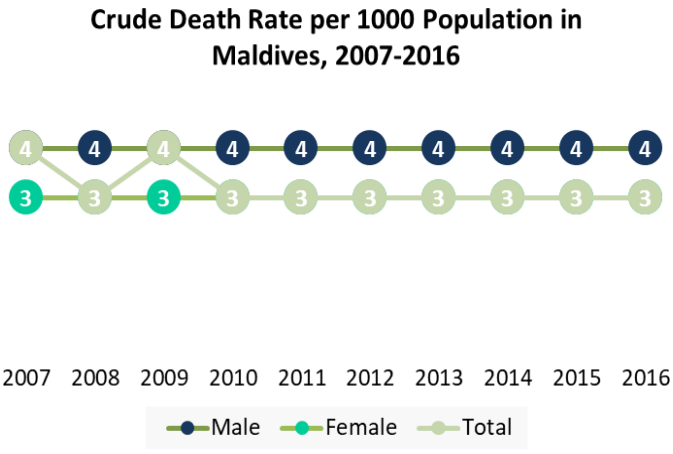

Figure 2-1: Crude death rate per 1000 population in Maldives, 2007-2016

The analysis and write-up is based on primary data available from Vital Registration System of Maldives.

MORTALITY ACROSS LIFE STAGES

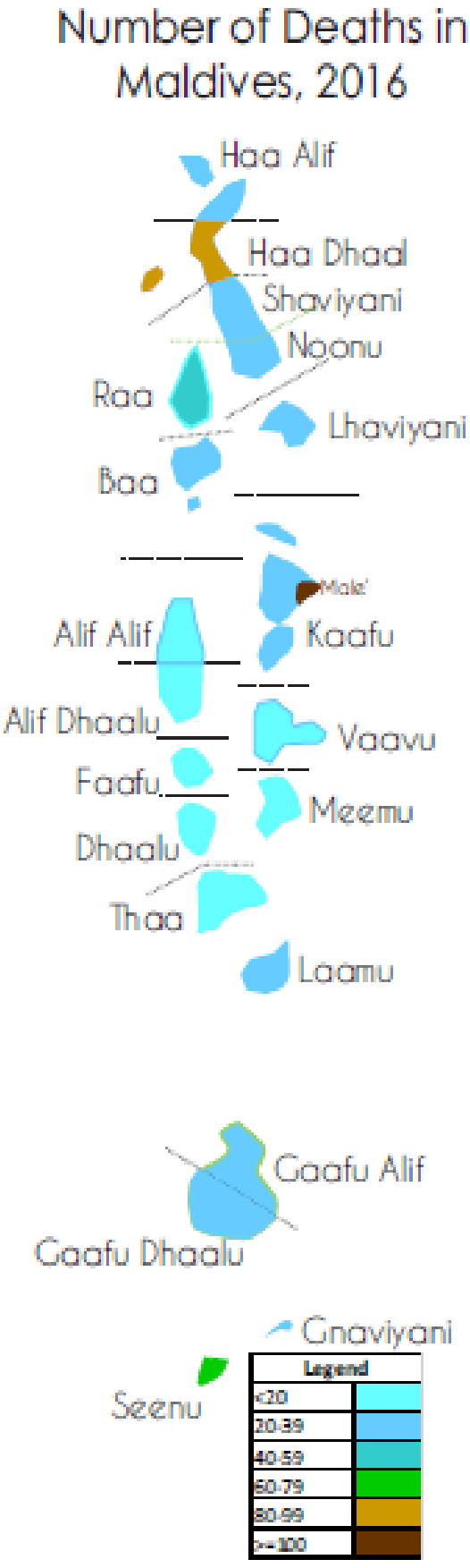

Figure 2-2: Number of deaths in Maldives, 2016

Table 2-2: Deaths in Maldives, 2015-2016

QUICK FACTS	2015	2016
Total Number of Deaths	1209	1260
Percentage of Male Deaths	59.1%	53.7%
Percentage of Female Deaths	40.9%	46.3%
Percentage of Deaths that Occurred in Male'	42.0%	45.0%
Percentage of Deaths that Occurred in Atolls	49.0%	50.0%
Percentage of Reported Deaths that Occurred Abroad	8.0%	50.0%
Percentage of Deaths Not Stated	2.0%	0%

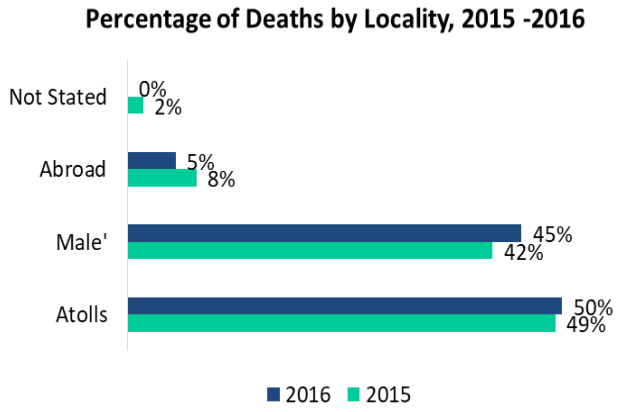

Figure 2-3: Percentage of deaths by locality, 2015-2016

Around **7 in 13 deaths** in Maldives in 2016 are **male deaths** while almost **6 in 13 deaths** in Maldives in 2016 are **female deaths.**

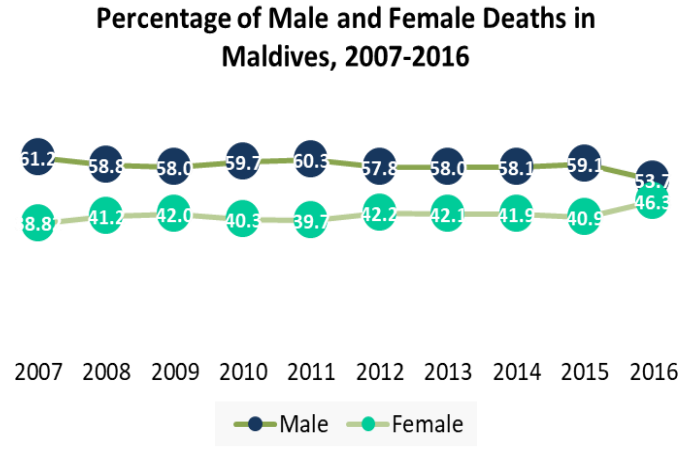

Figure 2-4: Percentage of male and female deaths, 2007-2016

More males (53.7%) than females (46.3%) had died in 2016. This trend is similar over the past decade. However, in the last few years, we can see that this difference is decreasing.

Table 2-3: Deaths by age categories, 2015-2016

QUICK FACTS	2015	2016
Total Number of Deaths	1130	1226
Under 5 Deaths	6.73%	6.73%
Deaths Among 5 – 14 Year Old's	1.68%	1.68%
Deaths Among 15 – 24 Year Old's	2.12%	2.12%
Deaths Among 25-34 Year Old's	2.04%	2.04%
Deaths Among 35-49 Year Old's	6.02%	6.02%
Deaths Among 50-69 Year Old's	19.12%	19.12%
Deaths Among 70 Years & Older	62.30%	62.30%

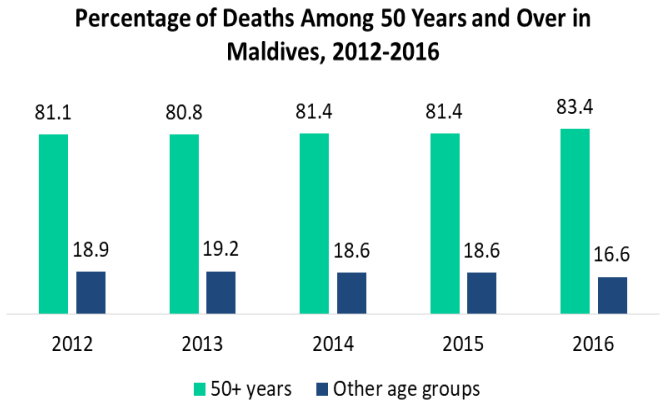

Figure 2-6: Percentage of deaths among 50 years and over in Maldives, 2012- 2016

Over 83.4 percent of deaths in Maldives are concentrated among elderly (50 years and over). A similar trend is observed over the past 5 years.

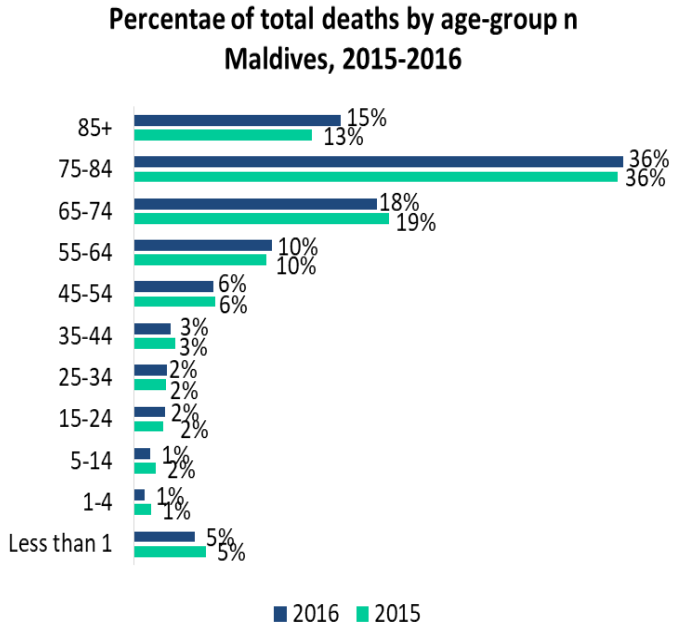

Figure 2-7: Percentage of deaths by age-group in Maldives, 2015-2016

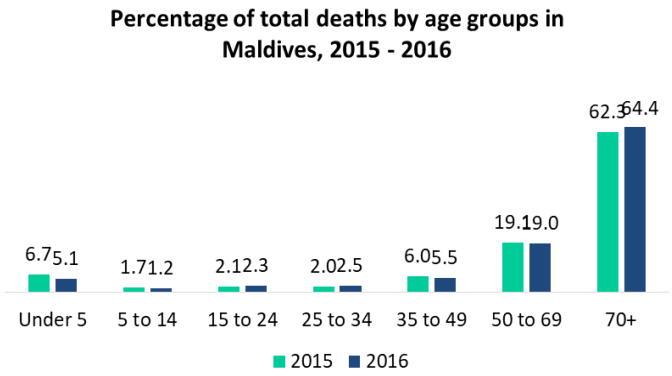

Figure 2-5: Percentage of total deaths by age groups, 2015-2016

In can be seen that deaths among 50 years and over are increasing over the years, while deaths in other age groups are decreasing.

The majority of deaths in Maldives, like other developing countries, occur among older people. Sixty-six per cent of deaths registered in Maldives in 2015 and 2016 were among people aged 70 or over.

3 in 5 deaths in 2015 & 2016 contribute to elderly **aged 70 years and over.**

Table 2-4: Causes of death by age categories, 2015

	2015		
	0-17	18-64	65+
First	Perinatal conditions (36%)	Cardiovascular diseases (32%)	Cardiovascular diseases (47%)
Second	Congenital anomalies (9%)	Respiratory diseases (13%)	Respiratory diseases (13%)
Third	Infectious and parasitic diseases (5%)	Malignant neoplasms (11%)	Malignant neoplasms (6%)

Note: Not categorized / Multiple Sub-categories are not included in the ranking

Table 2-5: Causes of death by age categories, 2016

	2016		
	0-17	**18-64**	**65+**
First	Perinatal conditions (39%)	Cardiovascular diseases (36%)	Cardiovascular diseases (41%)
Second	Infectious and parasitic diseases (10%)	Respiratory diseases (9%)	Respiratory diseases (14%)
Third	Respiratory diseases (7%)	Malignant neoplasms (7%)	Infectious and parasitic diseases (6%)

Note: Not categorized / Multiple Sub-categories are not included in the ranking

People experience different health problems at different times of their lives—from infancy and childhood through to old age. Hence, they have different health needs at different life stages. This snapshot presents the leading causes of total burden at each life stage. Life stages are broadly divided into infants, children and young people (aged 0–17), working-age adults (aged 18-64) and older people (aged 65 and over).

Perinatal conditions accounted for most of the burden in children aged under 5; the 3 leading causes of burden in this age group were all from this disease group. Nearly two third (61%) of the total deaths in this age group were experienced by infants.

Cardiovascular diseases and Respiratory diseases are the leading cause of mortality in adults aged 18-64 and persists as the leading cause for all but the youngest age group in both 2015 and 2016.

The mortality due to Cardiovascular disease was highest among older people aged 65+ followed by COPD. The top 3 also include Malignant neoplasms in 2015 and Infectious and parasitic diseases in 2016, which can be more hazardous to a person's health in older age.

MORTALITY BY AGE CATEGORIES

Table 2-6: Deaths by gender and age categories, 2015-2016

	2015		2016	
Age-categories	**Female**	**Male**	**Female**	**Male**
0-17	45	59	49	45
18-64	86	193	121	164
65+	364	462	414	467
Grand Total	495	714	584	676

There were 1209 (495 female; 714 male) and 1260 (584 female; 676 male) deaths in Maldives for 2015 and 2016 respectively.

Death rates generally increase with increasing age starting from 1 year of age.

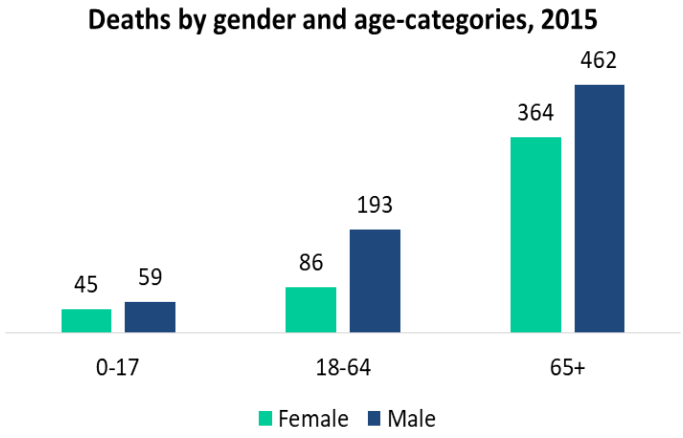

Figure 2-8: Deaths by gender and age categories, 2015

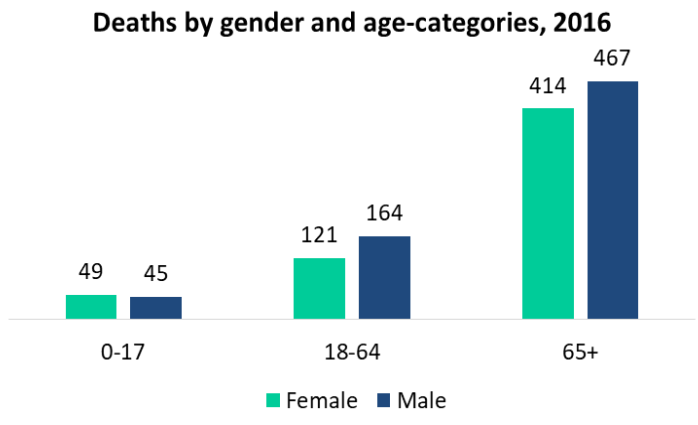

Figure 2-9: Deaths by gender and age categories, 2016

UNDER FIVE (5) DEATHS

Table 2-7: Under 5 deaths 2015-2016

QUICK FACTS	2015	2016
Total Number of Under 5 Deaths	79	63
Percentage of Under 1 Deaths [Infant Deaths]	82.89%	84.13%
Percentage of Deaths Among 1-4 Years	20.63%	15.87%

DEFINITIONS

NEONATAL MORTALITY is defined by WHO as the probability of dying between **0 days to 27 days** of age expressed per 1000 live births.

POST NEONATAL MORTALITY is defined by WHO as the probability of dying between **28 days to 364 days** of age expressed per 1000 live births

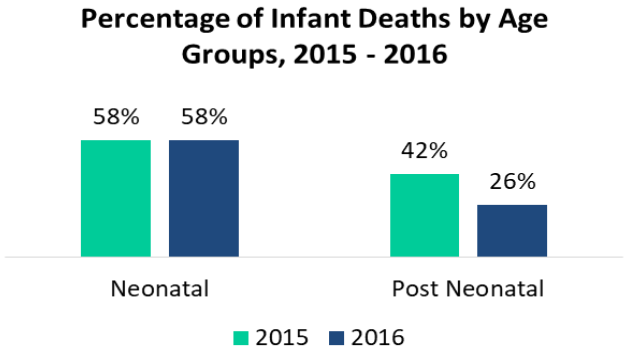

Figure 2-10: Percentage of infant deaths by age groups, 2015-2016

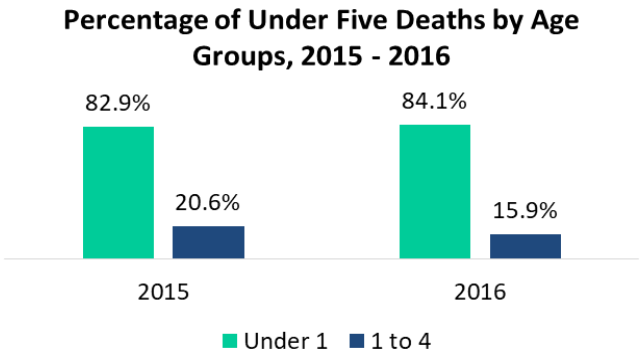

Figure 2-11: Percentage of under five deaths by age groups, 2015-2016

Almost **8 in 10 under 5 death**s in Maldives in 2015 & 2016 occurred among infants below 1 year.

UNDER FIVE (5) MORTALITY RATE

Table 2-8: Under 5 mortality rate, 2015-2016

QUICK FACTS	2015	2016
U5MR for The Total Population	11	9
U5MR for The Male Population	12	8
U5MR for The Female Population	10	11
U5MR in Atolls	9	9
U5MR in Male'	10	9

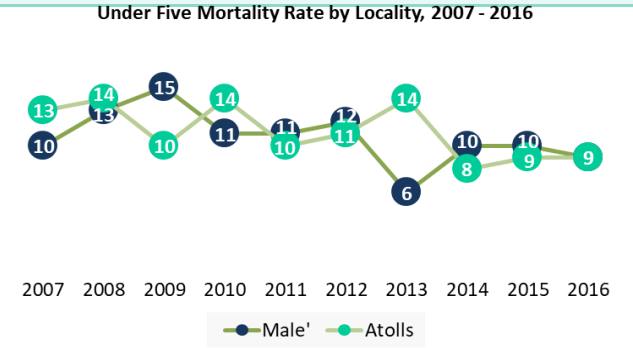

Figure 2-12: Under 5 morality rate by locality, 2007-2016

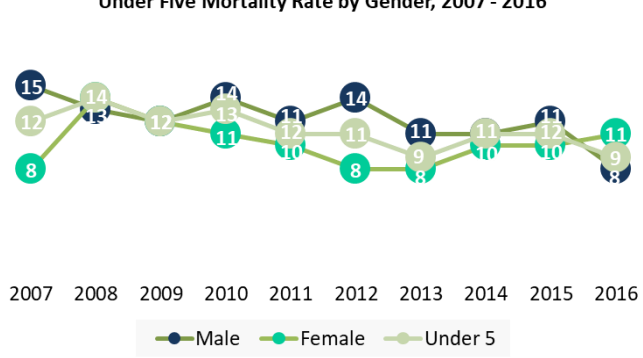

Figure 2-13: Under 5 morality rate by gender, 2007-2016

UNDER 5 MORTALITY RATE [U5MR] is defined by UNICEF as "probability of dying between birth and exactly five years of age expressed per 1000 live births".

U5MR = (No. of U5 Deaths/ No. of Live Births) x 1000

The difference between Under 5 Mortality Rate for atolls and Male' have also reduced over the past decade. In 2015 atolls have a lower under 5 mortality rate (9 deaths per 1000 live births) than Male' (10 deaths per 1000 live births, while this figure is same for 2016 with 9 deaths per 1000 live births for both Male' and Atolls.

Over the past decade, slight fluctuations can be observed for Under 5 Mortality Rate for the total population which declined from 12 deaths per 1000 live births in 2007 to 09 deaths per 1000 live births in 2016.

Sex comparisons showed that under 5 mortality rate declined from 15 deaths per 1000 live births to 8 deaths per 1000 live births for males and increased from 8 deaths per 1000 live births to 11 deaths per 1000 live births for females over the past decade.

The highest under 5 Mortality Rates for males was recorded in 2007 with 15 deaths per 1000 live births and in 2008 for females with 14 deaths per 1000 live births. In most of the years between 2007 and 2016, under 5 Mortality Rate have been slightly higher for males when compared to females. However, in 2016 slight difference can be observed for under 5 Mortality Rates among males and females, where female deaths are higher compared to male deaths.

INFANT MORTALITY RATE

Table 2-9: Infant mortality rate, 2015-2016

QUICK FACTS	2015	2016
Total Population	9	8
Male Population	10	6
Female Population	8	10
Male'	10	8
Atolls	6	7

DEFINITIONS

INFANT MORTALITY RATE [IMR] is defined by UNICEF as "probability of dying between birth and exactly one year of age expressed per 1000 live births".

IMR = (Number of Infant Deaths / Number of Live Births) x 1000

The Infant Mortality Rate have also declined for the total population from 10 deaths per 1000 live births in 2007 to 8 deaths per 1000 live births in 2016. Over the span of past 10 years, the highest Infant Mortality Rate was observed from 2008 - 2010 (11 deaths per 1000 live births).

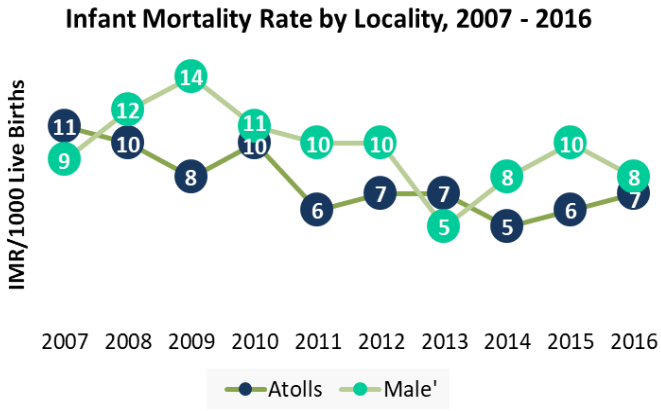

Figure 2-14: Infant mortality rate by locality, 2007-2016

Although there was a difference between Infant Mortality Rates for Male' and Atolls in 2007 [i.e. 9 /11 deaths per 1000 live births] the 9 years that followed showed huge fluctuations among Infant Mortality Rates between Male' and Atolls. Infant Mortality Rate peaked for Atolls in 2007 at 11 deaths per 1000 live births. On the contrary, during the past ten years the highest Infant Mortality Rate of 14 deaths per 1000 live births for Male' was recorded in 2009.

Since 2008, Atolls generally showed a lower Infant Mortality Rate than Male'. In 2016, Male' and Atolls had similar Infant Mortality Rate of 8 and 7 deaths per 1000 live births.

The Infant Mortality Rates also showed fluctuations for males and females over the past 10 years. The Infant Mortality Rates observed for males and females (6 deaths for males and 10 deaths for females per 1000 live births, respectively) are opposite for what was observed for both sexes in 2007 (14 for males and 6 deaths per 1000 live births for females).

The Infant Mortality Rate peaked at 14 deaths per 1000 live births for males in 2007, while highest rates for Infant Mortality for females were observed in 2008 and 2009 in the past decade with 11 deaths per 1000 live births. In general, the Infant Mortality Rates tends to be slightly higher for males than females in the last 10 years.

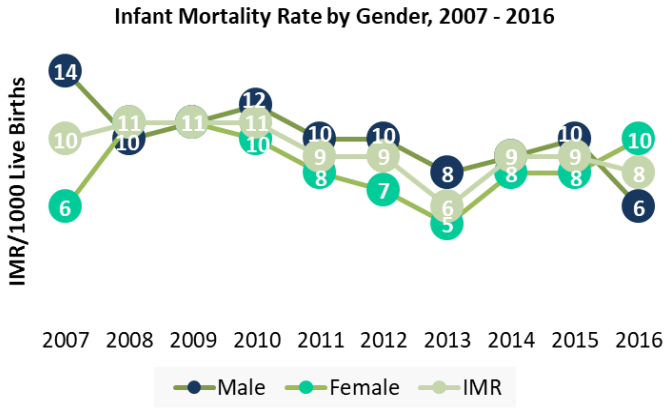

Figure 2-15: Infant mortality rate by gender, 2007-2016

Note: Most of the complicated and/or serious cases are likely to be referred to National Referral Hospital or private hospitals located in Male'. This may have a tendency to distort/ skew the rates to reflect higher rates in Male' than Atolls.

The analysis is based on primary data available from Vital Registration System of Maldives.

NEONATAL MORTALITY RATE

Table 2-10: Neonatal mortality rate, 2015-2016

QUICK FACTS	2015	2016
Neonatal Mortality Rate		
Total Population	5.30	5.33
Male'	5.92	5.86
Atolls	3.15	3.73
Early Neonatal Mortality Rate		
Total population	4.15	4.14
Male'	5.01	4.69
Atolls	2.70	3.73
Late Neonatal Mortality Rate		
Total population	1.15	1.18
Male'	0.91	1.17
Atolls'	0.45	0.00

DEFINITIONS

NEONATAL MORTALITY RATE [NMR] is defined by WHO as "Probability that a child born in a specific year or period will die during the first 28 completed days of life if subject to age-specific mortality rates of that period, expressed per 1000 live births.

Neonatal deaths (deaths among live births during the first 28 completed days of life) may be subdivided into early neonatal deaths, occurring during the first 7 days of life, and late neonatal deaths, occurring after the 7th day but before the 28th completed day of life".

IMR = (Number of Neonatal Deaths / Number of Live Births) x 1000

Neonatal Mortality Rate has decreased from 7.15 per 1000 live births in 2007 to 5.33 per 1000 live births in 2016. The lowest neonatal mortality rate recorded during this time frame was in 2013 with 4.05 neonatal deaths for every 1000 live births.

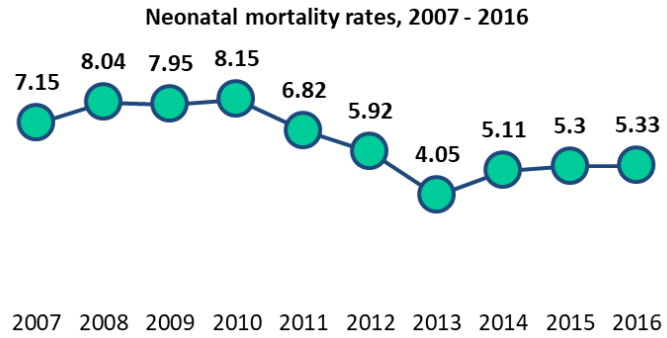

Figure 2-16: Neonatal mortality rates, 2007-2016

Overall, the neonatal mortality rate tends to be higher for Male' when compared to other atolls. A similar trend was observed over the past 5 years. A significant majority of neonatal deaths are early neonatal deaths.

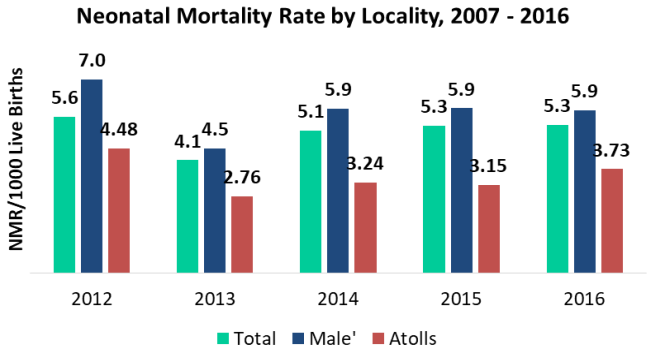

Figure 2-17: Neonatal mortality rate by locality, 2007-2016

Table 2-11: Number of Infant, Neonatal, Early Neonatal & Late Neonatal Deaths, 2015-2016

Number of Infant, Neonatal, Early Neonatal & Late Neonatal Deaths	2015	2016
Infant deaths (<1 year)	63	53
Neonatal deaths (0-27 days)	37	36
Early neonatal deaths (0-6 days)	29	28
Late neonatal deaths (7 - 27 days)	8	8

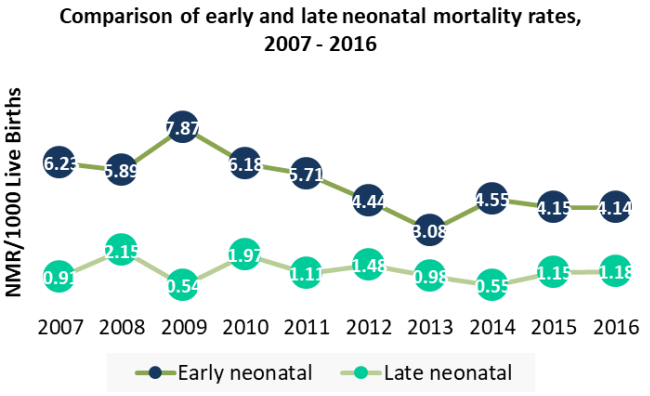

Figure 2-18: Comparison of early and late neonatal mortality rates,2007-2016

In 2016 alone, early neonatal death rate was almost four times higher than late neonatal death rate. Similarly, among the total number of infant deaths observed in 2016, 67.92% (n=36) of all infant deaths were attributed to neonatal deaths. A significant percentage of 77.78% (n=28) of these neonatal deaths were early neonatal deaths.

MATERNAL MORTALITY RATIO

Table 2-12: Maternal deaths and maternal mortality ratio, 2015-2016

QUICK FACTS	2015	2016
Total number of maternal deaths	5	3
Maternal Mortality Ratio	72	44

Due to the small population of Maldives, even one single death can have a large impact of the MMR figures.

For example, 6 maternal deaths occurred in 2009 while 8 maternal deaths occurred in 2010 in Maldives. Hence, the MMR significantly increased from 81 deaths/ 100,000 live births in 2009 to 112 deaths/ 100,000 live births in 2010.

Although, MMR have declined from 46 deaths/100,000 live births in 2007 to 44 deaths/100,000 live births in 2016, significant fluctuations for the MMR can be observed for the past 10 years.

Since, 2008 MMR had been steadily increasing until it peaked at 112 deaths/100, 000 live births in 2010. Since 2012 MMR started to decline again. In 2013 no maternal deaths were reported in Maldives. However, this increased to 72 deaths/100,000 live births in 2015 to 44 deaths/100,000 live births in 2016.

DEFINITIONS

MATERNAL MORTALITY RATIO [MMR] is defined by WHO as "The annual number of female deaths from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, expressed per 100 000 live births, for a specified time period".

MMR= (Number of Maternal Deaths / Number of Live Births) x 100,000

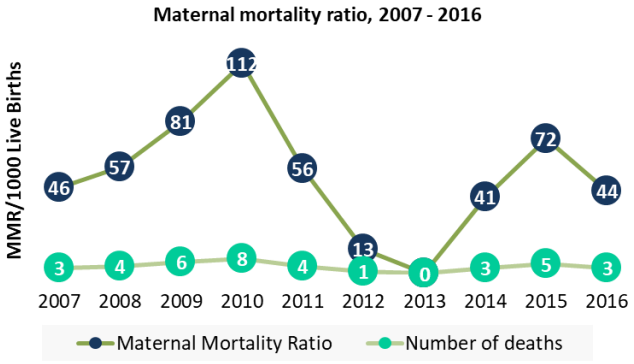

Figure 2-19: Maternal mortality ratio, 2007-2016

AGE SPECIFIC MORTALITY RATE

DEFINITIONS

AGE SPECIFIC MORTALITY RATE [ASMR] is defined by CDC as "a mortality rate limited to a particular age group. The numerator is the number of deaths in that age group; the denominator is the number of persons in that age group in the population".

In this section, ASMR is expressed as per 10,000 population.

In 2015 and 2016, apart from Age Specific Mortality (ASMR) of 0-4 year old's (22 deaths and 17 /10,000 population), the ASMR was relatively low until 30-34 age group. Since 40-44 age group, a significant increase can be seen for older age groups indicating that more deaths occurs among older age groups of the population. A similar trend can be observed for the past 3 years (refer to the summary table for additional information).

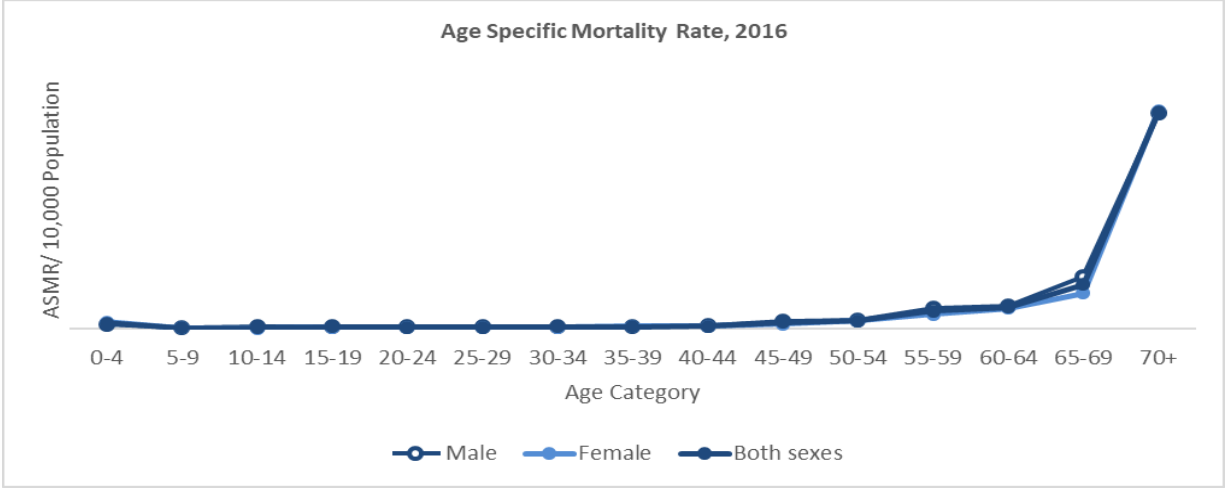

Figure 2-20: Age specific mortality rate, 2016

The analysis is based on primary data available from Vital Registration System of Maldives.

LEADING CAUSES OF DEATH

Leading causes of death is a useful measure of population health. It is of most value when making comparisons over time or between population groups. Changes in the pattern of causes of death can result from changes in behaviors, exposures to disease or injury, and social and environmental circumstances, as well as from data coding practices.

Deaths data Causes of death are documented on death certificates by medical practitioners, and coded by the Ministry of Health, Maldives. The ICD allows diseases that cause death to be grouped in a way that is meaningful for monitoring population health. The Ministry of Health uses the disease groups recommended by the World Health Organization (ICD version 10).

Leading causes of death presented in this snapshot are based on the 'underlying cause of death', which is the disease or injury that began the train of events leading to death. Most deaths, however, result from more than one contributing disease or condition. Analyses using 'associated causes of death' may offer insight into the disease processes occurring at the end of life or, for injury causes of death, the nature of the injury.

Table 2-13: Top 10 causes of death, 2015-2016

Rank	ICD Code	Cause of Death	2015	ICD Code	Cause of Death	2016
1	(I30–I52)	Other forms of heart disease	**165**	(I30–I52)	Other forms of heart disease	168
2	(I10–I15)	Hypertensive diseases	**100**	(I20–I25)	Ischaemic heart diseases	122
3	(I60–I69)	Cerebrovascular diseases	**93**	(I60–I69)	Cerebrovascular diseases	99
4	(I20–I25)	Ischaemic heart diseases	**92**	(R00–R09)	Symptoms and signs involving the circulatory and respiratory systems	95
5	(J40–J47)	Chronic lower respiratory diseases	**59**	(J40–J47)	Chronic lower respiratory diseases	81
6	(R00–R09)	Symptoms and signs involving the circulatory and respiratory systems	**46**	(I10–I15)	Hypertensive diseases	66
7	(A30–A49)	Other bacterial diseases	**43**	(A30–A49)	Other bacterial diseases	52
8	(E10–E14)	Diabetes mellitus	**36**	(J60–J70)	Lung diseases due to external agents	39
9	(J60–J70)	Lung diseases due to external agents	**36**	(E10–E14)	Diabetes mellitus	34
10	(E70–E90)	Metabolic disorders	**25**	(N17–N19)	Renal failure	31

Table 2-14: Top 10 causes of death by Non-communicable diseases, 2015-2016

Rank	ICD Code	Cause of death	2015	ICD Code	Cause of death	2016
1	I30-I52	Other forms of heart disease	167	I30-I52	Other forms of heart disease	167
2	I10-I15	Hypertensive diseases	105	I20-I25	Ischaemic heart diseases	122
3	I20-I25	Ischaemic heart diseases	97	I60-I69	Cerebrovascular diseases	99
4	I60-I69	Cerebrovascular diseases	96	J40-J47	Chronic lower respiratory diseases	82
5	C00-C97	Malignant neoplasms	87	C00-C97	Malignant neoplasms	68
6	J40-J47	Chronic lower respiratory diseases	61	I10-I15	Hypertensive diseases	66
7	J60-J70	Lung diseases due to external agents	38	J60-J70	Lung diseases due to external agents	39
8	E10-E14	Diabetes mellitus	37	E10-E14	Diabetes mellitus	34
9	E70-E90	Metabolic disorders	26	N17-N19	Renal failure	31
10	J95-J99	Other diseases of the respiratory system	24	J80-J84	Other respiratory diseases principally affecting the interstitium	23

Table 2-15: Top 10 causes of death by communicable diseases, 2015-2016

Rank	ICD Code	Cause of death	2015	ICD Code	Cause of death	2016
1	A30-A49	Other bacterial diseases	52	A30-A49	Other bacterial diseases	44
2	J09-J18	Influenza and pneumonia	26	J09-J18	Influenza and pneumonia	8
3	J20-J22	Other acute lower respiratory infections	6	J20-J22	Other acute lower respiratory infections	5
4	A15-A19	Tuberculosis	6	B90-B94	Sequelae of infectious and parasitic diseases	4
5	B90-B94	Sequelae of infectious and parasitic diseases	5	A80-A89	Viral infections of the central nervous system	3
6	A80-A89	Viral infections of the central nervous system	4	A15-A19	Tuberculosis	2
7	A00-A09	Intestinal infectious diseases	2	B15-B19	Viral hepatitis	2
8	J00-J06	Acute upper respiratory infections	2	A00-A09	Intestinal infectious diseases	1
9	A92-A99	Arthropod-borne viral fevers and viral haemorrhagic fevers	1	J00-J06	Acute upper respiratory infections	1
10	B99-B99	Other infectious diseases	1	A75-A79	Rickettsioses	1

The different causes of death under categories of diseases will be looked into detail in the following sections.

Table 2-16: Deaths by non-communicable diseases, 2015-2016

Non-communicable diseases	2015	2016
Cardiovascular diseases	485	472
Congenital anomalies	11	4
Diabetes mellitus	37	34
Digestive diseases	22	12
Endocrine disorders	36	24
Genitourinary diseases	37	50
Malignant neoplasms	87	68
Musculoskeletal diseases	3	2
Neuropsychiatric conditions	28	31
Oral conditions	1	0
Other neoplasms	5	9
Respiratory diseases	144	158
Skin diseases	7	6
Total	903	870

Table 2-17: Deaths by communicable diseases, 2015 -2016

Communicable diseases	2015	2016
Infectious and parasitic diseas-es	59	71
Respiratory infections	14	34
Total	73	105

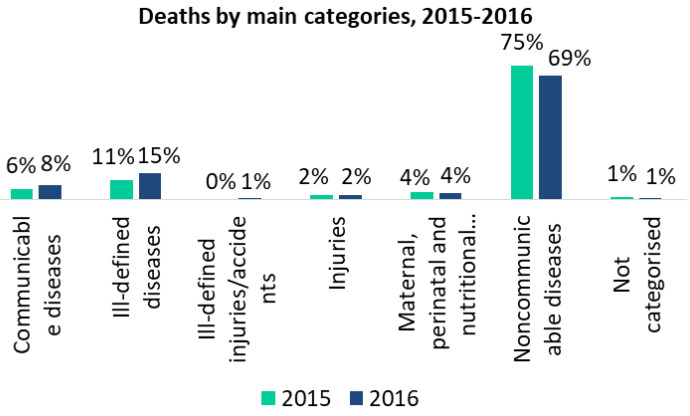

Figure 2-21: Deaths by main categories, 2015-2016

In terms of major death conditions, Non-Communicable Diseases contributed the highest percentage of deaths in Maldives for 2015 and 2016.

The difference diseases by gender disaggregation and age-groups will be looked in the top 5 mortality due to non-communicable diseases.

MORTALITY DUE TO NON-COMMUNICABLE DISEASES

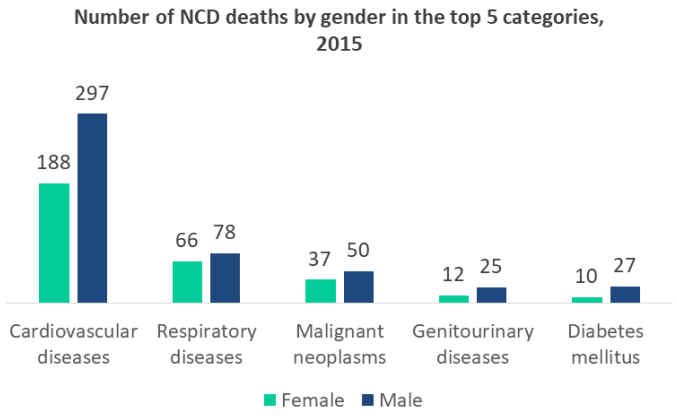

Figure 2-22: Number of NCD deaths by gender in the top 5 categories, 2015

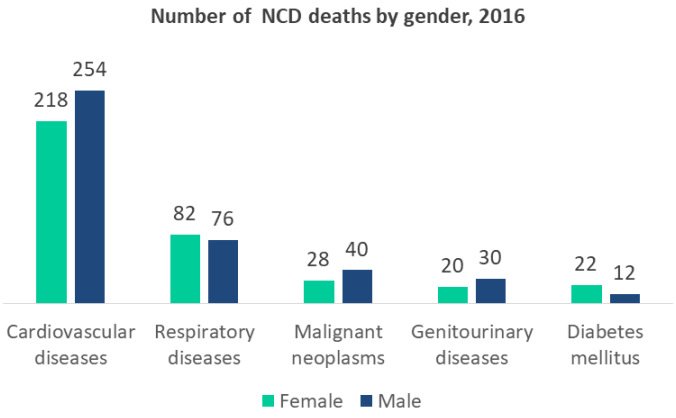

Figure 2-23: Number of NCD deaths by gender, 2016

CARDIOVASCULAR DISEASES

Cardiovascular Diseases is the leading cause of disease burden and death in Maldives. It occurs when there is a blockage in the blood vessels that supply blood to the heart muscle. There are two major clinical forms—Heart Attack and Angina. **Cardiovascular Diseases** is largely preventable, as many of its risk factors are modifiable. These include tobacco smoking, high blood pressure, high blood cholesterol, physical inactivity, poor nutrition, and overweight and obesity.

In 2015 and 2016,

- **Cardiovascular Diseases** was the leading single cause of death in Maldives, accounting for 485 and 472 deaths respectively, as the underlying cause of death. This represents an average of 40% of all deaths in both years.
- Almost 40% of cardiovascular deaths were due to other cardiovascular diseases, followed by Ischemic health disease (20% for 2015 and 26% for 2016) and Cerebrovascular diseases with an average of 20% of cardiovascular death is both years.

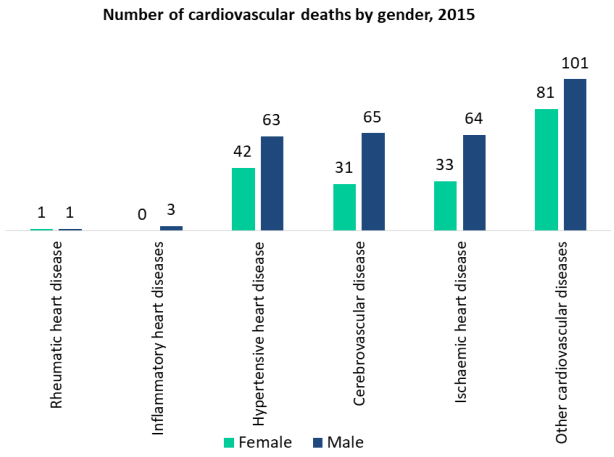

Figure 2-24: Number of cardiovascular deaths, 2015

On average, there are 9 cardiovascular deaths per week.

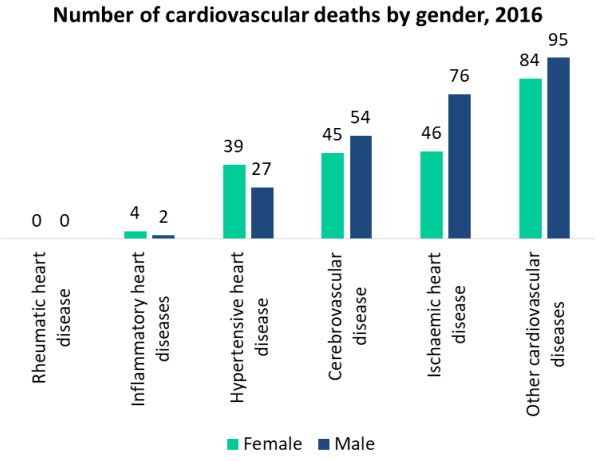

Figure 2-26: Number of cardiovascular deaths, 2016

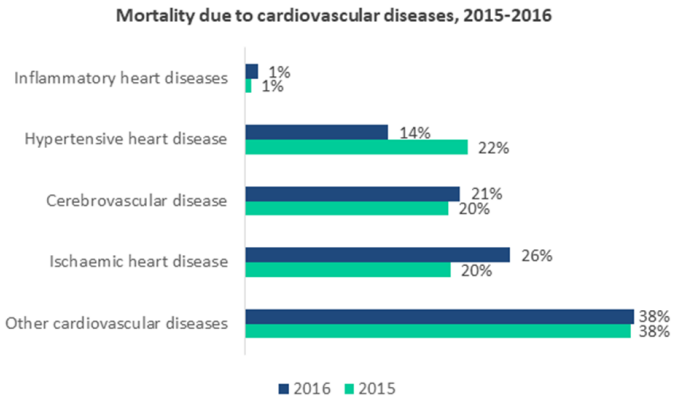

Figure 2-25: Mortality due to cardiovascular diseases , 2015-2016

There are more male deaths in both 2015 and 2016. However, in 2016, more females died from Hypertensive heart disease and Inflammatory heart diseases. While Cardiovascular Diseases deaths fell from 2015 to 2016, the number of deaths increased over the age-groups peaking at 65+.

RESPIRATORY DISEASES

Respiratory diseases affect the airways, including the lungs, as well as passages that transfer air from the mouth and nose into the lungs. These conditions are characterized by symptoms such as wheezing, shortness of breath, chest tightness and cough. Conditions include Asthma, Chronic Obstructive Pulmonary Disease (COPD)— which covers Emphysema and Chronic Bronchitis—and other conditions such as chronic sinusitis, bronchiectasis, occupational lung diseases, sleep apnea, pulmonary fibrosis and cystic fibrosis. This snapshot focuses on asthma and COPD (given the poor health and wellbeing outcomes associated with this condition). Risk factors associated with Respiratory diseases can be behavioral, environmental or genetic. These include tobacco smoking (particularly for COPD), exposure to viral infections and air pollutants, and inheritance of genes linked with respiratory illnesses such as cystic fibrosis.

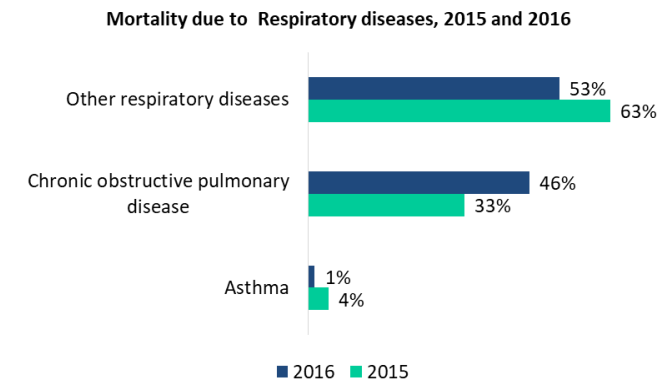

Figure 2-28: Mortality due to respiratory diseases, 2015-2016

Respiratory diseases were the second leading underlying cause of death in Maldives in 2015 and 2016, with 144 and 158 deaths respectively.
Further:

- between 2015 and 2016, deaths due to COPD increased, from 47 to 73 deaths, however deaths due to Asthma slowly decreased, from 6 to 2 deaths
- In 2015 more males died due to Respiratory diseases compared to 2016, while in 2016 there were more female deaths due to Respiratory diseases.

On average, there are 3 deaths due to respiratory diseases per week.

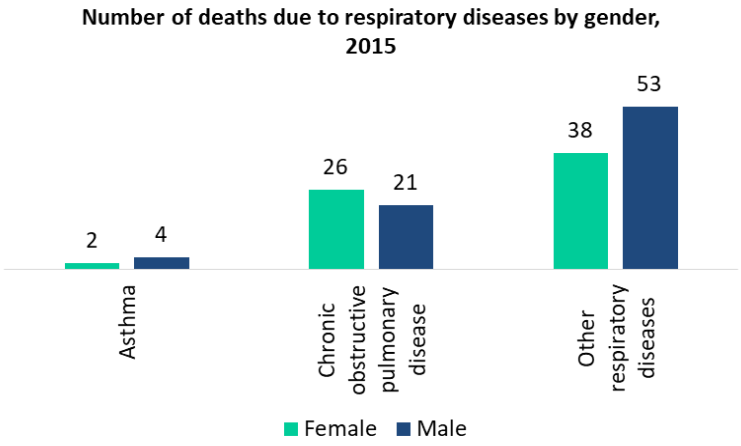

Figure 2-27: Number of deaths due to respiratory diseases, 2015

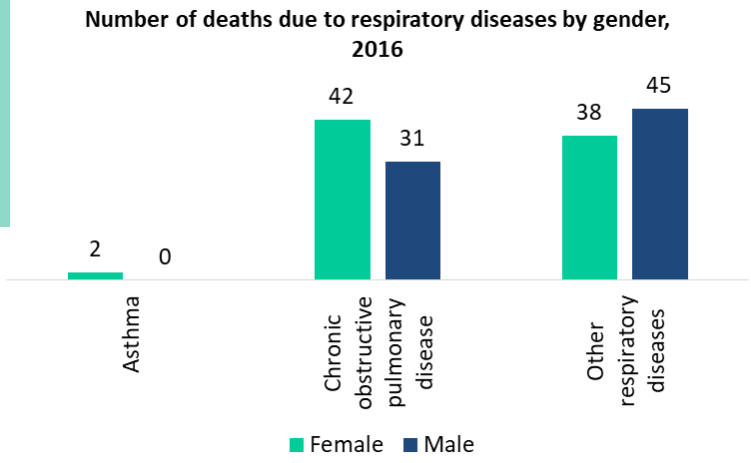

Figure 2-29: Number of deaths due to respiratory diseases, 2016

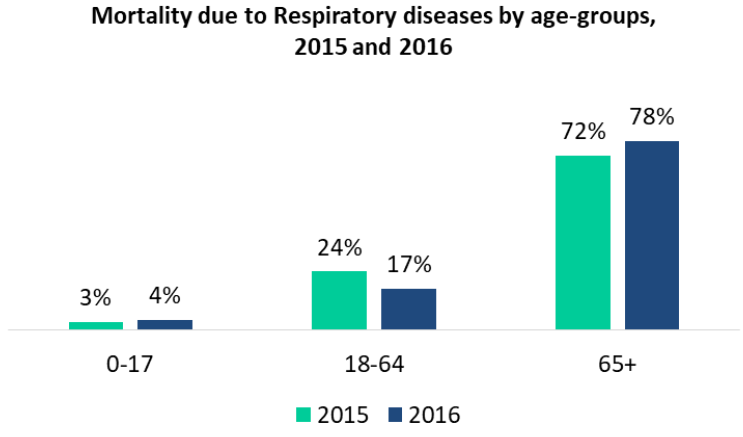

Figure 2-30: Mortality due to respiratory diseases by age-groups, 2015-2016

The number of deaths due to Respiratory diseases increased with age in both the years, more than three quarter of deaths from Respiratory diseases being at the age group 65+.

MALIGNANT NEOPLASM

Cancer is a diverse group of several hundred diseases where some of the body's cells become abnormal and begin to multiply out of control. In 2015 and 2016, cancer (as a disease group) was the third cause of mortality.

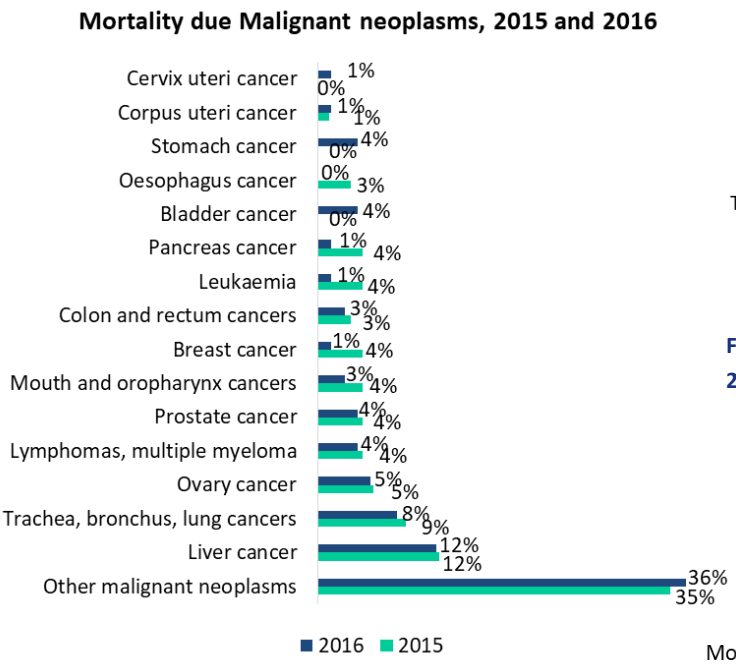

Figure 32: Mortality due to malignant neoplasms, 2015-2016

In 2015 and 2016, Liver cancer was the most common cause of cancer deaths, followed by Trachea, Bronchus and Lung cancers and Ovary cancer in both years.

Other neoplasms which are not categorized as cancerous are 5% and 12% for 2015 and 2016 respectively.

On average, there are 2 cancer deaths per week

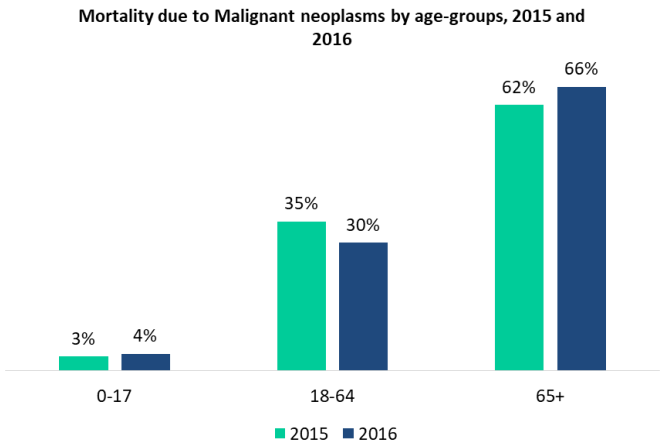

Figure 2-34: Mortality due to malignant neoplasms by age-groups, 2015-2016

Mortality due to cancer increases by age groups, and peaks at 65+.

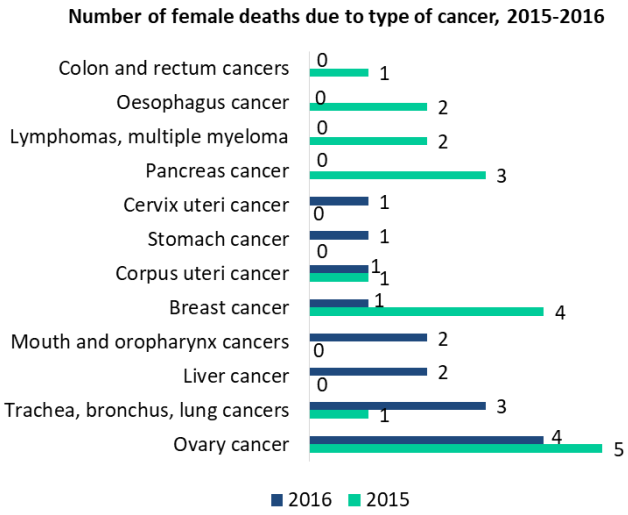

Figure 2-31: Number of female deaths due to type of cancer, 2015-2016

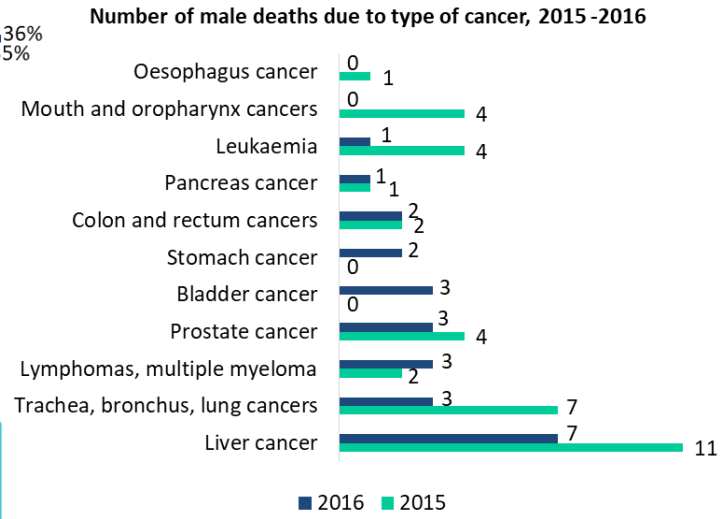

Figure 2-33: Number of male deaths due to type of cancer, 2015-2016

The gender disaggregated data on cancer deaths shows that;

- On average, there are 1.3 more cancer deaths for males than females in both years.
- The most common cancers for males were liver cancer, prostate cancer and leukemia while most common cancer deaths for females were ovary cancer, breast cancer and Trachea, bronchus, lung cancers

GENITOURINARY DISEASES

The kidneys filter and remove waste from the blood. **Genitourinary Diseases or kidney diseases** occurs when the nephrons (the functional units in the kidneys that filter blood) are damaged. Chronic **Genitourinary Diseases** is where evidence of kidney damage and/or reduced kidney function lasts at least 3 months. Many cases of Genitourinary Diseases are preventable, as several of its risk factors—such as high blood pressure, insufficient physical activity, overweight and obesity, and tobacco smoking—are modifiable. Simple tests of a person's blood and urine can identify most cases of **Genitourinary Diseases** when the disease is in its early stages, enabling treatment to prevent or slow its progression.

Nephritis and Nephrosis (23 and 34 deaths respectively for 2015 and 2016) was the most common cause of death

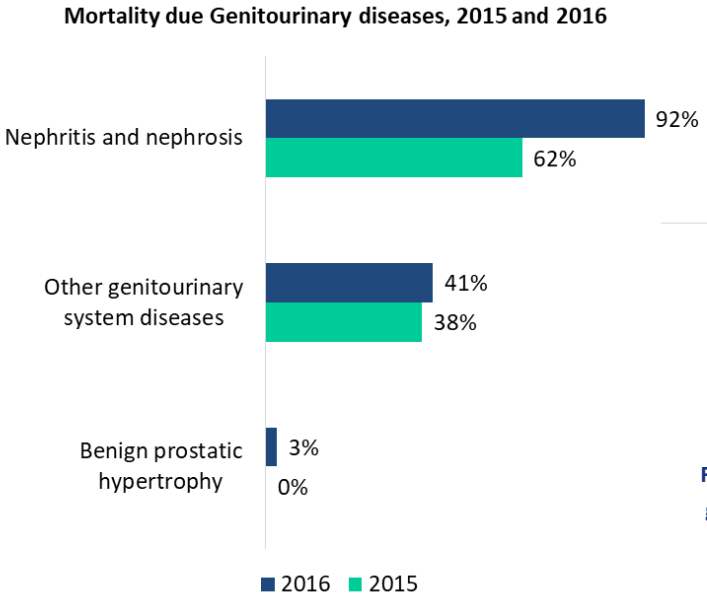

Figure 2-37: Mortality due to genitourinary diseases, 2015-2016

Genitourinary Diseases contributed to around 37 and 50 deaths for 2015 and 2016 respectively recording Genitourinary Diseases associated cause of death as the fourth most common cause of mortality. Genitourinary Diseases is more often listed as an associated cause as the disease itself may not lead directly to death.

On average, there was 1 death per week in 2015 and 2016 due to Genitourinary Diseases.

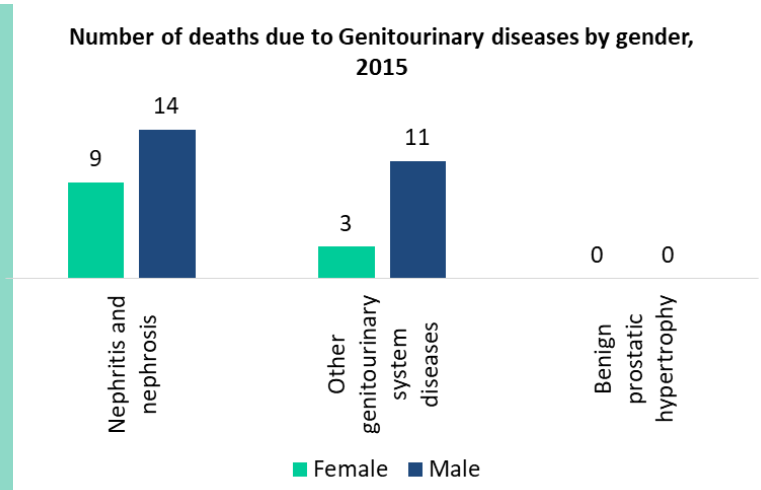

Figure 2-35: Number of deaths due to genitourinary diseases by gender, 2015

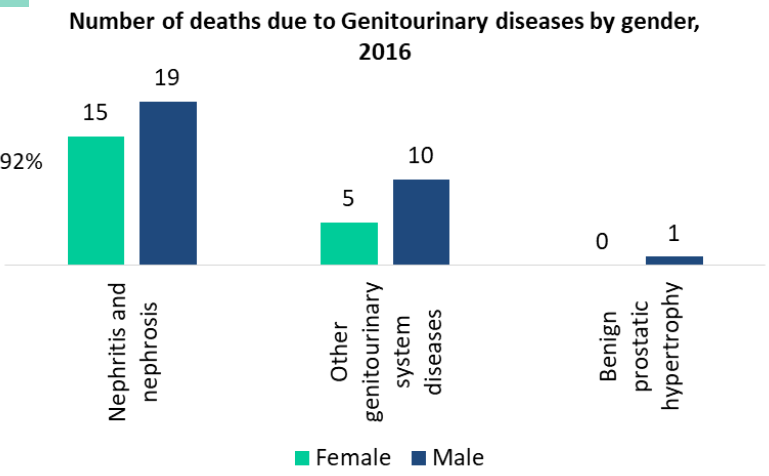

Figure 2-36: Number of deaths due to genitourinary diseases by gender, 2016

In terms of gender disaggregation, there were more male deaths for both 2015 and 2016.

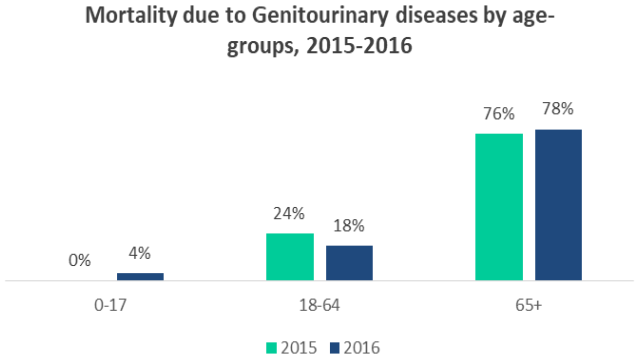

Figure 2-38: Mortality due to genitourinary diseases by age-groups, 2015-2016

Similar to most non-communicable diseases age of deaths increased with age for Genitourinary Diseases. This showed that deaths in the age group 65+ tripled compared to age group 18-64+ in both years.

DIABETES MELLITUS

Diabetes is a chronic condition marked by high levels of sugar (glucose) in the blood. It is caused by the body's being unable to produce insulin (a hormone made by the pancreas to control blood glucose levels) or to use insulin effectively, or both.

The main types of diabetes are:

- Type 1 diabetes—an autoimmune disease that usually has an onset in childhood or early adulthood
- Type 2 diabetes—the most common form of diabetes, generally having a later onset. It is largely preventable and is often associated with lifestyle factors such as insufficient physical activity, unhealthy diet, obesity and tobacco smoking. Risk is also associated with genetic and family-related factors
- gestational diabetes—when higher than normal blood glucose is diagnosed for the first-time during pregnancy.

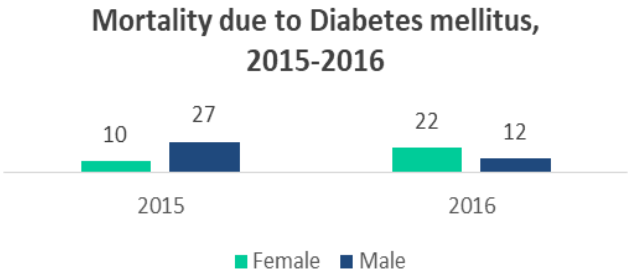

Figure 2-39: Mortality due to diabetes mellitus, 2015-2016

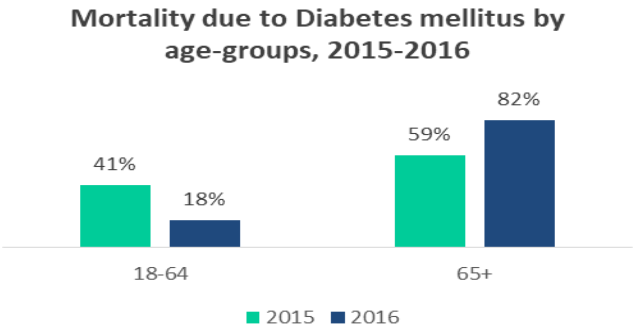

Figure 2-40: Mortality due to diabetes mellitus by age-group, 2015-2016

Diabetes was the underlying cause of around 37 and 34 deaths in 2015 and 2016 respectively and falls at the fifth cause of death due to non-communicable diseases. An examination of deaths among people with diagnosed diabetes provides a more complete picture of diabetes-related deaths. This shows that there were more male deaths than female death due to Diabetes.

The highest number of deaths due to diabetes is in the age-group 65+.

On average, there is 1 death per week in 2015 and 2016 due to **Diabetes Mellitus**

MORTALITY DUE TO COMMUNICABLE DISEASES

Communicable diseases are caused by infectious agents and can be passed from one person or animal to another. Transmission can occur directly (through contact with bodily discharge), indirectly or by vectors (such as mosquitoes). These diseases are caused by bacteria, viruses, parasites or fungi or their toxic products. Examples include Malaria, Influenza and Chicken pox.

Throughout the 1900s, improved sanitation and new prevention and treatment options drastically reduced the burden of communicable diseases. Vaccination is a key preventative measure and has been highly successful in reducing or eliminating serious diseases such as Polio and Measles.

Although the total burden of communicable diseases in Maldives is not as high as the burden of NCDs, they are an important cause of ill health. Many have the potential to cause serious illness and outbreaks. Mortality due to communicable diseases is low compared to non-communicable diseases, however, some have developed resistance to antimicrobial agents, increasing the risk of more lengthy and complex treatment and poor outcomes, such as deaths.

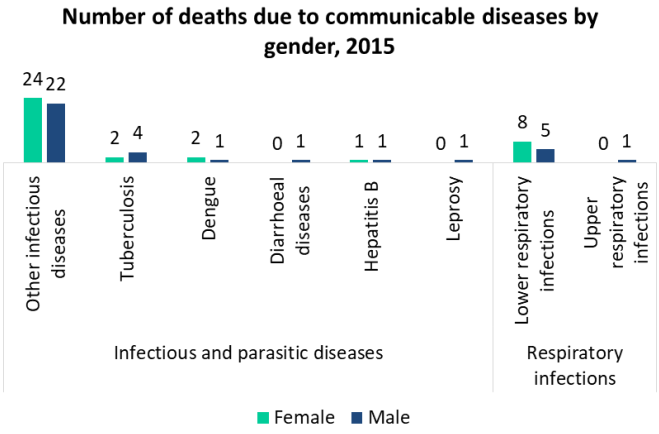

Figure 2-41: Number of deaths due to communicable diseases by gender, 2015

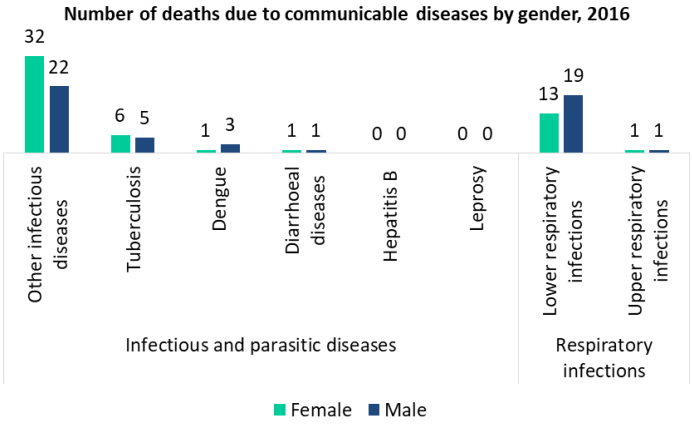

Figure 2-42: Number od deaths due to communicable diseases by gender, 2016

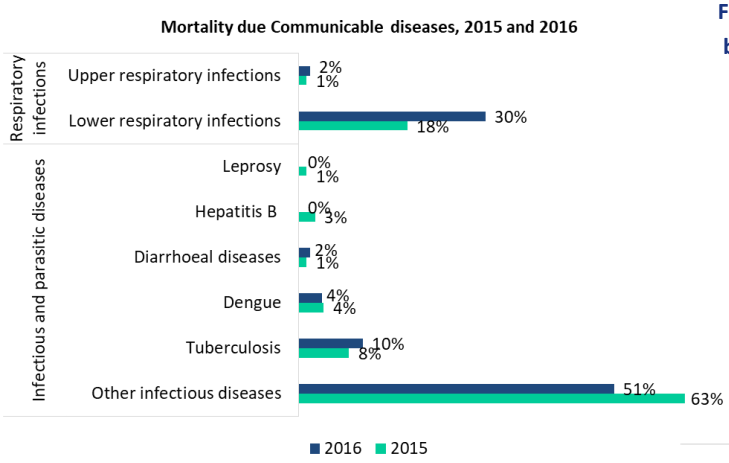

Figure 2-43: Mortality due to communicable diseases, 2015-2016

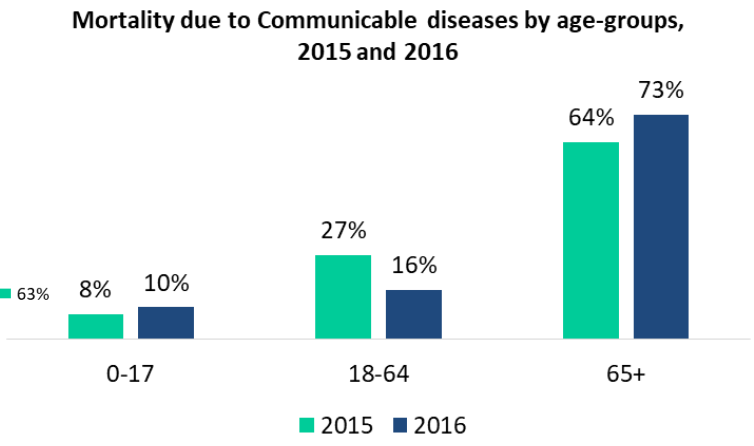

Figure 2-44: Mortality due to communicable diseases by age-groups, 2015-2016

Some people who become infected with communicable diseases end up with a severe infection, resulting in deaths. The most common cause of deaths in terms of communicable diseases include, lower respiratory tract infections (such as pneumonia and bronchitis), accounting for more than 50% of deaths in 2015 and 2016. However, the gender disaggregation remained constant over the two years.

In 2016, slightly more deaths were attributed to communicable diseases than 2015.

On average, there are 2 deaths per week attributed to communicable diseases in 2015 and 2016.

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SUMMARY TABLES - MORTALITY

Table 2-18: Crude Death Rate per 1000 population, Maldives, 2007-2016

Year/ Sex	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Male	4	4	4	4	4	4	4	4	4	4
Female	3	3	3	3	3	3	3	3	3	3
Total	3	4	3	3	3	3	3	3	3	3

Table 2-19: Total Number of Deaths by Sex and Locality, Maldives , 2007-2016

Year/ Sex	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Republic										
Male	687	629	675	660	686	656	649	663	495	584
Female	436	441	488	445	451	479	471	480	714	676
Total	**1123**	**1070**	**1163**	**1105**	**1137**	**1135**	**1120**	**1143**	**1209**	**1260**
Male'										
Male	222	229	264	279	272	333	303	312	205	265
Female	150	161	186	179	196	231	210	234	298	301
Total	**372**	**390**	**450**	**458**	**468**	**564**	**513**	**546**	**503**	**566**
Atolls										
Male	465	400	397	356	381	310	315	285	244	288
Female	286	280	289	255	234	245	229	207	346	337
Total	**751**	**680**	**686**	**611**	**615**	**555**	**544**	**492**	**590**	**625**
Abroad										
Male	0	0	14	25	33	13	31	66	41	31
Female	0	0	13	11	21	3	32	39	54	38
Total	**0**	**0**	**27**	**36**	**54**	**16**	**63**	**105**	**95**	**69**

Table 2-20: Under 5 Mortality Rate per 1000 Live Births by Sex & Locality, Maldives , 2007 – 2016

Year/ Sex	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Republic										
Male	15	13	12	14	12	14	11	11	12	8
Female	8	14	12	11	10	8	8	10	10	11
Total	**12**	**14**	**12**	**13**	**11**	**11**	**9**	**11**	**11**	**9**
Male'										
Male	13	14	17	15	11	16	7	12	12	4
Female	6	12	13	7	12	8	5	9	9	14
Total	**10**	**13**	**15**	**11**	**11**	**12**	**6**	**10**	**10**	**9**
Atolls										
Male	17	13	8	12	12	12	16	8	10	8
Female	9	16	11	15	8	10	11	8	9	9
Total	**13**	**14**	**10**	**14**	**10**	**11**	**14**	**8**	**9**	**9**

Note: No deaths abroad reported for under 5 age category in 2015-2016

Table 2-21: Deaths by age group and sex 2014-2016

Year	2014			2015			2016		
Sex/Age Group	Total	Male	Female	Total	Male	Female	Total	Male	Female
Less than 1	62	34	28	65	36	29	57	23	34
1-4	15	6	9	15	10	5	10	5	5
5-9	1	0	1	9	4	5	6	3	3
10-14	7	6	1	10	6	4	9	8	1
15-19	19	14	5	9	6	3	15	9	6
20-24	16	12	4	17	12	5	14	9	5
25-34	39	29	10	29	21	8	31	18	13
35-44	29	18	11	37	19	18	34	17	17
45-54	83	50	33	73	54	19	74	42	32
55-64	129	81	48	119	84	35	129	75	54
65+	750	418	332	826	462	364	881	467	414

Table 2-22: Infant Mortality Rate per 1000 Live Births by Sex and Locality , Maldives , 2007 – 2016

Year/ Sex	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Republic										
Male	14	10	11	12	10	10	8	9	10	6
Female	6	11	11	10	8	7	5	8	8	10
Total	**10**	**11**	**11**	**11**	**9**	**9**	**6**	**8**	**9**	**8**
Male'										
Male	12	12	16	15	10	13	7	9	11	8
Female	6	12	13	7	11	7	4	7	8	9
Total	**9**	**12**	**14**	**11**	**10**	**10**	**5**	**8**	**10**	**8**
Atolls										
Male	15	9	7	9	8	6	8	5	5	2
Female	6	11	9	12	5	8	6	4	6	11
Total	**11**	**10**	**8**	**10**	**6**	**7**	**7**	**5**	**6**	**7**

Note: No deaths abroad reported for infants in 2015-2016

Table 2-23: Neonatal, Early Neonatal and Late Neonatal Mortality Rates per 1000 Live Births by Locality, Maldives , 2007 – 2016

Year/ Locality	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Early Neonatal Mortality Rate (0-6 days)										
Republic	6.23	5.89	6.87	6.18	5.71	4.44	3.08	4.55	4.15	4.14
Male'	5.18	5.38	9.5	6.3	6.52	4.93	3.41	5.49	5.01	4.69
Atolls	7.16	6.36	4.28	6.16	4.12	4.11	2.3	2.78	2.7	3.73
Late Neonatal Mortality Rate (7-27 days)										
Republic	0.91	2.15	0.54	1.97	1.11	1.48	0.98	0.55	1.15	1.18
Male'	1.62	2.99	1.09	2.89	1.76	2.02	1.06	0.42	0.91	1.17
Atolls	0.29	1.38	0	0.62	0	0.37	0.46	0.46	0.45	0
Neonatal Mortality Rate (0-27 days)										
Republic	7.15	8.04	7.95	8.15	6.82	5.92	4.05	5.11	5.3	5.33
Male'	6.8	8.36	11.67	9.18	8.27	6.95	4.47	5.91	5.92	5.86
Atolls	7.45	7.74	4.28	6.77	4.12	4.48	2.76	3.24	3.15	3.73

Note: No deaths abroad reported for neonatal, early neonatal and late neonatal category in 2015-2016

Table 2-24: Number of Maternal Deaths and Maternal Mortality Ratio/100,000 Live Births , Maldives , 2007 - 2016

Year/	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of deaths	3	4	6	8	4	1	0	3	5	3
Maternal Mortality Ratio	46	57	81	112	56	13	0	41	72	44

Table 2-25: Age Specific Mortality Rate by Sex per 10,000 Population, Maldives, 2014 - 2016

Year	2014			2015			2016		
Age Group/Sex	Total	Male	Female	Total	Male	Female	Total	Male	Female
0-4	22	21	22	22	24	20	17	14	21
5-10	0	0	1	3	3	3	2	2	2
10-14	3	4	1	4	4	3	3	6	1
15-19	6	9	3	3	4	1	5	6	4
20-24	4	6	2	4	6	2	4	5	2
25-29	7	11	3	3	5	2	4	5	3
30-34	4	5	3	3	3	3	5	5	4
35-39	4	5	2	6	6	7	6	6	7
40-44	11	12	9	10	12	9	8	9	8
45-49	17	24	10	18	28	9	19	23	14
50-54	36	38	33	25	35	14	25	26	24
55-59	56	72	39	46	56	35	55	64	44
60-64	103	115	90	81	122	37	67	71	64
65-69	141	181	100	132	170	92	137	162	111
70+	593	603	582	608	625	588	676	673	679

Table 2-26: Top 15 causes of death for all age groups, Maldives, 2015 -2016

Rank	ICD Code	Cause of Death	2015	ICD Code	Cause of Death	2016
1	(I30–I52)	Other forms of heart disease	165	(I30–I52)	Other forms of heart disease	168
2	(I10–I15)	Hypertensive diseases	100	(I20–I25)	Ischaemic heart diseases	122
3	(I60–I69)	Cerebrovascular diseases	93	(I60–I69)	Cerebrovascular diseases (	99
4	(I20–I25)	Ischaemic heart diseases	92	(R00–R09)	Symptoms and signs involving the circulatory and respiratory systems	95
5	(J40–J47)	Chronic lower respiratory diseases	59	(J40–J47)	Chronic lower respiratory diseases	81
6	(R00–R09)	Symptoms and signs involving the circulatory and respiratory systems	46	(I10–I15)	Hypertensive diseases	66
7	(A30–A49)	Other bacterial diseases	43	(A30–A49)	Other bacterial diseases	52
8	(E10–E14)	Diabetes mellitus	36	(J60–J70)	Lung diseases due to external agents	39
9	(J60–J70)	Lung diseases due to external agents	36	(E10–E14)	Diabetes mellitus	34
10	(E70–E90)	Metabolic disorders	25	(N17–N19)	Renal failure	31
11	(J95–J99)	Other diseases of the respiratory system	23	(J10–J18)	Influenza and pneumonia	26
12	(C15–C26)	Malignant neoplasms of digestive organs	22	(J80–J84)	Other respiratory diseases principally affecting the interstitium	23
13	(C76–C80)	Malignant neoplasms of ill-defined, secondary and unspecified sites	21	(C76–C80)	Malignant neoplasms of ill-defined, secondary and unspecified sites	20
14	(J80–J84)	Other respiratory diseases princi-pally affecting the interstitium	20	(E70–E90)	Metabolic disorders	19
15	(N17–N19)	Renal failure	20	(C15–C26)	Malignant neoplasms of digestive organs	18

Table 2-27: Top 10 causes of death by non-communicable diseases, 2015-2016

Rank	ICD Code	Cause of death	2015	ICD Code	Cause of death	2016
1	I30-I52	Other forms of heart disease	167	I30-I52	Other forms of heart disease	167
2	I10-I15	Hypertensive diseases	105	I20-I25	Ischaemic heart diseases	122
3	I20-I25	Ischaemic heart diseases	97	I60-I69	Cerebrovascular diseases	99
4	I60-I69	Cerebrovascular diseases	96	J40-J47	Chronic lower respiratory diseases	82
5	C00-C97	Malignant neoplasms	87	C00-C97	Malignant neoplasms	68
6	J40-J47	Chronic lower respiratory diseases	61	I10-I15	Hypertensive diseases	66
7	J60-J70	Lung diseases due to external agents	38	J60-J70	Lung diseases due to external agents	39
8	E10-E14	Diabetes mellitus	37	E10-E14	Diabetes mellitus	34
9	E70-E90	Metabolic disorders	26	N17-N19	Renal failure	31
10	J95-J99	Other diseases of the respiratory system	24	J80-J84	Other respiratory diseases principally affecting the interstitium	23

Table 2-28: Top 10 causes of death by communicable diseases, 2015-2016

Rank	ICD Code	Cause of death	2015	ICD Code	Cause of death	2016
1	A30-A49	Other bacterial diseases	52	A30-A49	Other bacterial diseases	44
2	J09-J18	Influenza and pneumonia	26	J09-J18	Influenza and pneumonia	8
3	J20-J22	Other acute lower respiratory infections	6	J20-J22	Other acute lower respiratory infections	5
4	A15-A19	Tuberculosis	6	B90-B94	Sequelae of infectious and parasitic diseases	4
5	B90-B94	Sequelae of infectious and parasitic diseases	5	A80-A89	Viral infections of the central nervous system	3
6	A80-A89	Viral infections of the central nervous system	4	A15-A19	Tuberculosis	2
7	A00-A09	Intestinal infectious diseases	2	B15-B19	Viral hepatitis	2
8	J00-J06	Acute upper respiratory infections	2	A00-A09	Intestinal infectious diseases	1
9	A92-A99	Arthropod-borne viral fevers and viral haemorrhagic fevers	1	J00-J06	Acute upper respiratory infections	1
10	B99-B99	Other infectious diseases	1	A75-A79	Rickettsioses	1

Table 2-29: Deaths by main and sub group of diseases by age-groups, 2015-2016

Main disease groups	Sub-group of diseases	2015				2016			
		0-17	18-64	65+	Total	0-17	18-64	65+	Total
Communicable diseases	Infectious and parasitic diseases	5	17	37	59	9	11	51	71
	Respiratory infections	1	3	10	14	2	6	26	34
Ill-defined diseases	Not categorised / Multiple Sub-categories	14	30	90	134	11	48	130	189
Ill-defined injuries/accidents	Not categorised / Multiple Sub-categories		4	1	5		4	5	9
Injuries	Intentional injuries	1	4		5	4	4		8
	Unintentional injuries	3	10	11	24	1	14	6	21
Maternal, perinatal and nutritional conditions	Maternal conditions	1	2		3		2		2
	Nutritional deficiencies		1	8	9	1	1	6	8
	Perinatal conditions	37			37	37			37
Non-communicable diseases	Cardiovascular diseases	11	89	385	485	10	103	359	472
	Congenital anomalies	9	1	1	11	2		2	4
	Diabetes mellitus		15	22	37		6	28	34
	Digestive diseases	2	2	18	22	1	4	7	12
	Endocrine disorders	3	9	24	36	1	3	20	24
	Genitourinary diseases		9	28	37	2	9	39	50
	Malignant neoplasms	3	31	53	87	2	21	45	68
	Musculoskeletal diseases		1	2	3		1	1	2
	Neuropsychiatric conditions	5	6	17	28	2	12	17	31
	Oral conditions			1	1				
	Other neoplasms		1	4	5	1	2	6	9
	Respiratory diseases	5	35	104	144	7	27	124	158
	Skin diseases		2	5	7		2	4	6
Not categorised	Not categorised / Multiple Sub-categories	4	7	5	16	1	5	5	11
Grand Total		104	279	826	1209	94	285	881	1260

Table 2-30: Number and percent of deaths due to cardiovascular diseases, 2015-2016

Sub-group of cardiovascular diseases	2015		2016	
	Number	Percent	Number	Percent
Other cardiovascular diseases	182	38%	179	38%
Ischaemic heart disease	97	20%	122	26%
Cerebrovascular disease	96	20%	99	21%
Hypertensive heart disease	105	22%	66	14%
Inflammatory heart diseases	3	1%	6	1%
Rheumatic heart disease	2	0%	0	0%
Total	485	100%	472	100%

Table 2-31: Number and percent of deaths due to cardiovascular diseases by gender, 2015-2016

Sub-group of diseases of cardiovascular diseases	2015		2016	
	Female	Male	Female	Male
Rheumatic heart disease	1	1	0	0
Inflammatory heart diseases	0	3	4	2
Hypertensive heart disease	42	63	39	27
Cerebrovascular disease	31	65	45	54
Ischaemic heart disease	33	64	46	76
Other cardiovascular diseases	81	101	84	95
Total	188	297	218	254

Table 2-32: Number and percent of deaths due to cardiovascular diseases by age-group, 2015-2016

Sub-group of diseases of cardiovascular diseases	2015			2016		
	0-17	18-64	65+	0-17	18-64	65+
Cerebrovascular disease	1	18	77	1	18	80
Hypertensive heart disease	1	10	94	0	12	54
Inflammatory heart diseases	0	1	2	0	4	2
Ischaemic heart disease	1	24	72	0	26	96
Other cardiovascular diseases	8	35	139	9	43	127
Rheumatic heart disease	0	1	1	0	0	0
Total	**11**	**89**	**385**	**10**	**103**	**359**

Table 2-33: Number and percent of deaths due to respiratory diseases , 2015-2016

Sub-group of respiratory diseases	2015		2016	
	Number	Percent	Number	Percent
Asthma	6	4%	2	1%
Chronic obstructive pulmonary disease	47	33%	73	46%
Other respiratory diseases	91	63%	83	53%
Total	**144**	**100%**	**158**	**100%**

Table 2-34: Number of deaths due to respiratory diseases by gender,2015-2016

Sub-group of respiratory diseases	2015		2016	
	Female	Male	Female	Male
Asthma	2	4	2	0
Chronic obstructive pulmonary disease	26	21	42	31
Other respiratory diseases	38	53	38	45
Total	**66**	**78**	**82**	**76**

Table 2-35: Number of deaths due to respiratory diseases by age-group,2015-2016

Sub-group of respiratory diseases	2015			2016		
	0-17	18-64	65+	0-17	18-64	65+
Asthma	0	1	5	0	1	1
Chronic obstructive pulmonary disease	0	11	36	0	13	60
Other respiratory diseases	5	23	63	7	13	63
Total	**5**	**35**	**104**	**7**	**27**	**124**

Table 2-36: Number and percent of deaths due to malignant neoplasms,2015-2016

Sub-group of malignant neoplasms	2015		2016	
	Number	Percent	Number	Percent
Other malignant neoplasms	32	35%	28	36%
Liver cancer	11	12%	9	12%
Trachea, bronchus, lung cancers	8	9%	6	8%
Ovary cancer	5	5%	4	5%
Lymphomas, multiple myeloma	4	4%	3	4%
Prostate cancer	4	4%	3	4%
Mouth and oropharynx cancers	4	4%	2	3%
Breast cancer	4	4%	1	1%
Colon and rectum cancers	3	3%	2	3%
Leukaemia	4	4%	1	1%
Pancreas cancer	4	4%	1	1%
Bladder cancer	0	0%	3	4%
Oesophagus cancer	3	3%	0	0%
Stomach cancer	0	0%	3	4%
Corpus uteri cancer	1	1%	1	1%
Cervix uteri cancer	0	0%	1	1%
Not categorised / Multiple Sub-categories	5	5%	9	12%
Total	**92**	**100%**	**77**	**100%**

Table 2-37: Number of deaths due to malignant neoplasms by gender, 2015-2016

Sub-group of malignant neoplasms	2015		2016	
	Female	Male	Female	Male
Ovary cancer	5	0	4	0
Trachea, bronchus, lung cancers	1	7	3	3
Liver cancer	0	11	2	7
Mouth and oropharynx cancers	0	4	2	0
Breast cancer	4	0	1	0
Corpus uteri cancer	1	0	1	0
Stomach cancer	0	0	1	2
Cervix uteri cancer	0	0	1	0
Pancreas cancer	3	1	0	1
Lymphomas, multiple myeloma	2	2	0	3
Oesophagus cancer	2	1	0	0
Colon and rectum cancers	1	2	0	2
Prostate cancer	0	4	0	3
Leukaemia	0	4	0	1
Bladder cancer	0	0	0	3
Other malignant neoplasms	18	14	13	15
Not categorised / Multiple Sub-categories	2	3	5	4
Total	**39**	**53**	**33**	**44**

Table 2-38: Number of deaths due to malignant neoplasms by age-group, 2015-2016

Sub-group of malignant neoplasms	2015			2016		
	0-17	18-64	65+	0-17	18-64	65+
Bladder cancer	0	0	0	0	2	1
Breast cancer	0	4	0	0	0	1
Cervix uteri cancer	0	0	0	0	0	1
Colon and rectum cancers	0	0	3	0	1	1
Corpus uteri cancer	0	0	1	0	0	1
Leukaemia	1	2	1	1	0	0
Liver cancer	0	4	7	0	4	5
Lymphomas, multiple myeloma	0	1	3	0	2	1
Mouth and oropharynx cancers	0	2	2	0	1	1
Oesophagus cancer	0	2	1	0	0	0
Other malignant neoplasms	2	13	17	1	8	19
Ovary cancer	0	1	4	0	1	3
Pancreas cancer	0	2	2	0	0	1
Prostate cancer	0	0	4	0	0	3
Stomach cancer	0	0	0	0	2	1
Trachea, bronchus, lung cancers	0	0	8	0	0	6
Not categorised / Multiple Sub-categories	0	1	4	1	2	6
Total	3	32	57	3	23	51

Table 2-39: Number and percent of deaths due to genitourinary diseases, 2015-2016

Sub-group of genitourinary diseases	2015		2016	
	Number	Percent	Number	Percent
Benign prostatic hypertrophy	0	0%	1	3%
Other genitourinary system diseases	14	38%	15	41%
Nephritis and nephrosis	23	62%	34	92%
Total	37	100%	50	135%

Table 2-40: Number of deaths due to genitourinary diseases by gender, 2015-2016

Sub-group of genitourinary diseases	2015		2016	
	Female	Male	Female	Male
Nephritis and nephrosis	9	14	15	19
Other genitourinary system diseases	3	11	5	10
Benign prostatic hypertrophy	0	0	0	1
Total	12	25	20	30

Table 2-41: Number of deaths due to genitourinary diseases by age-group, 2015-2016

Sub-group of genitourinary diseases	2015		2016		
	18-64	65+	0-17	18-64	65+
Benign prostatic hypertrophy	0	0	0	0	1
Nephritis and nephrosis	3	20	1	8	25
Other genitourinary system diseases	6	8	1	1	13
Total	9	28	2	9	39

Table 2-42: Number of deaths due to diabetes mellitus by gender, 2015-2016

Sub-group of disease	2015		2016	
	Female	Male	Female	Male
Diabetes mellitus	10	27	22	12

Table 2-43: Number of deaths due to diabetes mellitus by age-group, 2015-2016

Sub-group of disease	2015		2016	
	18-64	65+	18-64	65+
Diabetes mellitus	15	22	6	28

Table 2-44: Number and percent of deaths due to communicable diseases, 2015-2016

Sub-group of Communicable Diseases	2015		2016	
	Number	Percent	Number	Percent
Other infectious diseases	46	63%	54	51%
Tuberculosis	6	8%	11	10%
Dengue	3	4%	4	4%
Diarrhoeal diseases	1	1%	2	2%
Hepatitis B	2	3%	0	0%
Leprosy	1	1%	0	0%
Lower respiratory infections	13	18%	32	30%
Upper respiratory infections	1	1%	2	2%
Total	73	100%	105	100%

Table 2-45: Number of deaths due to communicable diseases by gender, 2015-2016

Sub-group of Communicable Diseases	2015		2016	
	Female	Male	Female	Male
Other infectious diseases	24	22	32	22
Tuberculosis	2	4	6	5
Dengue	2	1	1	3
Diarrhoeal diseases	0	1	1	1
Hepatitis B	1	1	0	0
Leprosy	0	1	0	0
Lower respiratory infections	8	5	13	19
Upper respiratory infections	0	1	1	1
Total	37	36	54	51

Table 2-46: Number of deaths due to communicable diseases by age-group, 2015-2016

Sub-group of Communicable Diseases	2015			2016		
	0-17	18-64	65+	0-17	18-64	65+
Dengue	2	1	0	3	1	0
Diarrhoeal diseases	0	0	1	0	1	1
Hepatitis B	0	0	2	0	0	0
Leprosy	0	0	1	0	0	0
Other infectious diseases	3	13	30	5	8	41
Tuberculosis	0	3	3	1	1	9
Lower respiratory infections	1	2	10	2	6	24
Upper respiratory infections	0	1				2
Total	6	20	47	11	17	77

CHAPTER THREE

MORBIDITY

MORBIDITY

Both World Health Organization [WHO] and Center for Disease Control [CDC] defines morbidity as "any departure, subjective or objective from a state of physiological or psychological well being.". In other words, morbidity is a broad term used to encapsulate all types of communicable and non-communicable diseases, illnesses, sicknesses and any other condition that leads to ill health and is detrimental to the well -being of an individual.

The morbidity statistics are primarily measured in incidence and prevalence. Since, this is the data for this report is used from tertiary health facilities for 2016, focus is on reporting frequencies.

DEFINITION

Incidence: According to CDC, incidence refers to the occurrence of new cases of diseases or injury in a population over a specified period of time. In this report incidence is reported as the diagnosed new cases admitted in tertiary health facilities in 2016 (12 months).

Principal diagnosis: The principle diagnosis, considered to be the main cause or reason for the hospitalization. Diagnoses are coded according to the *International Classification of Diseases, Tenth version* (ICD–10).

Diagnoses-based morbidity statistics at a national level: a difficult exercise

1. For selected diseases the health status of the Maldivian population is collected by Health Protection Agency through SIDAS which reports communicable and reportable diseases and complies trends on a regular basis.
2. Since 2016, inpatient principal diagnosis reported for admissions was introduced for public health facilities and private hospitals. Since this is the first analysis on hospitalization data, focus for this reporting period for tertiary hospitals are reported.

Most Maldivians are affected by ill health at some point in their lives. For some, the effects of the illness or injury will be short term; for others, they can be long lasting and have a severe impact on their quality of life. This chapter provides information on the leading causes of ill health in Maldives, including cancer, cardiovascular disease and respiratory conditions.

INPATIENTS BY FACILITY

Tertiary facilities cater to more than 50% of the inpatients in the country. The diseases are divided based on the categorization used by WHO in Global Burden of Disease (Health Estimate) categories. The inpatients admitted and diagnosed at the public facility is 76% of total inpatients in tertiary facilities in 2016, with higher percentage of females admitted in tertiary facilities.

Table 3-1: Inpatients by gender and tertiary health facility, 2016

QUICK FACTS			
Gender	**Private**	**Public**	**2016**
Female	15%	43%	58%
Male	9%	33%	42%
Total	**24%**	**76%**	**100%**

3 in 4 inpatients were admitted in a public tertiary health facility.

Table 3-2: Inpatients by disease conditions in tertiary health facilities, 2016

Disease conditions	Total	Percent
Non-communicable diseases	6412	38%
Maternal, perinatal and nutritional conditions	5736	34%
Communicable	1878	11%
Ill-defined diseases	589	3%
Injuries	71	0%
Ill-defined injuries/accidents	5	0%
Not categorized	2349	14%
Grand Total	**17040**	**100%**

Almost 40% of the inpatients were admitted due to a non-communicable disease in tertiary health facilities. This is followed by maternal, perinatal and nutritional conditions where 34% were admitted.

The analysis is based on primary data available from routine administrative records of Health Information & Research Section of Policy Planning and International Health Division, Ministry of Health.

Table 3-3: Top ten causes of morbidity in tertiary health facilities, 2016

Rank	ICD Code	Disease conditions	2016
1	O80-O84	Delivery	3465
2	Z00-Z99	Factors influencing health status and condition with health services	1301
3	I20-I25	Ischaemic heart diseases	739
4	A80-A89	Viral infections of the central nervous system	710
5	P50-P61	Haemorrhagic and haematological disorders of fetus and newborn	445
6	J40-J47	Chronic lower respiratory diseases	408
7	O00-O08	Pregnancy with abortive outcome	389
8	J09-J18	Influenza and pneumonia	376
9	I60-I69	Cerebrovascular diseases	374
10	R50-R69	General symptoms and signs	354

INPATIENTS BY AGE & MAIN DISEASE CATEGORIES

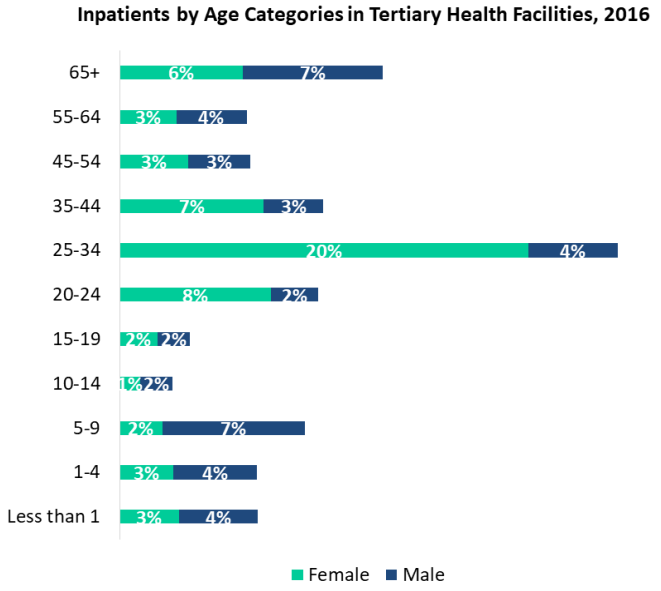


Figure 3-1: Inpatients by age categories in tertiary health facilities, 2016

In terms of major admitted conditions, non-communicable diseases are the highest for 2016 at tertiary health facilities. A detailed focus on the age-group shows that communicable and non-communicable disease increases with age, while maternal, perinatal and nutritional conditions decreases peaks at less than 1 year in age category to 20-44 years.

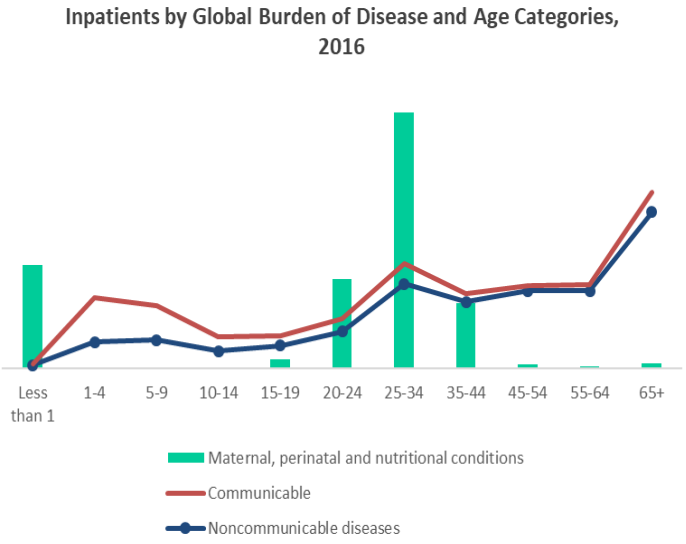


Figure 3-2: Inpatients by global burden of disease and age categories, 2016

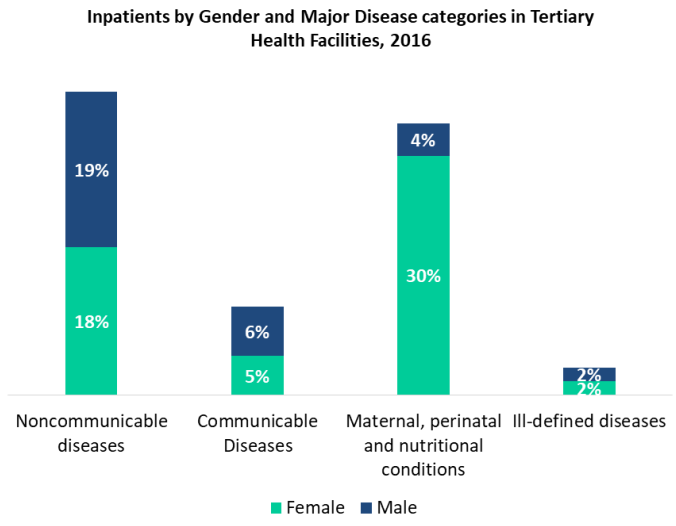


Figure 3-3: Inpatients by gender and major disease categories in tertiary health facilities, 2016

Through a gender lens, inpatients are similar for both gender except for maternal, prenatal and nutritional conditions', which is due to the high proportion of maternal admissions .

NON-COMMUNICABLE DISEAS-

DEFINITION

Non-communicable diseases (NCDs): According to WHO, NCDs are preventable diseases through lifestyle modification of the common causes such as unhealthy diet, physical inactivity, tobacco use and excessive alcohol use. It includes diseases such as, cancer, diabetes, cardiovascular disease and chronic respiratory disease.

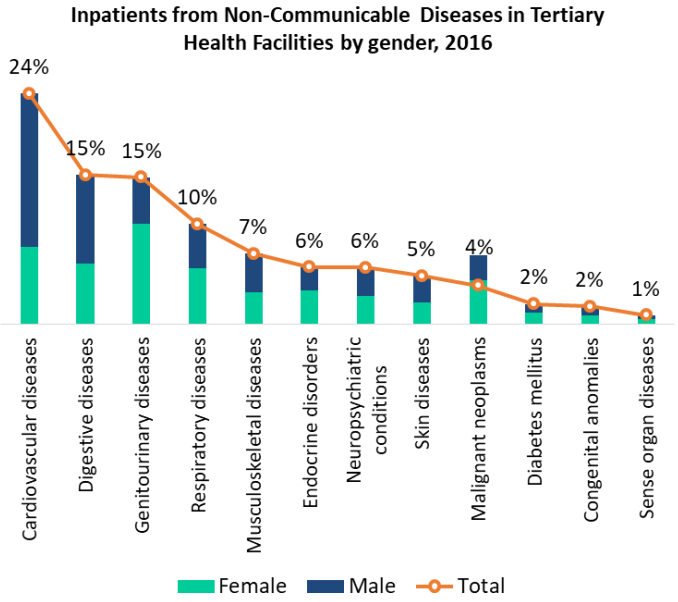


Figure 3-4: Inpatients from non-communicable diseases in Tertiary health facilities by gender, 2016

CARDIOVASCULAR DISEASES

It is notable that cardiovascular diseases are the main cause of morbidity (inpatients in tertiary facilities) and mortality in the Maldives in 2016. In 2016, there are more than 1500 inpatients admitted to tertiary facilities due to cardiovascular diseases.

From this, Ischemic heart disease (50%), Cerebrovascular disease (25%) and Hypertensive heart disease (14%) tops the cardiovascular diseases, for both men and women. However, when we have a closer look at the gender disaggregation, it shows that;

- Male admissions are double compared to females.
- The ratio of admissions for Ischemic heart disease is 1:4 for females and males, respectively.

On average, there are almost 30 inpatients admitted per week due to Cardiovascular diseases. This is 4 inpatients daily.

A closer look at the main diseases under non-communicable diseases shows an alarming trend of high cardiovascular diseases, digestive diseases and genitourinary diseases.

It is also seen that the number of inpatients admitted by non-communicable diseases rise with the age categories of these inpatients, with the exception in age group 25-34.

Discussions on the most common diseases which caused the highest mortality are prioritized when discussing morbidity conditions in detail. Therefore, the following diseases will be discussed further in this chapter.

1. Cardiovascular diseases
2. Respiratory diseases
3. Malignant neoplasms
4. Genitourinary diseases
5. Diabetes mellitus

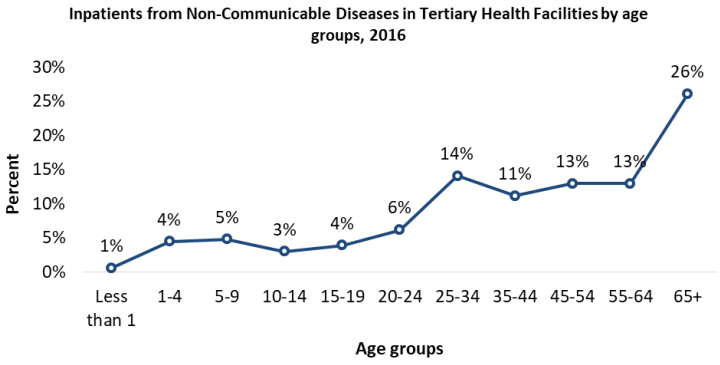


Figure 3-5: Inpatients from non-communicable diseases in tertiary health facilities by age groups, 2016

According to Global Burden of Disease Study Classification system for diseases and injuries all the ICD 10 codes that fall in between I00-I99 will be categorized as cardiovascular diseases.

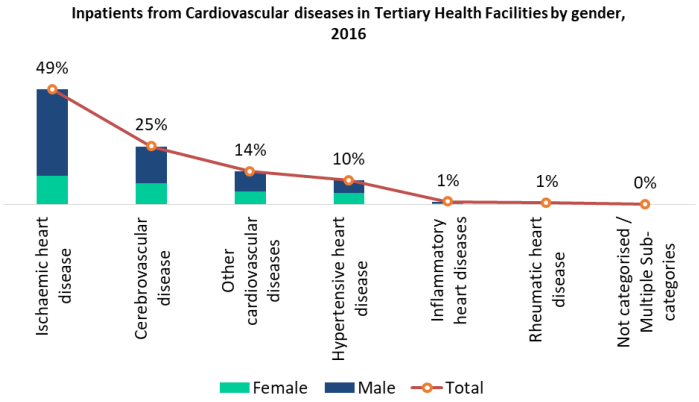
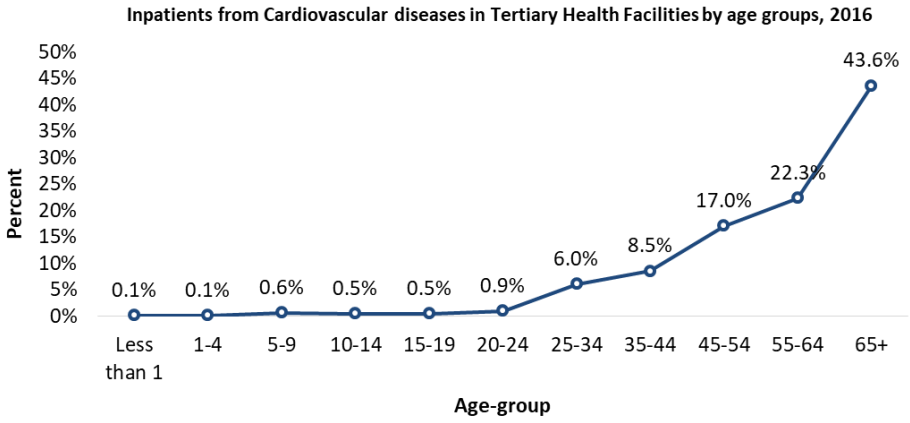


Figure 3-6: Inpatients from cardiovascular diseases in tertiary health facilities by gender, 2016



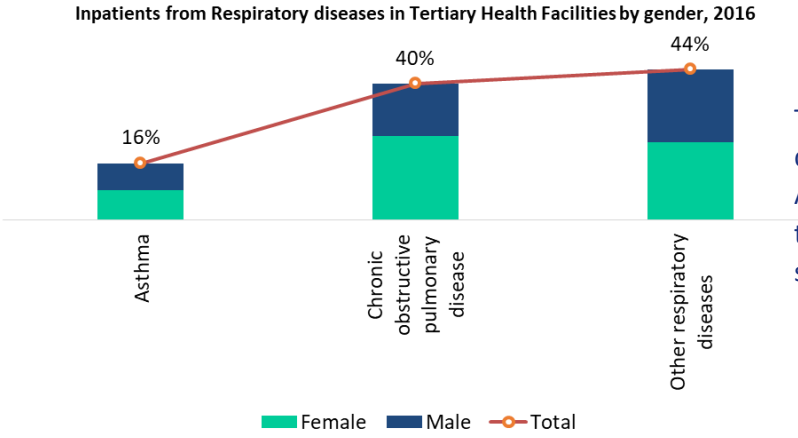
Similar to most non-communicable diseases', it is also seen that the number of inpatients admitted by Cardiovascular diseases rise with the age categories of these inpatients.

Figure 3-7: Inpatients from cardiovascular diseases in tertiary facilities by age groups, 2016

RESPIRATORY DISEASES

Although, inpatient records show respiratory diseases as the fourth most common disease category for inpatients, this is the second cause of mortality in the Maldives. In 2016, there were more than 650 inpatients admitted to tertiary facilities due to Respiratory diseases.

According to Global Burden of Disease Study Classification system for diseases and injuries all the ICD 10 codes that fall in between J30-J98 will be categorized as Respiratory diseases.



This category consists of Chronic obstructive pulmonary disease (40%), Other respiratory disease (44%) and Asthma (16%). A closer look at the gender disaggregation for Respiratory diseases shows that female admissions are more than male admissions.

Figure 3-8: Inpatients from respiratory diseases in tertiary health facilities by gender, 2016

Unlike most non-communicable diseases, in Respiratory diseases, all age-groups show a similar trend in inpatients admitted by Respiratory diseases, with the exception of age categories, less than 1 (no admissions), 55-64 (11%) and 65+ (43%).

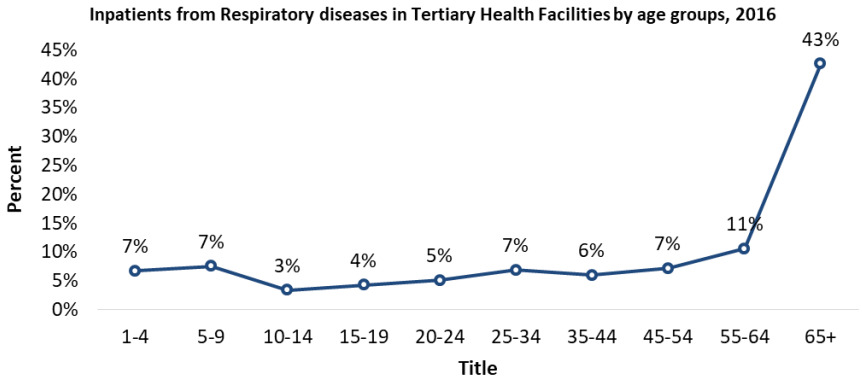


Figure 3-9: Inpatients from respiratory diseases in tertiary health facilities by age groups, 2016

MALIGNANT NEOPLASMS

The inpatient records of tertiary shows Malignant neoplasms as the sixth most common disease category for inpatients. However, this is the third main cause of mortality in the Maldives. In 2016, there were 450 inpatients admitted to tertiary facilities due to Malignant neoplasms.

According to Global Burden of Disease Study Classification system for diseases and injuries all the ICD 10 codes that fall in between C00-C97 will be categorized as Malignant Neoplasms.

Excluding cancers that cannot be categorized or multiple categories (44%), the highest is for other malignant neoplasm (15%), breast cancer (11%) and mouth and oropharynx cancers (8%). A closer look at this data shows that;

- Breast cancer (10%) was most common for females followed by, Corpus uteri cancer (2%) and Cervix uteri cancer (1%)
- Mouth and oropharynx cancers (6%) was most common for males followed by, Liver and Bladder cancer with 2% in each category
- Two third of the admissions for cancer were for females

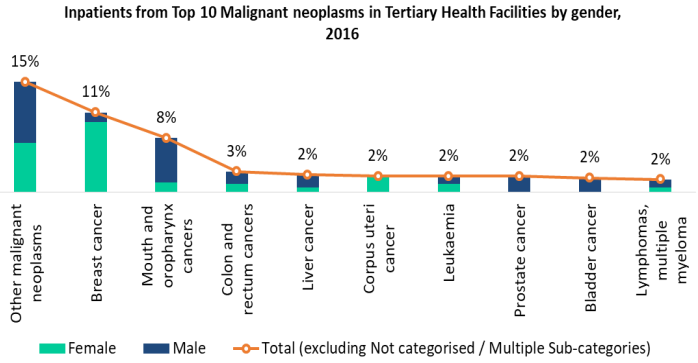


Figure 3-10: Inpatients from malignant neoplasms in tertiary health facilities by gender, 2016

On average, there were almost 9 inpatients admitted per week due to cancers.

Keeping track with the definition of cancer, "a malignant growth or tumor resulting from an uncontrolled division of cells", there is an increasing general trend of inpatients with increase in age.

In 2016;

- about 450 cases of cancer patients were hospitalized in 2016 in tertiary facilities of Maldives, an average of about 9 people every week—two third (64%) of these inpatients were females
- the risk of being hospitalized with any cancer diagnosis generally increases with age.

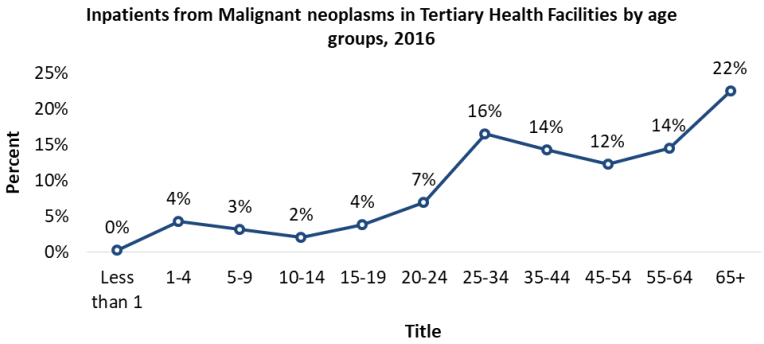


Figure 3-11: Inpatients from malignant neoplasms in tertiary health facilities by age groups, 2016

Genitourinary diseases

According to Global Burden of Disease Study Classification system for diseases and injuries all the ICD 10 codes that fall in between N00-N64, N75-N98 will be categories as Genitourinary diseases

The inpatient records shows Genitourinary diseases as the third most common disease category for inpatients and this is also fourth cause of mortality in the Maldives. In 2016, there were 968 inpatients admitted to tertiary health facilities due to Genitourinary diseases.

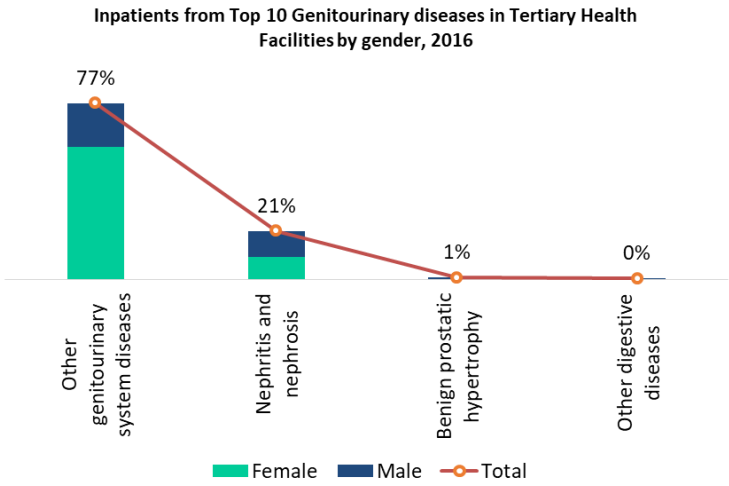


Figure 3-12: Inpatients from genitourinary diseases in tertiary health facilities by gender, 2016

A closer look at this data shows that;

- More than three quarter (77%) of inpatients were admitted due to other genitourinary diseases
- Female admissions due to genitourinary diseases are thrice as many as male admissions

On average, there were almost 19 inpatients admitted per week due to Genitourinary diseases

Genitourinary diseases affects all age groups but admissions were highest at the age group 25-34 and 65+.

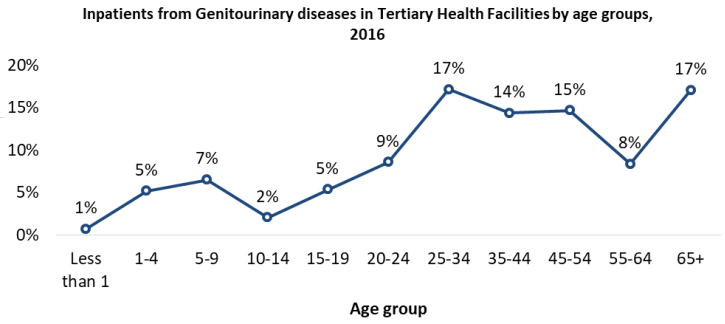


Figure 3-13: Inpatients from genitourinary diseases in tertiary health facilities by age groups, 2016

Diabetes mellitus

The inpatient records and mortality records of Maldives show Diabetes mellitus as the fifth most common disease category. In 2016, there were 131 inpatients were admitted to tertiary health facilities due to Diabetes mellitus.

A closer look at this data shows that;

- There were more females than males admitted due to Diabetes mellitus
- Female admissions due to genitourinary diseases

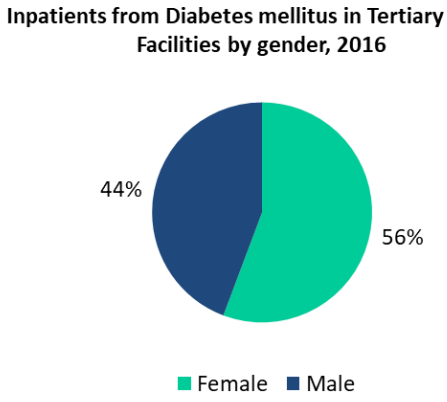


Figure 3-15: Inpatients from genitourinary diseases in tertiary health facilities by gender, 2016

According to Global Burden of Disease Study Classification system for diseases and injuries all the ICD 10 codes that fall in between E10-E14 will be categories as Diabetes mellitus.

Similar to Genitourinary diseases, Diabetes mellitus also affects all age groups and but admissions were highest at the age group 25-34 and 65+.

On average, there were almost 19 inpatients weekly admitted due to Genitourinary diseases

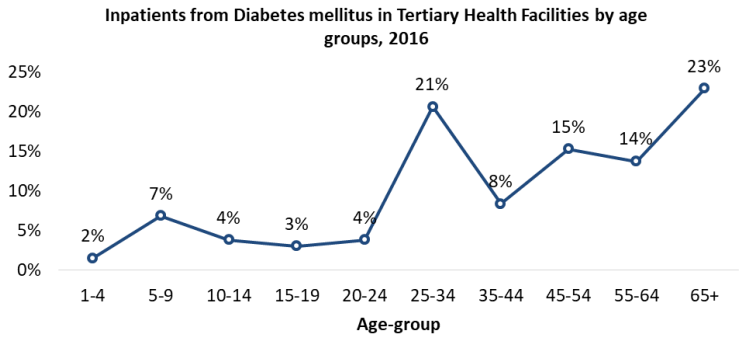


Figure 3-14: Inpatients from genitourinary diseases in tertiary health facilities by age groups, 2016

MATERNAL, PERINATAL AND NUTRITIONAL CONDITIONS

Table 3-4: Maternal, perinatal and nutritional conditions 2016

QUICK FACTS	Number	Percent
Maternal conditions	4431	77%
Nutritional deficiencies	199	3%
Perinatal conditions	1106	19%
Grand Total	5736	100%

According to Global Burden of Disease Study Classification system for diseases and injuries all the ICD 10 codes that fall in between

- O00-O99 will be categorized as Maternal conditions
- P00-P96 will be categorized as Perinatal conditions
- E00-E02, E40-E46, E50, D50-D53, D64.9, E51-E64

Although, Global Burden of Disease Study Classification system for diseases and injuries combine communicable, maternal, perinatal and nutritional conditions, there is a need to identify communicable and report diseases burden separately for Maldives.

The number of inpatients at tertiary health facilities is highest due to maternal, perinatal and nutritional conditions in the Maldives. This is due to the fact that all the deliveries, whether a caesarean or normal, fall under this category.

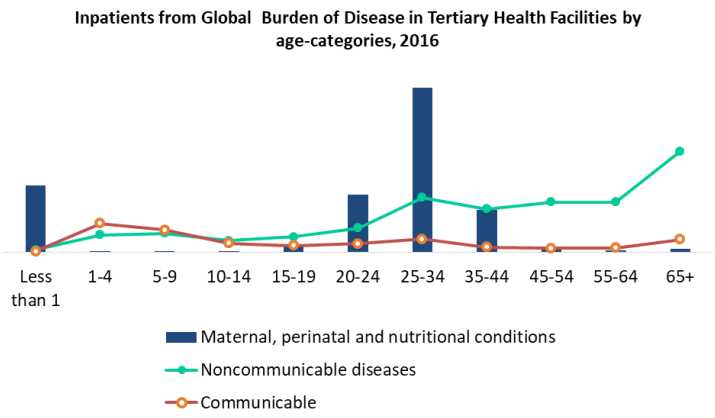


Figure 3-16: Inpatients from global burden of disease in tertiary health facilities by age-categories, 2016

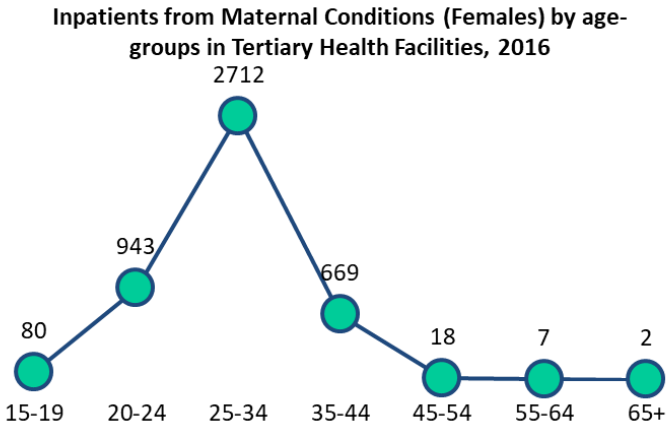


Figure 3-17: Inpatients from maternal conditions (Females) by age-groups in tertiary health facilities, 2016

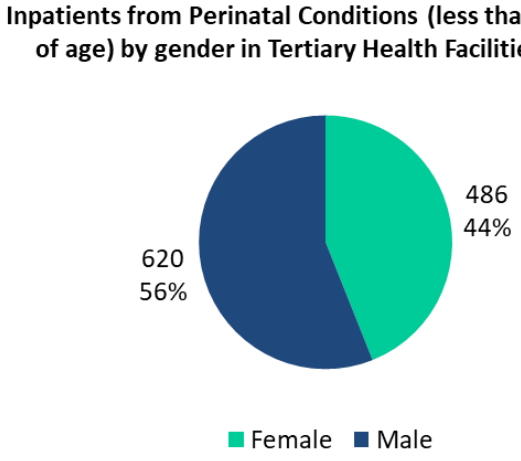


Figure 3-18: Inpatients from perinatal conditions (less than one year of age) by gender in tertiary health facilities, 2016

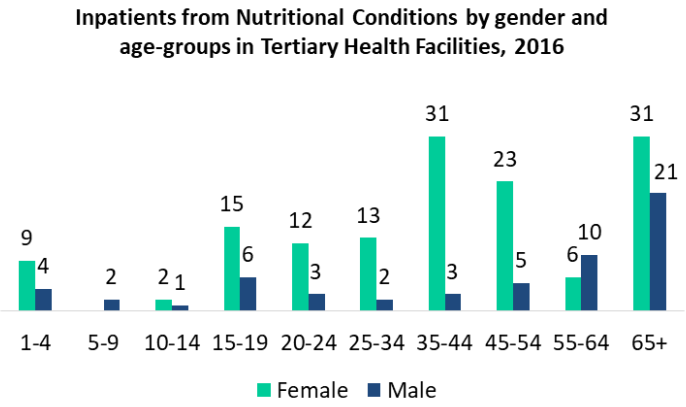


Figure 3-19: Inpatients from nutritional conditions by gender and age-groups in tertiary health facilities, 2016

COMMUNICABLE AND REPORTABLE DISEASES FROM INPATIENT DATA OF TERTIARY FACILITIES, 2016

DEFINITION

Communicable disease (CD): According to WHO, communicable diseases are illness caused by an infectious agent or its toxins that occurs through the direct or indirect transmission of the infectious agent or its products from an infected individual or via an animal, vector or the inanimate environment to a susceptible animal or human host.

Table 3-5: Communicable diseases, 2016

QUICK FACTS	Number	Percent
Infectious and parasitic diseases	1177	63%
Respiratory infections	701	37%
Total	1878	100%

While the data for communicable and reportable diseases is taken from SIDAS and Health Information Units administrative data. This section reports on the admissions from communicable diseases at tertiary health facilities of Maldives in 2016 using admission data.

The Infectious and Parasitic diseases and Respiratory infections are categorized as communicable diseases to contextualize it to Maldivian context. This section gives details on the these diseases taken from inpatients of tertiary health facilities.

RESPIRATORY INFECTIONS

According to Global Burden of Disease Study Classification system for diseases and injuries all the ICD 10 codes that fall in between J00-J06, J10-J18, J20-J22, H65-H66 will be categorized as Respiratory infections

In Maldives there were 701 patients admitted due to respiratory infections. Three-quarter of these patients (75%) were admitted due to Lower respiratory infections in tertiary facilities.

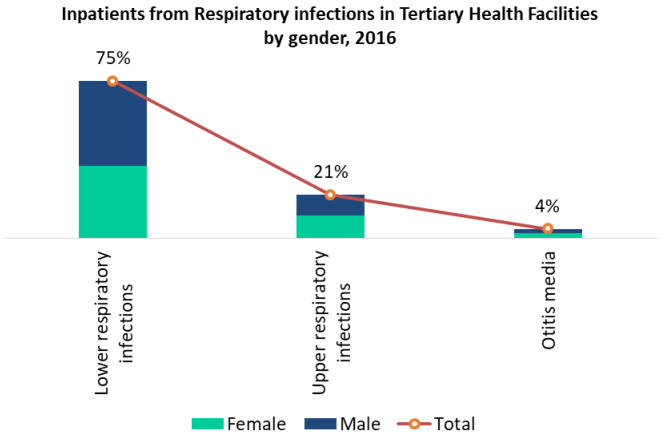


Figure 3-21: Inpatients from respiratory infections in tertiary health facilities by gender, 2016

A close look at the respiratory infections showed that;

- More males were admitted in tertiary facilities due to respiratory infections than females, i.e. 52% : 48% respectively.

An average of 13 patients were admitted per week due to respiratory infections

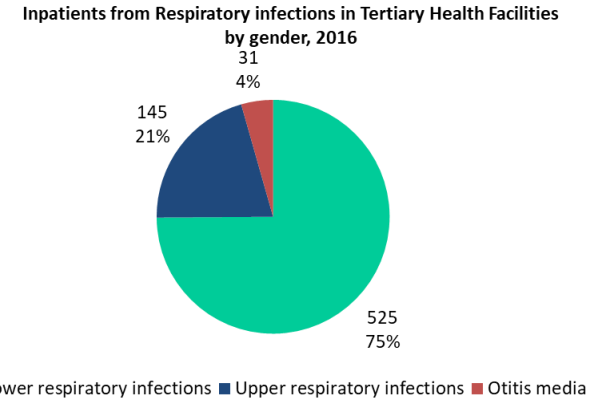


Figure 3-20: Inpatients from respiratory infections in tertiary health facilities, 2016

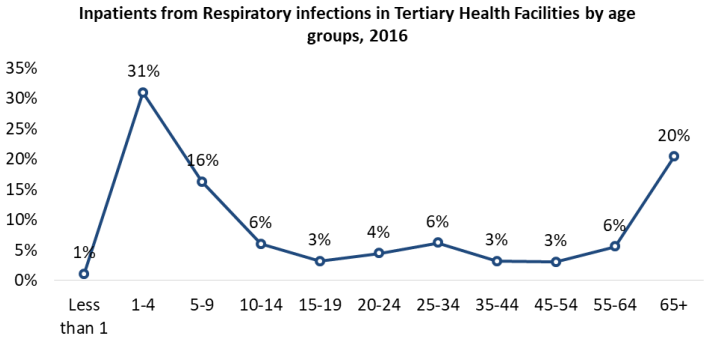


Figure 3-22: Inpatients from respiratory infections in tertiary health facilities by age groups, 2016

Respiratory infections are high in infants and older age groups which could be due to the fact that they have weaker immune systems and are more prone to infections, hence the peaks at age group 1-4 years and 65+ years.

INFECTIOUS AND PARASITIC DISEASES

In Maldives there were 1177 patients admitted due to Infectious and parasitic diseases. Almost two-third of these patients (60%) were admitted due to Dengue in tertiary health facilities.

According to Global Burden of Disease Study Classification system for diseases and injuries all the ICD 10 codes that fall in between A00-B99, G00, G03-G04, N70-N73 will be categorized as Infectious and parasitic diseases.

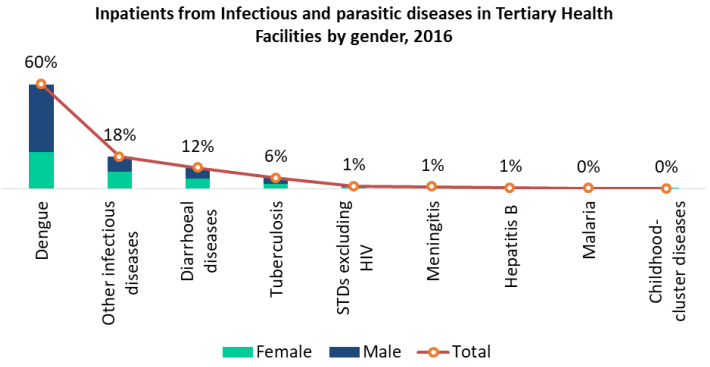


Figure 3-23: Inpatients from infectious and parasitic diseases in tertiary health facilities by gender, 2016

A close look at the Infectious and parasitic diseases showed that;

- More males were admitted in tertiary health facilities due to Infectious and parasitic diseases than females, i.e. 58%:42% respectively.

An average of 23 patients were admitted per week due to Infectious and parasitic diseases in tertiary facilities.

The Infectious and parasitic diseases is high in children, this could be due to the fact that they have lower immunity and are more prone to infections. Thus, peaks at the age groups 1-9 years.

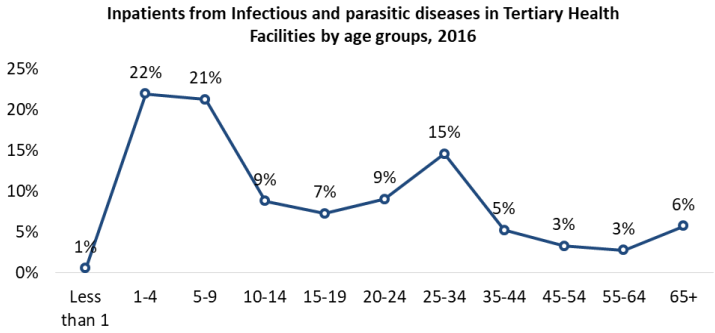


Figure 3-24: Inpatients from infectious and parasitic diseases in tertiary health facilities by age group, 2016

COMMUNICABLE AND REPORTABLE DISEASE FROM SEARO INTEGRATED DATA ANALYSIS SYSTEM (SIDAS)

Details of each diseases based on SIDAS is presented below.

DENGUE

Table 3-6: Dengue cases in Maldives, 2015-2016

QUICK FACTS	2015	2016
Number of Reported Dengue Cases	1890	1962
Number of Reported Dengue Fever [DF] Cases	182696.61 %	188996.28%
Number of Reported Dengue Haemorrhagic Fever [DHF] Cases	562.97(%)	633.21%
Number of Reported Dengue Shock Syndrome [DSS] Cases	80.42%	100.51%
Month with Highest Number of Reported DF Cases	July (N=454)	June (N=336)
Month with Highest Number of Reported DHF Cases	June (N=12)	July (N=15)

Dengue is endemic in Maldives with cases being reported throughout the year. In 2015 and 2016, a total of 1890 and 1962 dengue cases were reported respectively, out of which around 3 percent of these cases were reported to have developed in to more severe forms of Dengue in both years.

When the past 5 years were compared, total number of reported Dengue cases showed an increasing trend and peaked in 2016.

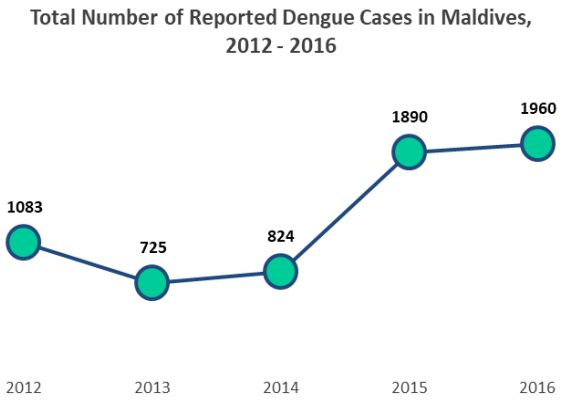


Figure 3-25: Total number of reported dengue cases in Maldives, 2012-2016

WHAT IS DENGUE?

Center for Disease Control (CDC) defines Dengue as a "mosquito borne disease which is caused by any one of four closely related Dengue viruses (DENV-1, -2, -3 and -4)... Dengue Viruses are transmitted from person to person by Aedes mosquitoes (most often Aedes Aegypti) in the domestic environment."

CLASSIFICATIONS OF DENGUE

Dengue Fever [DF] is defined by CDC as the "classic Dengue Fever or "Break Bone Fever" which is characterized by acute onset of high fever 3–14 days after the bite of an infected mosquito. Symptoms include frontal headache, retro-orbital pain, myalgias, arthralgias, hemorrhagic manifestations, rash, and low white blood cell count. The patient may also complain of anorexia and nausea. The main medical complications of classic dengue fever are febrile seizures and dehydration."

Dengue Haemorrhagic Fever [DHF]– according to CDC DHF is a severe and sometimes fatal form of Dengue Fever which is developed among some patients with the disease. WHO uses the following four criteria to currently classify a dengue case as DHF:

1. Fever or recent history of fever lasting 2-7 days
2. Any hemorrhagic manifestation
3. Thrombocytopenia (platelet count of <100, 0000 mm3)
4. Evidence of increased vascular permeability

Dengue Shock Syndrome [DSS] is defined by CDC as "any case that meets the four (WHO) criteria for DHF and has evidence of Circulatory Failure manifested by:

1. Rapid, weak pulse and narrow pulse pressure (≤20 mmHg [2.7 kPa]) OR
2. Hypotension for age, restlessness, and cold, clammy skin.

Patients with Dengue can rapidly progress into DSS, which, if not treated correctly, can lead to severe complications and death.

The analysis and write-up is based on programmatic and surveillance records shared by Communicable Disease Programme of Health Protection Agency, Ministry of Health. Source: SIDAS

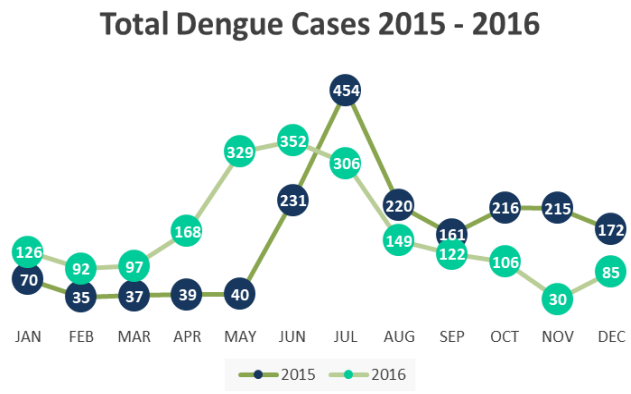


Figure 3-26: Total dengue cases, 2015-2016

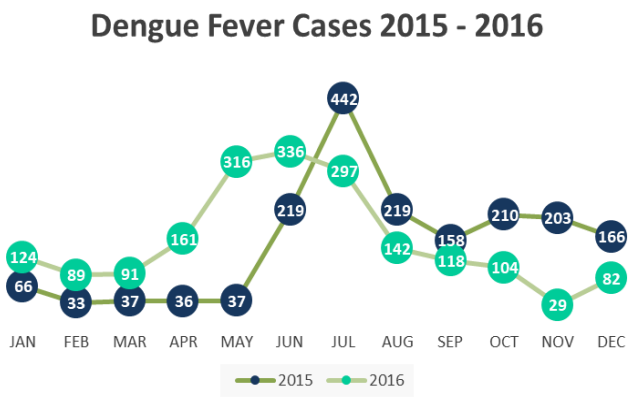


Figure 3-27: Dengue fever cases, 2015-2016

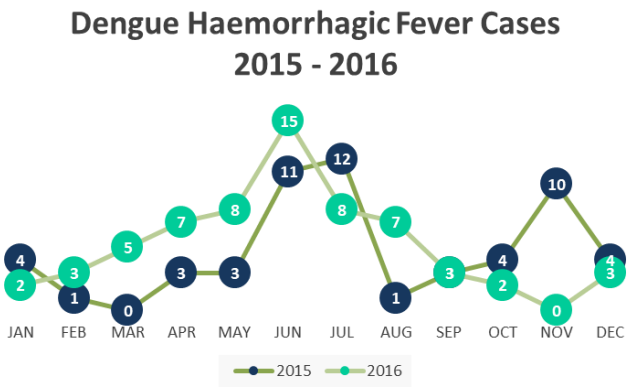


Figure 3-28: Dengue hemorrhagic fever cases, 2015-2016

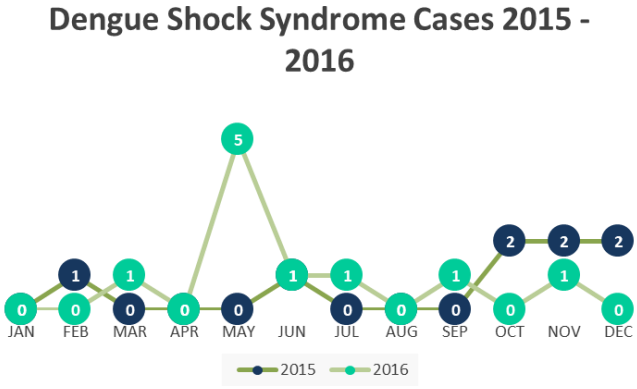


Figure 3-29: Dengue shock syndrome cases, 2015-2016

Dengue is categorized into Dengue Fever, Dengue Haemorrhagic Fever and Dengue Shock Syndrome, depending on the severity of the disease. Total Dengue Cases is the sum of Dengue Fever Cases, Dengue Haemorrhagic Fever Cases and Dengue Shock Syndrome Cases.

DIARRHEA

World Health Organization [WHO] defines Diarrhea as "the passage of three or more loose or liquid stools per day (or more frequent passage than is normal for the individual".

Globally Diarrhea is a significant health concern associated with unsafe drinking water, inadequate sanitation and poor hygiene practices.

Worldwide, Diarrhea is a predominant cause of morbidity and mortality among children (especially those below the age of 5 years).

Diarrhea cases showed an increasing trend from 2007 onward. Although, there was a declined from 25,876 cases in 2013 to 19,954 cases in 2014, it again showed an increasing trend in the consecutive years. However, number of new cases of diarrhea reported increased from 2007 until it peaked at 34,318 cases in 2016.

Table 3-7: Diarrhea cases in Maldives, 2015-2016

QUICK FACTS	2015	2016
Total number of Diarrhea cases reported	30,442	34,318

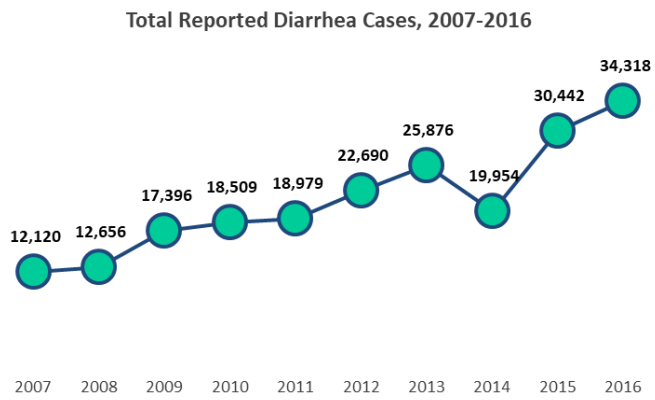


Figure 3-30: Total reported diarrhea cases, 2007-2016

The analysis and write-up is based on programmatic and surveillance records shared by Communicable Disease Programme of Health Protection Agency, Ministry of Health. Source: SIDAS

TUBERCULOSIS

WHAT IS TUBERCULOSIS [TB]?

According to WHO, TB is a curable and preventable disease caused by a bacterium known as Mycobacterium tuberculosis and most of the time it affects the lungs of an infected person. TB is a communicable disease which spreads from one person to another via air (i.e. droplet transmission).

Table 3-8: Total TB cases under treatment, 2015-2016

QUICK FACTS	2015	2016
Total TB cases under treatment	226	236

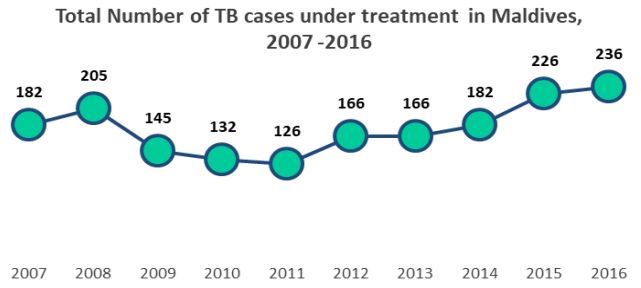


Figure 3-31: Total number of TB cases under treatment in Maldives, 2007-2016

DEFINITIONS

SPUTUM [+]- In this section, sputum positive is defined as any TB case which has undergone a sputum smear microscopy examination and the sample of the sputum has been tested positive for the presence of TB causing bacteria.

SPUTUM [-]– In this section, sputum negative is defined as any TB case which has undergone a sputum smear microscopy examination and the sample of the sputum has been tested negative for the presence of TB causing bacteria. This does not specifically indicate that the person does not have TB but it may be indicative of the absence of TB in the pulmonary system.

Prevalence Rate = Total Number of all (existing plus new) Cases/Mid-Year Population X 1000

PREVALENCE a.k.a PREVALENCE RATE– In this chapter, prevalence rate is defined using the formula stated below:

Prevalence Rate = Total Number of all (existing plus new) Cases/Mid-Year Population X 1000

Over the past 10 years, the total number of TB cases under treatment had fluctuated from 182 cases in 2007 to 236 cases in 2016. Although there is a drop to 126 cases in 2011, this took an increasing trend and the number of TB cases under treatment peaked at 236 cases in 2016 in the past 10 years/decade.

Apart from this, the incidence and prevalence rate for both sputum positive and sputum negative TB has been relatively low in Maldives. The highest incidence rate was observed for sputum positive TB (0.21/1000 population) in 2007 whereas the highest prevalence rate was observed for sputum negative TB (0.32/1000 population) in 2008.

Table 3-9: Prevalence rate and incidence rate of TB in Maldives, 2015-2016

Quick Facts	2015		2016	
	SPUTUM (+)	SPUTUM (-)	SPUTUM (+)	SPUTUM (-)
Prevalence rate/1000 population of TB in Maldives	0.29	0.24	0.27	0.16
Incidence rate/1000 population of TB in Maldives	0.16	0.12	0.19	0.11

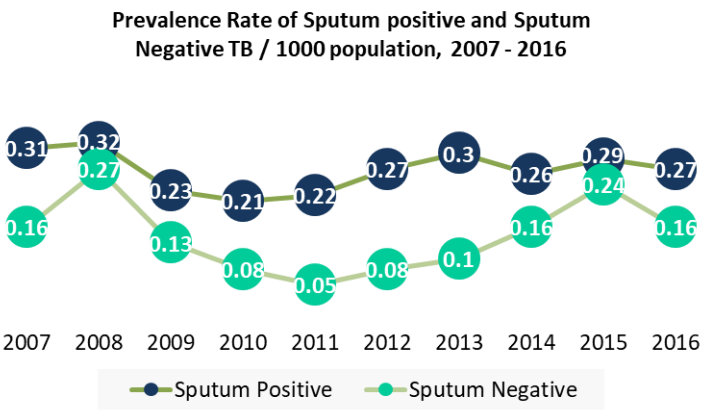


Figure 3-32: Prevalence rate of sputum positive and sputum negative TB/1000 population, 2007-2016

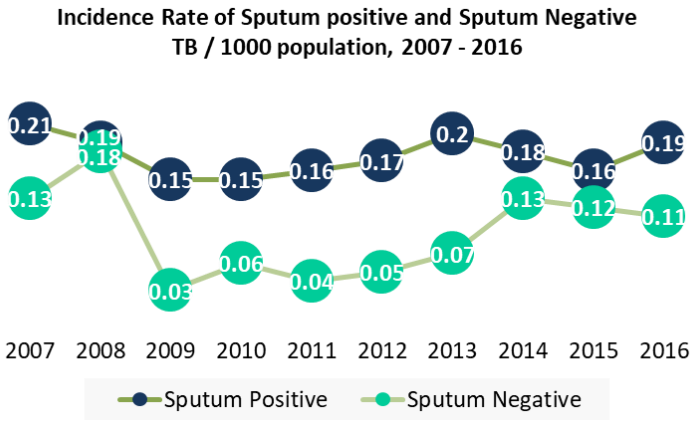


Figure 3-33: Incidence rate of sputum positive and sputum negative TB/1000 population, 2007-2016

The analysis and write-up is based on programmatic and surveillance records shared by Communicable Disease Programme of Health Protection Agency, Ministry of Health. Source: SIDAS

LEPROSY

WHAT IS LEPROSY?

WHO defines Leprosy as a chronic but curable disease which is caused by slowly multiplying bacteria known as Mycobacterium leprae and this disease mainly affects the skin, eyes, mucosa of the upper respiratory tract and the peripheral nerves.

It may take about 20 years for the symptoms of this disease to develop and this disease has a long incubation period of about 5 years.

Table 3-10: Leprosy cases in Maldives, 2015-2016

QUICK FACTS	2015	2016
Total Leprosy cases under treatment	7	6
Number of new cases of Leprosy reported	3	6
Prevalence Rate/1,000 population of Leprosy in Maldives	0.2	0.17

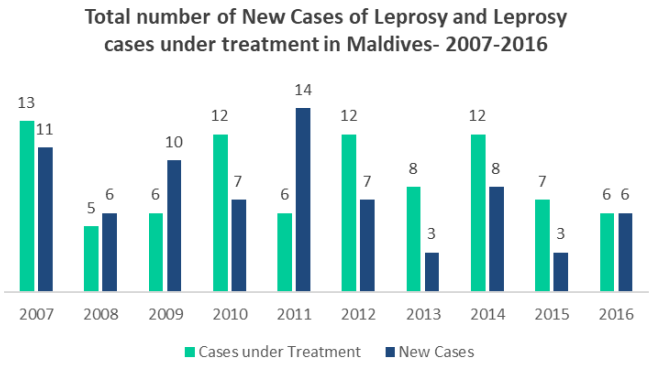


Figure 3-34: Total number of new cases of leprosy and leprosy cases under treatment in Maldives, 2007-2016

Over the past decade, the number of new cases of Leprosy had fluctuated slightly within the range of 6 (in 2016) and 14 (in 2011). Similarly, the total number of Leprosy cases under treatment has also fluctuated slightly within the range of 3 cases (in 2013 and 2014) and 14 cases (in 2011).

Compared to 2014, 2015 showed a decrease in the number of new cases reported. However, when compared with 2015, 2016 showed a decrease of 1 case under treatment and an increase of 3 new cases.

In terms of incidence and prevalence rate of Leprosy in Maldives, it is noteworthy that Maldives have maintained a relatively low prevalence rate of Leprosy which mostly fluctuated from 0.02 (in 2013) to 0.2 (in 2015) and 0.17 (in 2016) cases per 1000 population.

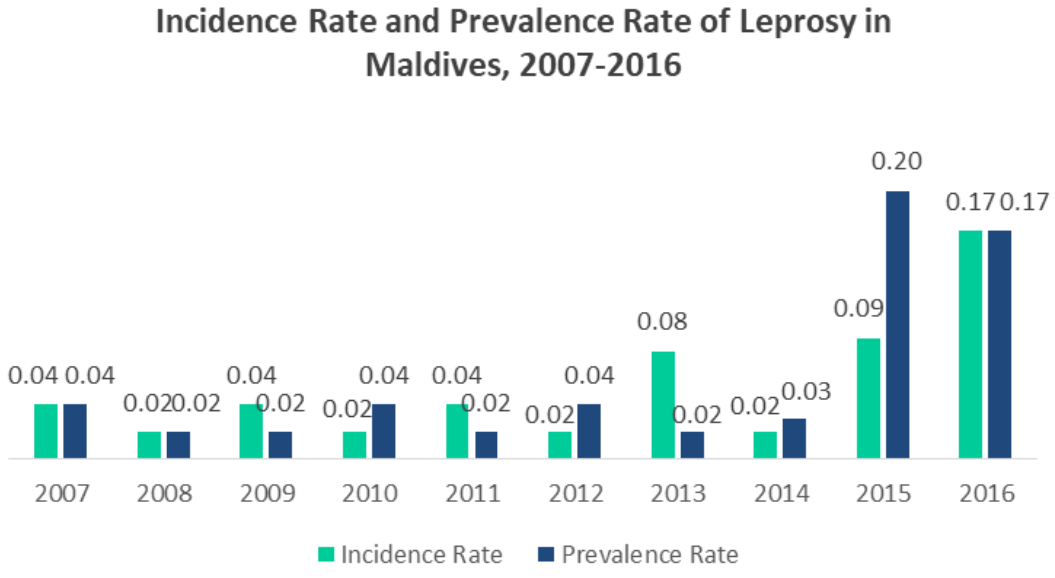


Figure 3-35: Incidence rate and prevalence rate of leprosy in Maldives, 2016-2017

The analysis and write-up is based on programmatic and surveillance records shared by National Aids Programme of Health Protection Agency, Ministry of Health. Source: SIDAS

HIV

WHAT IS HIV?

According to WHO, HIV or Human Immunodeficiency Virus targets and destroys the immune cells [CD4 cells] in the infected human body which weakens the infected individual's defense mechanism against infections and some types of cancers which eventually leads to immunodeficiency. The most advanced stage of this infection is known as AIDS [Acquired Immunodeficiency Syndrome]. The main routes of HIV transmission are the exchange of infected body fluids such as blood, breast milk, semen and vaginal secretions.

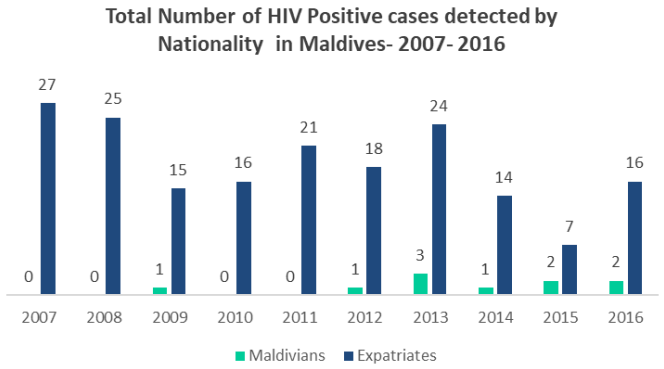


Figure 3-36: Total number of HIV positive cases detected by nationality in Maldives, 2016-2017

Table 3-11: HIV cases in Maldives, 2015-2016

QUICK FACTS	2015	2016
Total number of New HIV positive cases detected	18	24
Total number of New HIV positive cases detected among Maldivians	2	0
Total number of New HIV positive cases detected among Expatriates	16	24
Total number of individuals screened for HIV	61,224	97,189

Over the past 10 years, the number of new HIV positive cases detected in Maldives has remained low among Maldivians. The highest number of new cases among Maldivians (n=3) was detected in 2013. In 2016, 2 new HIV positive cases were observed among Maldivians.

In general, majority of HIV positive new cases detected in Maldives between 2007 and 2016 are from expatriates and it ranged from 7 (in 2015) to 16 (in 2007).

In 2016 alone, 97,189 individuals were screened for HIV under the National AIDS Program.

SYPHILIS

WHAT IS SYPHILIS?

CDC defines Syphilis as a Sexually Transmitted Disease caused by a bacterium knows as *Treponema pallidum*. If left untreated or if inadequately treated, this disease can cause damage to internal organs such as brain, nerves, eyes, heart, joints, bones, liver and blood vessels. Such damage could lead to long term complications such as difficulty in coordinating muscle movements, paralysis, numbness, blindness and dementia. These complications can sometimes be serious enough to cause death.

All blood-donors and pregnant women (who visit Ante-Natal Clinics) are being screened for Syphilis as a routine procedure. Over the past 5 years, 07 Syphilis cases have been detected during Ante-Natal Screening whereas only 01 Syphilis positive case has been detected among blood donors during the same time period. It should be noted that over the period 2015-2016, no syphilis cases were detected during Ante-Natal screening programs.

Table 3-12: Syphilis cases in Maldives, 2015-2016

Quick Facts	2015		2016	
	Antenatal Clinic	Blood Donors	Antenatal Clinic	Blood Donors
Total number screened	3,105	7,700	2,953	5,488
Total number of Syphilis positive cases detected	0	7	0	0

The analysis and write-up is based on programmatic and surveillance records shared by National Aids Programme of Health Protection Agency, Ministry of Health. Source: SIDAS

SYMPTOMS RELATED TO STIS

WHAT IS STIs?

STIs or Sexually Transmitted Infections are defined by WHO as a group of infections whose predominant mode of transmission is via sexual contact (i.e. vaginal, oral and anal sex). Other modes of transmission of STIs include exchange of blood or blood products from an infected individual to a susceptible host.

Although there are many cases of asymptomatic STIs, some common symptoms of STIs include vaginal and urethral discharge, burning sensation of the genitalia, genital ulcers and abdominal pain.

Table 3-13: Symptoms related to STIs in Maldives, 2015-2016

QUICK FACTS	2015	2016
Total number of Male urethral discharge cases reported	38	10
Total number of Female vaginal discharge cases reported	1,1111	1,090
Total number of Male genital ulcer cases reported	1	6
Total number of Female genital ulcer cases reported	15	42

This section will explore two common symptoms among males and females that can be indicative of the presence of STIs as follows:

- Male Urethral Discharge
- Female Urethral Discharge
- Male Genital Ulcers
- Female Genital Ulcers

When the 2016 figures of these symptoms were compared, it is noteworthy that STI related symptoms are more commonly reported among females with a significant cases of these symptoms being female vaginal discharge (n=1090)h. In addition, 42 cases of female genital ulcers were diagnosed and reported in 2016. Symptoms related to males are comparatively less with only 6 cases of male genital ulcers and 10 cases of male urethral discharge reported as suggestive of STIs in 2016. Comparisons of the past 5 years showed an increase in the number of reported cases, with the highest being in 2016.

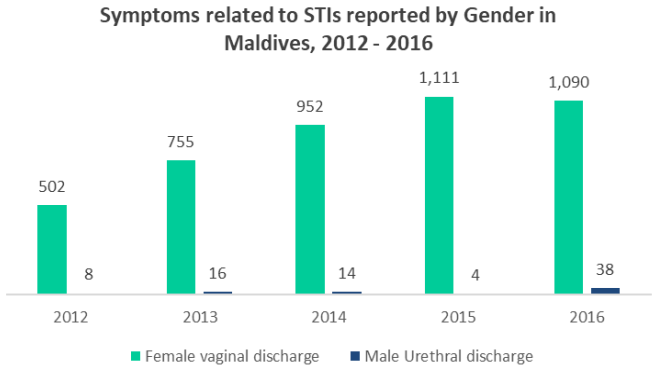


Figure 3-37: Symptoms related to STIs reported by gender in Maldives, 2012-2016

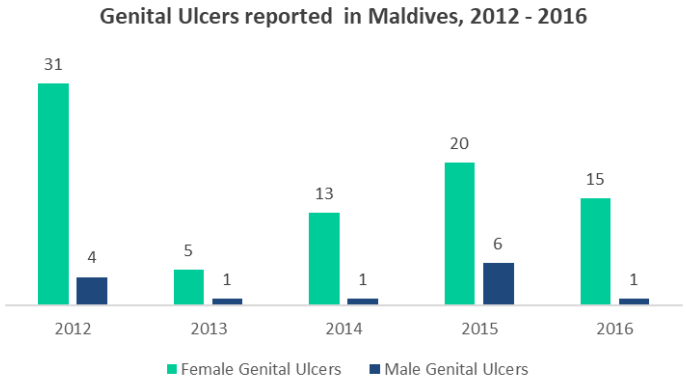


Figure 3-38: Genital ulcers reported in Maldives, 2012-2016

The analysis and write-up is based on programmatic and surveillance records shared by Reproductive Health Programme of Health Protection Agency, Ministry of Health. Source: SIDAS

ANEMIA AMONG WOMEN

WHAT IS ANEMIA?

WHO defines Anemia as a "condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet the physiological need, which vary by age, sex, altitude, smoking and pregnancy status".

The most common cause of this condition is iron deficiency. Deficiencies in folate, vitamin B12 and Vitamin A, inherited disorders, chronic inflammation and parasitic infections can also cause anemia.

Children and pregnant women are most vulnerable to this condition.

Table 3-14: Women with anemia in Maldives, 2016-2017

QUICK FACTS	MDHS 2016-17
Total number of women	6653
Percentage of women with mild Anaemia	49%
Percentage of women with moderate Anaemia	13%
Percentage of women with severe Anaemia	0.6%

In Maldives, the data for Anemia among women of reproductive age (15- 49 years) is available from the results of Maldives Demographic and Health Survey (MDHS) 2016-17.

The findings of MDHS 2016-17 showed that almost two in three women age 15-49 in the Maldives are anemic (63%). The majority of these women had mild Anemia (49% of all women) while 13% had moderate Anemia. Less than 1% had severe Anemia.

THALASSEMIA

WHAT IS THALASSEMIA?

According CDC, Thalassemia is an inherited (i.e., passed from parents to children through genes) blood disorder caused when the body doesn't make enough of a protein called hemoglobin, an important part of red blood cells.

Maldives has a very high prevalence of Thalassemia. A total of 9,543 and 6,091 people were screened for Thalassemia in 2015 and 2016 respectively.

With these screenings, by 2015 and 2016, more than 400 males and females were registered in Maldives Blood Service (MBS) where more new patients are detected in the atolls. Similarly, the total deaths due to Thalassemia is also high in the atolls compared to Male'.

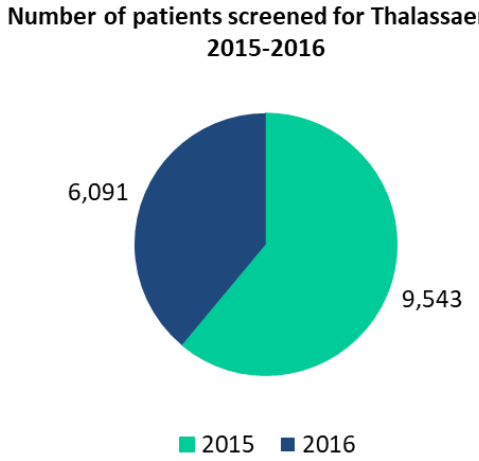


Figure 3-39: Number of patients screened for thalassemia, 2015-2016

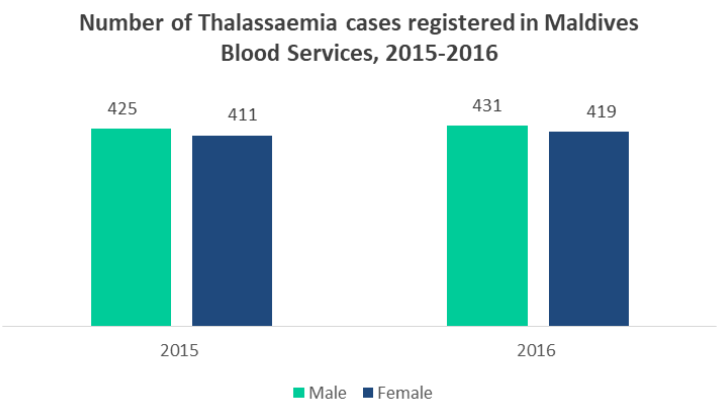


Figure 3-40: Number of thalassemia cases registered in Maldives Blood Services, 2015-2016

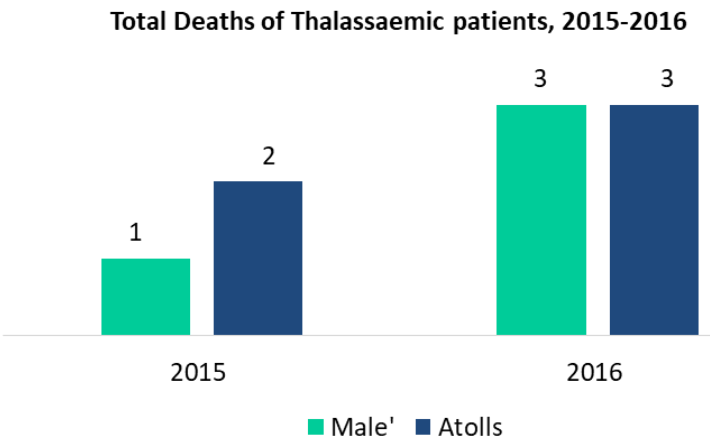


Figure 3-41: Total deaths of thalassemia patients, 2015–2016

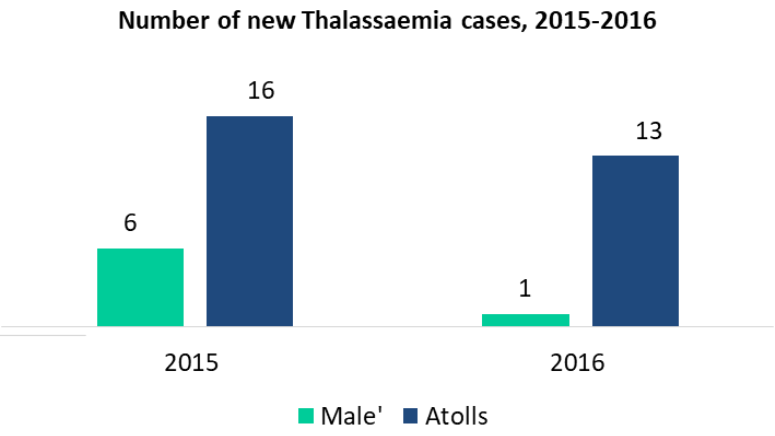


Figure 3-42: Number of new thalassemia cases, 2015– 2016

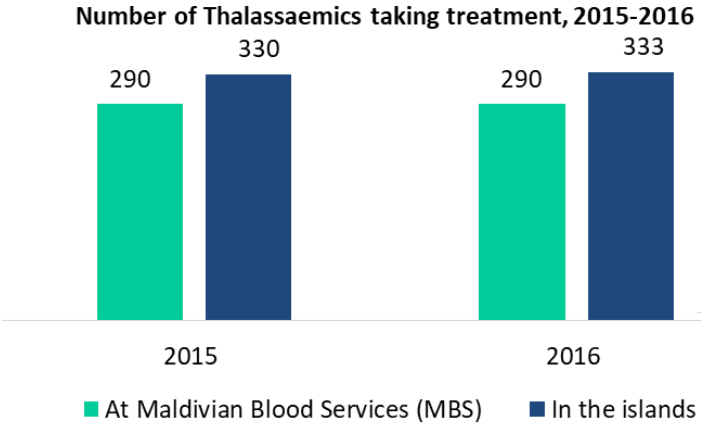


Figure 3-43: Number of thalassaemics taking treatment, 2015-2016

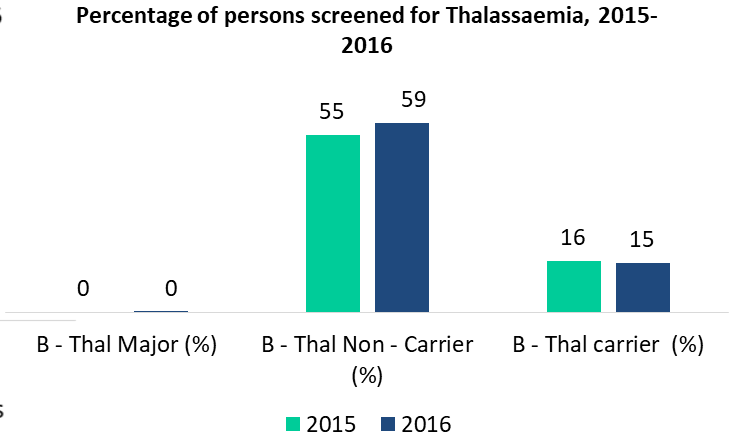


Figure 3-44: Number of persons screened for thalassemia, 2015-2016

People with thalassemia may have mild or severe anemia. Severe anemia can damage organs and lead to death.

The different “types” of thalassemia, is based on one of two things: the specific part of hemoglobin that is affected (usually either “alpha” or “beta”), or the severity of thalassemia, which is noted by words like trait, carrier, intermedia, or major. From the people screened, more than 55% are Beta Thalassemic Non-Carriers.

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SUMMARY TABLES - MORBIDITY

Table 3-15: Number and percent of inpatients from non-communicable diseases in tertiary health facilities, 2016

Sub-group of Non-Communicable diseases	Number	Percent
Cardiovascular diseases	1515	24%
Digestive diseases	979	15%
Genitourinary diseases	964	15%
Respiratory diseases	655	10%
Musculoskeletal diseases	461	7%
Malignant neoplasms	450	7%
Endocrine disorders	373	6%
Neuropsychiatric conditions	370	6%
Skin diseases	314	5%
Diabetes mellitus	131	2%
Congenital anomalies	114	2%
Sense organ diseases	57	1%
Oral conditions	29	0%
Total	6412	100%

Table 3-16: Number and percent of inpatients from non-communicable diseases in tertiary health facilities by gender, 2016

Sub-group of Non-Communicable diseases	Female		Male	
	Number	Percent	Number	Percent
Cardiovascular diseases	505	8%	1010	16%
Digestive diseases	395	6%	584	9%
Genitourinary diseases	659	10%	305	5%
Respiratory diseases	364	6%	291	5%
Musculoskeletal diseases	206	3%	255	4%
Malignant neoplasms	287	4%	163	3%
Endocrine disorders	221	3%	152	2%
Neuropsychiatric conditions	182	3%	188	3%
Skin diseases	138	2%	176	3%
Diabetes mellitus	73	1%	58	1%
Congenital anomalies	58	1%	56	1%
Sense organ diseases	32	0%	25	0%
Oral conditions	7	0%	22	0%
Total	3127	49%	3285	51%

Table 3-17: Number inpatients from non-communicable diseases in tertiary health facilities by age-group, 2016

Group of Non-Communicable diseases	Less than 1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Cardiovascular diseases	1	1	9	7	7	14	91	129	258	338	660
Digestive diseases	6	38	44	42	56	94	193	125	124	103	154
Genitourinary diseases	7	50	63	19	52	81	165	139	142	81	165
Respiratory diseases		44	49	22	28	33	45	39	47	69	279
Musculoskeletal diseases	1	16	10	10	17	27	93	84	70	74	59
Endocrine disorders	6	31	39	39	14	22	37	26	29	27	103
Neuropsychiatric conditions	1	15	16	7	20	39	85	48	43	24	72
Skin diseases	4	21	23	15	28	42	69	34	28	19	31
Malignant neoplasms	1	10	8	4	4	14	35	21	23	55	77
Other neoplasms		9	6	5	13	17	39	43	32	10	24
Diabetes mellitus		2	9	5	4	5	27	11	20	18	30
Congenital anomalies	8	38	14	10	2	6	14	10	6	4	2
Sense organ diseases	1	4	11	5	3	1	5	5	4	7	11
Oral conditions	1	6	5	1	1		5		4	2	4
Total	**37**	**285**	**306**	**191**	**249**	**395**	**903**	**714**	**830**	**831**	**1671**

Table 3-18: Number and percent of inpatients from cardiovascular diseases in tertiary health facilities, 2016

Sub-group of Cardiovascular Diseases	Total	Percent
Ischaemic heart disease	739	49%
Cerebrovascular disease	374	25%
Other cardiovascular diseases	212	14%
Hypertensive heart disease	156	10%
Inflammatory heart diseases	19	1%
Rheumatic heart disease	13	1%
Not categorised / Multiple Sub-categories	2	0%
Total	1515	100%

Table 3-19: Number and percent of inpatients from cardiovascular diseases in tertiary health facilities by gender, 2016

Sub-group of Cardiovascular Diseases	Female		Male	
	Number	Percent	Number	Percent
Ischaemic heart disease	186	12%	553	12%
Cerebrovascular disease	138	9%	236	9%
Other cardiovascular diseases	85	6%	127	6%
Hypertensive heart disease	76	5%	80	5%
Inflammatory heart diseases	9	1%	10	1%
Rheumatic heart disease	10	1%	3	1%
Not categorised / Multiple Sub-categories	1	0%	1	0%
Total	**505**	**33%**	**1010**	**33%**

Table 3-20: Number of inpatients from cardiovascular diseases in tertiary health facilities by age-group, 2016

Sub-group of Cardiovascular Diseases	Less than 1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Cerebrovascular disease	1			1	1	1	15	23	51	91	190
Hypertensive heart disease					1	2	2	7	23	30	91
Inflammatory heart diseases				1	1	1		1	2	2	11
Ischaemic heart disease			1			3	27	62	157	184	305
Not categorised / Multiple Sub-categories				1						1	
Other cardiovascular diseases		1	8	4	4	6	43	30	24	29	63
Rheumatic heart disease						1	4	6	1	1	
Total	**1**	**1**	**9**	**7**	**7**	**14**	**91**	**129**	**258**	**338**	**660**

Table 3-21: Number and percent of inpatients from respiratory diseases in tertiary health facilities, 2016

Sub-group of Respiratory Diseases	Number	Percent
Asthma	108	16%
Chronic obstructive pulmonary disease	260	40%
Other respiratory diseases	287	44%
Total	**655**	**100%**

Table 3-22: Number and percent of inpatients from respiratory diseases in tertiary health facilities by gender, 2016

Sub-group of Respiratory Diseases	Female		Male	
	Number	Percent	Number	Percent
Asthma	57	9%	51	8%
Chronic obstructive pulmonary disease	160	24%	100	15%
Other respiratory diseases	147	22%	140	21%
Total	**364**	**56%**	**291**	**44%**

Table 3-23: Number of inpatients from respiratory diseases in tertiary health facilities by age-group, 2016

Sub-group of Respiratory Diseases	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Asthma	30	26	6	3	3	5	7	9	8	11
Chronic obstructive pulmonary disease	2	0	0	1	0	8	11	18	34	186
Other respiratory diseases	12	23	16	24	30	32	21	20	27	82
Total	44	49	22	28	33	45	39	47	69	279

Table 3-24: Number and percent of inpatients from malignant neoplasms in tertiary health facilities, 2016

Sub-group of Maliignant Neoplasms	Number	Percent
Not categorised / Multiple Sub-categories	198	44%
Other malignant neoplasms	69	15%
Breast cancer	50	11%
Mouth and oropharynx cancers	34	8%
Colon and rectum cancers	13	3%
Liver cancer	11	2%
Corpus uteri cancer	10	2%
Leukaemia	10	2%
Prostate cancer	10	2%
Bladder cancer	9	2%
Lymphomas, multiple myeloma	8	2%
Cervix uteri cancer	6	1%
Ovary cancer	6	1%
Trachea, bronchus, lung cancers	5	1%
Stomach cancer	4	1%
Melanoma and other skin cancers	3	1%
Pancreas cancer	3	1%
Oesophagus cancer	1	0%
Total	450	100%

Table 3-25: Number and percent of inpatients from malignant neoplasms in tertiary health facilities by gender, 2016

Sub-group of Malignant Neoplasms	Female		Male	
	Number	Percent	Number	Percent
Not categorised / Multiple Sub-categories	162	36%	36	36%
Other malignant neoplasms	31	7%	38	7%
Breast cancer	44	10%	6	10%
Mouth and oropharynx cancers	6	1%	28	1%
Colon and rectum cancers	5	1%	8	1%
Liver cancer	3	1%	8	1%
Corpus uteri cancer	10	2%	0	2%
Leukaemia	5	1%	5	1%
Prostate cancer	0	0%	10	0%
Bladder cancer	0	0%	9	0%
Lymphomas, multiple myeloma	3	1%	5	1%
Cervix uteri cancer	6	1%	0	1%
Ovary cancer	5	1%	1	1%
Trachea, bronchus, lung cancers	2	0%	3	0%
Stomach cancer	1	0%	3	0%
Melanoma and other skin cancers	3	1%	0	1%
Pancreas cancer	1	0%	2	0%
Oesophagus cancer	0	0%	1	0%
Total	**287**	**64%**	**163**	**64%**

Table 3-26: Number of inpatients from malignant neoplasms in tertiary health facilities by age-group, 2016

Sub-group of Malignant Neoplasms	Less than 1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Bladder cancer	0	0	0	0	0	0	3	1	0	0	5
Breast cancer	0	1	0	0	1	1	17	5	1	21	3
Cervix uteri cancer	0	0	0	0	0	0	1	2	0	0	3
Colon and rectum cancers	0	0	0	2	1	3	1	1	3	1	1
Corpus uteri cancer	0	0	0	0	0	1	2	2	3	1	1
Leukaemia	0	2	2	0	0	3	0	1	0	2	0
Liver cancer	0	0	0	0	0	0	0	1	0	4	6
Lymphomas, multiple myeloma	0	0	0	0	0	1	1	0	3	1	2
Melanoma and other skin cancers	0	1	0	0	0	0	0	0	0	0	2
Mouth and oropharynx cancers	0	1	2	1	0	1	2	3	0	5	19
Oesophagus cancer	0	0	0	0	0	0	0	0	1	0	0
Other malignant neoplasms	1	5	4	1	2	4	8	4	9	15	16
Ovary cancer	0	0	0	0	0	0	0	1	0	1	4
Pancreas cancer	0	0	0	0	0	0	0	0	0	0	3
Prostate cancer	0	0	0	0	0	0	0	0	1	1	8
Stomach cancer	0	0	0	0	0	0	0	0	2	1	1
Trachea, bronchus, lung cancers	0	0	0	0	0	0	0	0	0	2	3
Not categorised / Multiple Sub-categories	0	9	6	5	13	17	39	43	32	10	24
Total	**1**	**19**	**14**	**9**	**17**	**31**	**74**	**64**	**55**	**65**	**101**

Table 3-27: Number and percent of inpatients from Genitourinary Diseases in tertiary health facilities, 2016

Sub-group Genitourinary Diseases	Number	Percent
Other genitourinary system diseases	750	77%
Nephritis and nephrosis	206	21%
Benign prostatic hypertrophy	8	1%
Other digestive diseases	4	0%
Total	**968**	**100%**

Table 3-28: Number and percent of inpatients from Genitourinary Diseases in tertiary health facilities by gender, 2016

Sub-group of Genitourinary Diseases	Female		Male	
	Number	Percent	Number	Percent
Other genitourinary system diseases	563	58%	187	58%
Nephritis and nephrosis	96	10%	110	10%
Benign prostatic hypertrophy	0	0%	8	0%
Other digestive diseases	2	0%	2	0%
Total	661	68%	307	68%

Table 3-29: Number of inpatients from genitourinary diseases in tertiary health facilities by age-group, 2016

Sub-group of Genitourinary Diseases	Less than 1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Benign prostatic hypertrophy	0	0	0	0	0	0	0	0	0	0	8
Nephritis and nephrosis	0	10	13	4	8	15	22	13	22	38	61
Other digestive diseases	0	0	0	1	0	2	1	0	0	0	0
Other genitourinary system diseases	7	40	50	15	44	66	143	126	120	43	96
Total	**7**	**50**	**63**	**20**	**52**	**83**	**166**	**139**	**142**	**81**	**165**

Table 3-30: Number and percent of inpatients from diabetes mellitus in tertiary health facilities by gender, 2016

Sub-group of disease	Female		Male	
	Number	Percent	Number	Percent
Diabetes mellitus	73	56%	58	44%

Table 3-31: Number of inpatients from diabetes mellitus in tertiary health facilities by age-group, 2016

Sub-group of disease	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Diabetes mellitus	2	9	5	4	5	27	11	20	18	30

Table 3-32: Number and percent of inpatients from maternal, nutritional and perinatal conditions in tertiary health facilities, 2016

Group of diseases	Number	Percent
Maternal conditions	4431	77%
Nutritional deficiencies	199	3%
Perinatal conditions	1106	19%
Total	5736	100%

Table 3-33: Number and percent of inpatients from maternal, nutritional and perinatal conditions in tertiary health facilities by gender, 2016

Group of diseases	Female		Male	
	Number	Percentage	Number	Percentage
Maternal conditions	4431	77%	0	0%
Nutritional deficiencies	142	2%	57	1%
Perinatal conditions	486	8%	620	11%
Total	**5059**	**88%**	**677**	**12%**

Table 3-34: Number of inpatients from maternal, nutritional and perinatal conditions in tertiary health facilities by age-group, 2016

Group of diseases	Less than 1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Maternal conditions					80	943	2712	669	18	7	2
Nutritional deficiencies		13	2	3	21	15	15	34	28	16	52
Perinatal conditions	1106										
Total	**1106**	**13**	**2**	**3**	**101**	**958**	**2727**	**703**	**46**	**23**	**54**

Table 3-35: Number and percent of inpatients from maternal conditions in tertiary health facilities, 2016

Sub-group of Maternal Conditions	Number	Percent
Other maternal conditions	508	11%
Abortion	387	9%
Maternal haemorrhage	30	1%
Hypertensive disorders	23	1%
Maternal sepsis	12	0%
Obstructed labour	4	0%
Not categorised / Multiple Sub-categories	3467	78%
Total	**4431**	**100%**

Table 3-36: Number of inpatients from maternal conditions in tertiary health facilities by age-group, 2016

Sub-group of Maternal Conditions	15-19	20-24	25-34	35-44	45-54	55-64	65+
Other maternal conditions	12	116	296	82	1	1	0
Abortion	8	74	214	90	1	0	0
Maternal haemorrhage	1	3	16	10	0	0	0
Hypertensive disorders	0	2	16	4	1	0	0
Maternal sepsis	0	1	11	0	0	0	0
Obstructed labour	0	1	3	0	0	0	0
Not categorised / Multiple Sub-categories	59	746	2156	483	15	6	2
Total	**80**	**943**	**2712**	**669**	**18**	**7**	**2**

Table 3-37: Number and percent of inpatients from nutritional deficiencies in tertiary health facilities, 2016

Sub-group of Nutritional Deficiencies	Number	Percent
Iron-deficiency anaemia	194	97%
Other nutritional disorders	5	3%
Total	**199**	**100%**

Table 3-38: Number and percent of inpatients from nutritional deficiencies in tertiary facilities by gender, 2016

Sub-group of Nutritional Deficiencies	Female		Male	
	Number	Percent	Number	Percent
Iron-deficiency anaemia	137	69%	57	69%
Other nutritional disorders	5	3%		3%
Total	142	71%	57	71%

Table 3-39: Number of inpatients from nutritional deficiencies in tertiary health facilities by age-group, 2016

Sub-group of Nutritional Deficiencies	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Iron-deficiency anaemia	10	2	3	21	15	15	33	28	15	52
Other nutritional disorders	3	0	0	0	0	0	1	0	1	0
Total	13	2	3	21	15	15	34	28	16	52

Table 3-40: Number and percent of inpatients from perinatal conditions in tertiary health facilities , 2016

Sub-group of Perinatal Conditions	Number	Percent
Other perinatal conditions	672	61%
Low birth weight	388	35%
Birth asphyxia and birth trauma	46	4%
Total	**1106**	**100%**

Table 3-41: Number and percent of inpatients from perinatal conditions in tertiary health facilities by gender, 2016

Sub-group of Perinatal Conditions	Female		Male	
	Number	Percent	Number	Percent
Birth asphyxia and birth trauma	18	2%	28	3%
Low birth weight	155	14%	233	21%
Other perinatal conditions	313	28%	359	32%
Total	486	44%	620	56%

Table 3-42: Number and percent of inpatients from communicable diseases in tertiary health facilities, 2016

Group of Communicable Diseases	Number	Percent
Infectious and parasitic diseases	1177	63%
Respiratory infections	701	37%
Total	1878	100%

Table 3-43: Number and percent of inpatients from communicable diseases in tertiary health facilities by gender, 2016

Group of Communicable Diseases	Female		Male	
	Number	Percentage	Number	Percentage
Infectious and parasitic diseases	492	26%	685	26%
Respiratory infections	334	18%	367	18%
Total	**826**	**44%**	**1052**	**44%**

Table 3-44: Number of inpatients from communicable diseases in tertiary health facilities by age-group, 2016

Group of Communicable Diseases	Less than 1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Infectious and parasitic diseases	6	258	250	103	85	106	171	61	38	32	67
Respiratory infections	7	217	114	42	22	31	43	22	21	39	143
Total	**13**	**475**	**364**	**145**	**107**	**137**	**214**	**83**	**59**	**71**	**210**

Table 3-45: Number and percent of inpatients from infectious and parasitic diseases in tertiary health facilities, 2016

Sub-group of Infectious and Parasitic Diseases	Number	Percent
Dengue	707	60%
Other infectious diseases	216	18%
Diarrheal diseases	142	12%
Tuberculosis	73	6%
STDs excluding HIV	16	1%
Meningitis	13	1%
Hepatitis B	7	1%
Malaria	2	0%
Childhood-cluster diseases	1	0%
Total	**1177**	**100%**

Table 3-46: Number and percent of inpatients from infectious and parasitic diseases in tertiary health facilities by gender, 2016

Sub-group of Infectious and Parasitic Diseases	Female		Male	
	Number	Percentage	Number	Percentage
Dengue	249	21%	458	39%
Other infectious diseases	114	10%	102	9%
Diarrheal diseases	70	6%	72	6%
Tuberculosis	34	3%	39	3%
STDs excluding HIV	14	1%	2	0%
Meningitis	6	1%	7	1%
Hepatitis B	4	0%	3	0%
Malaria	0	0%	2	0%
Childhood-cluster diseases	1	0%	0	0%
Total	**492**	**42%**	**685**	**58%**

Table 3-47: Number of inpatients from infectious and parasitic diseases in tertiary health facilities by age-group, 2016

Sub-group of Infectious and Parasitic Diseases	Less than 1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Dengue	2	133	177	80	66	78	114	36	14	4	3
Other infectious diseases	3	56	34	12	6	16	23	14	13	13	26
Diarrheal diseases		60	33	7	3	5	12	4	4	4	10
Tuberculosis		3	2	2	7	5	10	2	5	10	27
STDs excluding HIV		1		1	1	2	6	3	1	1	
Meningitis	1	1	3	1	2		4				1
Hepatitis B		3	1				2	1			
Malaria								1	1		
Childhood-cluster diseases		1									
Total	**6**	**258**	**250**	**103**	**85**	**106**	**171**	**61**	**38**	**32**	**67**

Table 3-48: Number and percent of inpatients from respiratory infections in tertiary health facilities, 2016

Sub-group of Respiratory Infections	Number	Percent
Lower respiratory infections	525	75%
Upper respiratory infections	145	21%
Otitis media	31	4%
Total	**701**	**100%**

Table 3-49: Number and percent of inpatients from respiratory infections in tertiary health facilities by gender, 2016

Sub-group of Respiratory Infections	Female		Male	
	Number	Percent	Number	Percent
Lower respiratory infections	242	35%	283	40%
Upper respiratory infections	76	11%	69	10%
Otitis media	16	2%	15	2%
Total	**334**	**48%**	**367**	**52%**

Table 3-50: Number of inpatients from respiratory infections in tertiary health facilities by age-group, 2016

Sub-group of Respiratory Infections	Less than 1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
Lower respiratory infections	4	171	78	27	8	10	23	12	18	37	137
Upper respiratory infections	3	40	35	14	12	15	13	6	2	0	5
Otitis media	0	6	1	1	2	6	7	4	1	2	1
Total	**7**	**217**	**114**	**42**	**22**	**31**	**43**	**22**	**21**	**39**	**143**

Table 3-51: Total Number of Dengue Haemorrhagic Fever Cases Reported by Month, Maldives, 2012-1016

Year/ Month	2012	2013	2014	2015	2016
January	22	3	5	4	2
February	7	0	2	1	3
March	9	4	5	0	5
April	5	1	9	3	7
May	13	1	1	3	8
June	7	4	14	11	15
July	12	7	3	12	8
August	8	10	4	1	7
September	9	2	1	3	3
October	5	6	0	4	2
November	8	1	1	10	0
December	5	1	1	4	3
Total	110	40	46	56	63

Source: SIDAS

Table 3-52: Total Number of Dengue Shock Syndrome Cases Reported by Month, Maldives, 2012-2016

Year/ Month	2012	2013	2014	2015	2016
January	1	1	0	0	0
February	1	0	0	1	0
March	1	0	0	0	1
April	0	0	1	0	0
May	0	0	0	0	5
June	0	0	0	1	1
July	3	2	1	0	1
August	2	0	0	0	0
September	4	0	0	0	1
October	1	2	0	2	0
November	0	0	0	2	1
December	2	0	1	2	0
Total	15	5	3	8	10

Source: SIDAS

Table 3-53: Number and Incidence of Diarrhea Cases Reported, Maldives, 2007-2016

Year/	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of new cases	12,120	12,656	17,096	18,509	18,979	22,690	25,876	19,954	30442	34318
Incidence Rate/ 1000 population	40.54	42.33	40.54	61.14	58.4	67.04	75.8	58.46	74.7	84.2

Source: SIDAS

Table 3-54: Total Number of New Cases of Leprosy and Leprosy Cases Under Treatment, Maldives, 2007- 2016

Year/	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
New Cases	11	6	10	7	14	7	3	8	3	6
Cases Under Treatment	13	5	6	12	6	12	8	12	7	6

Source: SIDAS

Table 3-55: Incidence and Prevalence of Leprosy Cases Reported, Maldives, 2007- 2016

Year/	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Incidence Rate/ 1000 population	0.04	0.02	0.04	0.02	0.04	0.02	0.008	0.02	0.09	0.17
Prevalence Rate/1000 population	0.04	0.02	0.02	0.04	0.02	0.04	0.02	0.03	0.2	0.17

Source: SIDAS

Table 3-56: Total Number of Individuals Screened for HIV, Maldives, 2007- 2016

Year/	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number	40,238	29,931	27,753	49,495	31,016	42,844	38,000	31,548	61224	97189

Source: SIDAS

Table 3-57: Total Number of HIV Positive Cases Detected by Nationality , Maldives, 2007 - 2016

Year/	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Maldivians	0	1	0	0	1	3	1	2	2	0
Expatriates	25	15	16	21	18	24	14	7	16	24
Total	25	16	16	21	19	27	15	9	18	24

Source: SIDAS

Table 3-58: Total Number of Syphilis Cases Detected During Routine Screening, Maldives, 2012- 2016

Year	2012		2013		2014		2015		2016	
	Total screened	Syphilis Cases	Total screened	Syphilis Cases	Total screened	Syphilis Cases	Total screened	Syphilis Cases	Total screened	Syphilis Cases
Pregnant Women Visiting Ante-Natal Clinics	2691	0	2561	2	2747	2	3105	0	2953	0
Blood Donors	6627	0	5962	0	4502	0	7700	7	5488	0

Source: SIDAS

Table 3-59: Total Number of Symptoms Related to STIs Reported, Maldives , 2012 - 2016

Year/	2012	2013	2014	2015	2016
Male Urethral Discharge	16	14	4	38	10
Female Vaginal Discharge	502	755	952	1111	1090
Male Genital Ulcer	1	1	6	1	6
Female Genital Ulcer	5	13	20	15	42
Total	524	768	982	1165	1148

Source: SIDAS

Table 3-60: Summary of Anaemia Among Women Based on Findings of Maldives Demographic Health Survey 2016 –17, Maldives

Age	Women With Any Anaemia (%)	Women With Mild Anaemia (%)	Women With Moderate Anaemia (%)	Women With Severe Anaemia (%)	Number of Women
15-19	60	48	11.9	0	961
20-29	61.8	48.2	13	0.5	2217
30-30	63.8	51.3	11.9	0.6	2089
40-49	65.9	47.9	17	1.1	1386

Classification*:

Any Anaemia: Less than 12.0 g/dl for non-pregnant women and less than 11.0 g/dl for pregnant women

Mild Anaemia: 10.0- 11.9 g/dl for non-pregnant women and 10.0-10.9 g/dl for pregnant women

Moderate Anaemia: 7.0-9.9 g/dl for non-pregnant women and 7.0-9.9 g/dl for pregnant women

Severe Anaemia: Less than 7.0 g/dl for non-pregnant women and less than 7.0 g/dl for pregnant women

*Ministry of Health (MOH) [Maldives] and ICF. 2018. *Maldives Demographic and Health Survey 2016-17*. Malé, Maldives, and Rockville, Maryland, USA: MOH and ICF.

CHAPTER FOUR

PUBLIC HEALTH

WHAT IS PUBLIC HEALTH?

CDC Foundation defines public health as "the science of protecting and improving the health of families and communities through promotion of healthy lifestyles, research for disease and injury prevention and detection and control of infectious diseases". In general, public health seeks to protect the health of the whole population of a specified area.

This chapter will discuss about some of the public health concerns for Maldives. It will also provide some data on preventive measures and health promotion initiatives that are currently being undertaken within Maldives. This will include immunization coverage, exclusive breastfeeding, malnutrition among children, vitamin A supplementation, deworming, contraceptive prevalence rate and family planning.

IMMUNIZATION COVERAGE

Table 4-1: Key findings of MDHS on immunization coverage by percentage, 2016-17

Immunization coverage rate	MDHS 2016-17
BCG	92%
OPV 3rd Dose	82%
Pentavalent Vaccine (DTP+HEP B+HIB) 3rd Dose	85%
Measles	89%
All basic vaccinations	77%

DEFINITIONS

IMMUNIZATION COVERAGE RATE BY VACCINE FOR EACH VACCINE IN THE NATIONAL SCHEDULE is defined by WHO as "Percentage of the target population that has received the last recommended dose for each vaccine recommended in the national schedule by vaccine. This should include all vaccines within a country's routine immunization schedule".

Relative to the 2009 MDHS, the proportion of children age 12-23 who received all basic vaccinations has decreased, from 93% in 2009 to 77% in 2016-17.

EXCLUSIVE BREASTFEEDING

The most recent data on exclusive breastfeeding is available from Maldives Demographic and Health Survey [MDHS] 2016-17.

According to this survey, 64 percent of the youngest children under 2 years who are living with their mother were exclusively breast fed up to first 6 months of their age.

Almost 2 out of 3 youngest children under 2 years of age, who lived with their mothers were exclusively breastfed up to first 6 months of their age.

WHAT IS EXCLUSIVE BREASTFEEDING?

According to WHO, "exclusive breastfeeding means that the infant receives only breast milk. No other liquids or solids are given- not even water-with the exception of oral rehydration solution, or drops/ syrups of vitamins, minerals or medicines".

It is recommended by WHO that for infants to attain optimal growth, health and development, it is vital for infants to be exclusively breastfed for the first 6 months of their lives.

MALNUTRITION AMONG CHILDREN

In Maldives, the most recent data for malnutrition among children below the age of 5 years is available from the results of MDHS 2016-2017.

Table 4-2: Key findings of MDHS on malnutrition among children under 5 years, 2016-17

KEY FINDINGS OF MDHS	2016-17
Total Number of Under 5 Children	3669
Percentage of Under 5 Children Stunted	15.00%
Percentage of Under 5 Children Severely Stunted	4.00%
Percentage of Under 5 Children Wasted	9.00%
Percentage of Under 5 Children Severely Wasted	2.00%
Percentage of Under 5 Children Under-weight	15.00%
Percentage of Under 5 Children Severely Underweight	2.00%
Percentage of Under 5 Children Overweight	5.00%

The findings of MDHS 2016-17 showed that among the 4 different categories of malnutrition explored, the highest number of children aged below 5 years had experienced the irreversible form of under-nutrition known as stunting. Nationally, 15 percent of under 5 children were stunted while 4 percent of under 5 children were severely stunted.

This is followed by underweight where 15 percent of under 5 children were underweight and 2 percent of under 5 children were severely underweight.

Wasting is also significant with 9 percent of under 5 children being wasted while 2 percent of under 5 children being severely wasted. Meanwhile, 5 percent of children aged below 5 years were overweight.

MDHS 2016-17 shows that almost 1 in 5 children aged below 5 years were affected by stunting to some extent (i.e. stunted or severely stunted).

DEFINITIONS

World Food Program [WFP] defines malnutrition as "a condition resulting when a person's diet does not provide adequate nutrients for growth and maintenance or when a person is not able to adequately utilize the food consumed due to illness".

WFP further delineate that malnutrition includes both under-nutrition and over nutrition.

In this section the following categories of malnutrition will be explored for children below the age of 5 years which are calculated in reference to the growth standards published by WHO in 2006.

STUNTING: According to WFP and Maldives Demographic and Health Survey [MDHS] 2016-17, stunting is measured using the indicator "low height-for age" compared to WHO international growth reference standards. WFP and MDHS 2016-17 further explains that stunting is developed slowly overtime and the condition is not reversible. It is caused by either or both the long term intake of poor diet or recurrent or chronic infections.

WASTING: The indicator used to measure wasting is 'low weight-for-height' when compared to WHO international growth reference standard for a child with same age 4. Wasting is also known as acute malnutrition and is caused by sudden increase in weight loss or due to failure in gaining weight and is usually associated with recent illnesses or recent episodes of food insecurity.

UNDERWEIGHT: a reflection of both stunting and wasting, the indicator used to measure underweight is "low weight-for-age" when compared to WHO international growth reference standard for a child of the same age.

OVERWEIGHT: MDHS 2016-17 classifies overweight as 'high weight-for-age' when compared to WHO international growth reference standard for a child of the same age. According to WFP over nutrition or an unbalance nutrition can lead to overweight.

VITAMIN A SUPPLEMENTATION

Table 4-3: Key findings of MDHS on Vitamin A supplementation to children aged 9-59 months, 2016-17

KEY FINDINGS OF MDHS	2016-17
Total Number of Children Aged 9-59 Months	2276.00
Percentage of Children Aged 9-59 Months Who Received Vitamin A Supplements in the Past 6 Months	75.00%

The most recent nationwide data available on Vitamin A supplementation is from Maldives Demographic and Health Survey [MDHS] 2016-17. Findings of MDHS 2016-17 showed that 75 percent of children aged 9-59 moths of age have had a Vitamin A supplementation in the past 6 months preceding the survey.

Almost **3 in 4 children** aged 9-59 months in Maldives had received a Vitamin A supplementation over the past 6 months preceding the data collection period for MDHS 2016-17.

WHAT IS VITAMIN A?

MDHS 2016-17 defines Vitamin A as "an essential micronutrient for the immune system that plays an important role in maintaining the epithelial tissue in the body."

Severe lack of Vitamin A (known as severe Vitamin A Deficiency) can cause damage to eyes, enhance the severity of infections (e.g.: measles, diarrhoea) among children and also decrease the recovery speed from illnesses. A method to prevent at risk children from developing Vitamin A deficiency is to give periodic dosing (usually done every 6 months) of vitamin A supplement to such children.

DEWORMING

Table 4-4: Key findings of MDHS on Deworming medication to children aged 24-59 months, 2016-17

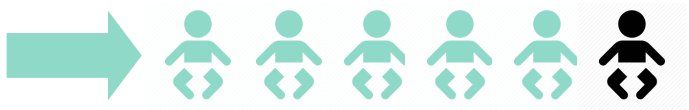
KEY FINDINGS OF MDHS	2016-17
Total Number of Children Aged 24-59 Months	1632
Percentage of Children Aged 24-59 Months Who Received Deworming Medication in the Past 6 Months	86.00%

Findings from MDHS 2016-17 are the most recent nationwide data available on deworming medication. Findings of this survey indicated that 86% of children aged 24-59 months of age have been given deworming medication over the past 6 months preceding the survey.

More than **5 in 6 children** aged 24-59 months in Maldives have received deworming medication over the past 6 months preceding the data collection period for MDHS 2016-17.

PURPOSE OF DEWORMING

According to MDHS 2016-17, regular treatment of children with special medications for deworming is a cost-effective, simple method that can be used to combat infections with helminths or intestinal worms. Infections with helminths or intestinal worms can negatively impact the physical development of children and are associated with iron deficiency anaemia and other nutritional deficiencies that may have negative consequences on the physical and mental development of children.



CONTRACEPTIVE PREVALENCE RATE

The most recent data available on contraceptive prevalence rate [CPR] among married women aged 15 -49 years is from MDHS 2016-17. MDHS 2009 and previous Reproductive Health [RH] surveys conducted in Maldives in 1999 and 2004 have also collected data on CPR. The data from these surveys are comparable since the information has been collected from married women aged 15 to 49 years in all four surveys, thus allowing for time trend analysis.

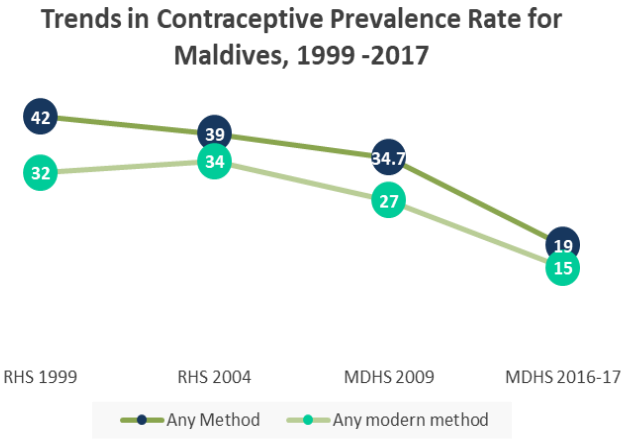


Figure 4-1: Contraceptive Prevalence rate among married women aged 15-49 years, 1999-2017

DEFINITIONS

CONTRACEPTIVE PREVALENCE RATE[CPR]: WHO defines contraceptive prevalence rate as "the percentage of women who are currently using, or whose sexual partner is currently using, at least one method of contraception, regardless of the method used." WHO further states that CPR is usually reported for women aged 15-49 years who are married or in union

In this chapter, CPR is defined as the percentage of married women aged 15-49 years who are using at least one method of contraception. This is in line with the definition used by MDHS 2016-17.

ANY METHOD OF CONTRACEPTION: According to WHO, this includes both modern and traditional methods of contraception.

ANY MODERN METHODS OF CONTRACEPTION: WHO's classification of modern methods of contraception includes methods such as oral contraceptive pills, implants, injectables, IUDs, contraceptive patches, condoms, sterilization, Lactational Amenorrhea Methods, e-pills, Standard Days Method, Basal Body Temperature Method, Two-day Method and Symptothermal Method.

FAMILY PLANNING

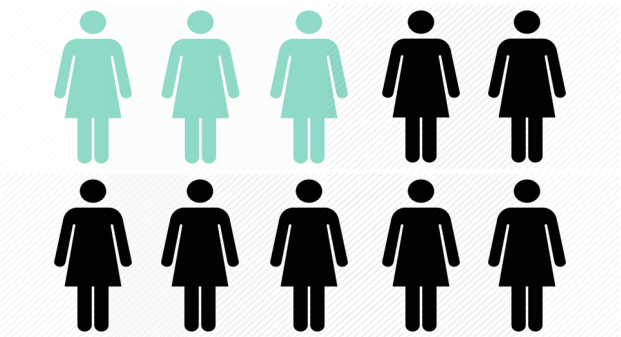
DEFINITIONS

UNMET NEED FOR FAMILY PLANNING: MDHS 2016-17 defines women aged 15-49 years with an unmet need for family planning as:

1. "Currently married women who are in need of family planning for spacing purposes (i.e. this include pregnant women whose pregnancy is mistimed (wanted later), amenorrhoeic women whose last birth was mistimed and non-users who are neither pregnant nor amenorrhoeic and who either want to delay the next birth at least 2 or more years, are unsure whether they want another child, or want another child but are unsure when to have the birth)"
2. "Currently married women who are in need for family planning for limiting purposes (i.e. pregnant women whose pregnancy was unwanted, amenorrhoeic women whose last child was unwanted and non-users who are neither pregnant nor amenorrhoeic and who want no more children.

The most recent data on unmet needs for family planning among married women aged 15-49 years is available from MDHS 2016-17. According to this survey, 31 percent of married women aged 15-49 years have an unmet need for family planning either for spacing or for limiting purposes.

More than **3 in 10 women** aged 15-49 years in Maldives have an unmet need for family planning



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SUMMARY TABLES - PUBLIC HEALTH

Table 4-5: Immunization Coverage by Vaccines [%], MDHS 2016-17

Immunization coverage rate	MDHS 2016-17
BCG	92%
OPV 3rd Dose	82%
Pentavalent Vaccine (DTP+HEP B+HIB) 3rd Dose	85%
Measles	89%
All basic vaccinations	77%

Table 4-6: Summary of Malnutrition Indices Among Under 5 Children Based on The Findings of Maldives Demographic and Health Survey 2016-17

Stunted (%)	Severely stunted (%)	Wasted (%)	Severely wasted (%)	Underweight (%)	Severely Under-weight (%)	Overweight (%)	Number of children measured
15	4	9	2	15	2	5	3669

Table 4-7: Percentage of Children Who Were Given Vitamin A Supplements and Deworming Medication in The Past 6 Months Based on The Findings of Maldives Demographic and Health Survey 2016-17

Children Aged 9-59 Months Who Received Vitamin A Supplements (%)	Children Aged 24-59 Months Who Received Deworming Medication (%)	Number of Children Aged 9-59 Months	Number of Children Aged 24-59 Months
75	86	2276	1632

Table 4-8: Contraceptive Prevalence Rates Among Married Women Aged 15-49 Years, Maldives, 1999-2009

Year/ CPR type	1999	2004	2009	2016-17
CPR for any method (%)	42	39	34.7	19
CPR for any modern methods (%)	32	34	27	15

Table 4-9: Percentage of women and men who have heard of any contraceptive method, according to specific method, MDHS 2016-17

Method	Women			Men		
	All women	Currently married women	Sexually active un-married women	All men	Currently married men	Sexually active un-married men
Any Method	**96.4**	**98**	**95.2**	**95.7**	**98.7**	**99.4**
Any modern method	**96.4**	**98**	**95.2**	**95.7**	**98.7**	**99.4**
Female sterilisation	88.5	91.5	86.9	75.5	89	77.5
Male sterilisation	64.1	70.4	59.3	54.4	68.6	45.3
Pill	88.3	92.3	88.3	76.3	87.9	76.4
IUD	74.5	82.4	70.3	56	72.3	49.8
Injectables	78.1	85.9	66.8	61.4	76	66
Implants	71.2	80	63.5	44.1	58.7	40.8
Male condom	92.5	95.1	89.7	93.7	97.6	98.4
Female condom	53.6	54	61.1	53	56.4	64.4
Emergency contraception	41.6	42.8	49.8	28.6	31.6	37
Standard days method	52	55.9	57.8	44.1	55.3	42.6
Lactational amenorrhea (LAM)	42.5	49.4	37.6	25.1	32.6	23.3
Other modern method	0.1	0.1	0	1	0.9	0.5
Any traditional method	**60.9**	**66.7**	**63.5**	**54.3**	**62**	**61.2**
Rhythm	48.1	53.5	49.2	33.9	42.8	30
Withdrawal	54.2	59.7	62.8	50.9	58.5	59.9
Other traditional method	0	0.1	0	0.2	0.2	1.4

Table 4-10: Percentage distribution of currently married women by contraceptive method currently used, MDHS 2009 and MDHS 2016-17

Method	MDHS 2009	MDHS 2016-17
Any Method	**34.7**	**18.8**
Any modern method	**27**	**14.9**
Female sterilization	10.1	4.4
Male sterilisation	0.5	0.1
Pill	4.6	2.2
IUD	0.8	0.4
Injectables	1.2	0.8
Implants	0.5	0.3
Male condom	9.3	6.5
Other modern method	0	0.1
Any traditional method	**7.8**	**3.8**
Rhythm	3.4	0.5
Withdrawal	4.2	3.3
Other traditional method	0.1	0
Not currently using	**65.3**	**81.2**

4-11: Contraceptive user rate by sex and locality, 2007 - 2016

Locality	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Republic										
Both Sexes	22.5	22.3	15.1	18.7	21.4	23.6	23.2	22	20.4	21.7
Male	16.4	13.6	25.5	26.2	5.2	5.6	6.2	4.9	7.9	4.8
Female	83.7	86.4	74.5	73.8	16.2	18	17	17.1	12.4	16.8
Male'										
Both Sexes	25	25.5	7.9	12.9	10.7	15.9	8.3	8.9	7.9	8.6
Male	7.7	5.7	16.9	29.2	2.4	3.5	1.8	1.7	3.7	1.6
Female	92.3	94.3	83.1	70.8	8.3	12.4	6.5	7.2	2.4	6.9
Atolls										
Both Sexes	21.6	21.1	19.2	22	27.2	27.2	14.9	13.1	14.3	13.1
Male	20.1	17	27.4	25.3	6.7	6.6	4.4	3.2	5.5	9.9
Female	80	83	72.6	74.7	20.5	20.6	10.5	9.9	8.8	3.2

4-12: Contraceptive user rate by locality, 2007 - 2016

Locality	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Republic	22.5	22.3	15.1	18.7	21.4	23.6	23.2	22	20.4	21.7
Male'	25	25.5	7.9	12.9	10.7	15.9	8.3	8.9	7.9	8.6
HA	16.1	14.7	14.3	38.3	21.2	29.5	12.6	10.7	10.7	6.2
HDh	22.5	19.8	40.8	21.9	34.7	31.5	15.6	14.7	14.7	15.7
Sh	19.6	18.5	27.5	26	52.1	22.7	19.8	15.4	15.4	12.6
N	20.1	17.7	16.1	32.4	42.9	27.2	14	8.9	8.9	11.3
R	21	22.2	18.3	19.7	38.2	30.9	17.8	17.7	17.7	10.5
B	9.3	22.7	20.8	20.1	25.3	35.6	16.7	13.5	13.5	8.2
Lh	2.2	26.2	38.5	37.2	28.8	24	15.4	13.9	13.9	9.3
K	19.1	20.7	2.6	14.1	43.6	42.9	23.2	24.5	24.5	6.9
AA	17.1	12.5	29.1	21.4	38.1	31.2	22.5	11.7	11.7	7.7
ADh	33.3	20.9	26.2	18.7	25	27	13.1	12.3	12.3	4.6
V	17.2	17.7	23.5	26	31.6	33.8	17.7	18.8	18.8	12.2
M	33	38.5	21.5	35.7	17.1	24.9	21	17.5	17.5	11.4
F	12.5	15	25.3	15.1	25.9	27.9	32.4	10.6	10.6	11.3
Dh	20.9	14.8	28.8	26.9	18.6	32.3	9.1	7.7	7.7	5.2
Th	12.6	14.8	12	18.1	26.8	22.6	15.1	16.6	16.6	11.7
L	54.8	67.8	18.9	32.2	34.6	63.4	27.9	29.2	29.2	20.5
GA	16.5	11.9	17.9	9.9	15.7	14.8	4.5	6.9	6.9	2
GDh	13.5	13.5	12.3	19	18.8	26.9	9.2	5.9	5.9	8.8
Gn	20.6	20.4	8.6	7.6	10.1	10.8	7.5	4.4	4.4	1.2
S	16.1	16.4	2.7	7.6	2.5	5.8	5.3	4.6	4.6	0.6

4-13: Vitamin A and Deworming Data, 2015

Atoll/School	Vitamin A	Vitamin A	Vitamin A	Deworming	Deworming	Deworming
	1st rnd	2nd rnd	Total	1st rnd	2nd rnd	Total
	6-13 years	6-13 years	6-13 years	6-13 years	6-13 years	6-13 years
HA	2389	2913	5302	1837	2313	4150
HDH	3902	3464	7366	2526	2880	5406
SH	3465	3291	6756	2647	2634	5281
N	2201	2253	4454	1559	1573	3132
R	3970	4363	8333	3540	3752	7292
B	2228	2248	4476	2004	1962	3966
LH	2006	1741	3747	1685	1679	3364
K	2511	2606	5117	2159	2254	4413
AA	782	901	1683	978	978	1956
A.DH	1759	1711	3470	1274	1311	2585
V	323	330	653	263	289	552
M	1092	1209	2301	863	1038	1901
F	1184	1045	2229	1034	767	1801
DH	1260	1348	2608	1020	1138	2158
TH	2374	2432	4806	2050	2055	4105
L	2630	2677	5307	2080	2180	4260
GA	1337	1389	2726	1314	1345	2659
GDH	2058	2066	4124	1326	1396	2722
Gn	1729	1831	3560	815	901	1716
S	1825	1818	3643	1512	1423	2935
Male' Schools	5387	5423	10810	5020	5120	10140
Health Centers	3762	3725	7487	578	724	1302
Sub total	50174	50784	100958	38084	39712	77796
Population	75503	75503	151006	75503	75503	151006
%	66.45	67.26	66.86	50.44	52.6	51.52

Source: Health Protection Agency

4-14: Vitamin A Data, 2016

Atoll/School	2-5 years	2-5 years	2-5 years	5-13 years	5-13 years	5-13 years
	1st rnd	2nd rnd	Total	1st rnd	2nd rnd	Total
HA	946	1032	1978	1933	1948	3881
HDH	1652	1651	3303	2791	2955	5746
SH	817	806	1623	2214	2201	4415
N	655	625	1280	969	1253	2222
R	1217	1273	2490	2643	2772	5415
B	978	782	1760	1210	1264	2474
LH	819	535	1354	1031	1177	2208
K	811	749	1560	1524	1669	3193
AA	599	647	1246	997	1103	2100
A.DH	303	382	685	1097	1267	2364
V	125	113	238	188	108	296
M	373	412	785	667	688	1355
F	373	412	785	667	688	1355
DH	435	436	871	911	791	1702
TH	425	430	855	949	1143	2092
L	837	848	1685	2012	954	2966
GA	813	767	1580	1303	1616	2919
GDH	693	862	1555	1547	2682	4229
Gn	550	549	1099	1152	1148	2300
S	52	130	182	139	182	321
Male' Schools	2977	1385	4362	9284	10095	19379
Male Health Facilities	1287	1402	2689	12	13	25
Sub total	18264	16599	34863	36119	38501	74620
Population	28320	28320	56640	56944	56944	113888
%	64.49	58.61	61.55	63.43	67.61	65.52

Source: Health Protection Agency

Table 4-15: Deworming Data, 2016

Atoll/School	2-5 years	2-5 years	2-5 years	5-13 years	5-13 years	5-13 years
	1st rnd	2nd rnd	Total	1st rnd	2nd rnd	Total
HA	946	1032	1978	1933	1948	3881
HDH	1652	1651	3303	2791	2955	5746
SH	817	806	1623	2214	2201	4415
N	655	625	1280	969	1253	2222
R	1217	1273	2490	2643	2772	5415
B	978	782	1760	1210	1264	2474
LH	819	535	1354	1031	1177	2208
K	811	749	1560	1524	1669	3193
AA	599	647	1246	997	1103	2100
A.DH	303	382	685	1097	1267	2364
V	125	113	238	188	108	296
M	373	412	785	667	688	1355
F	373	412	785	667	688	1355
DH	435	436	871	911	791	1702
TH	425	430	855	949	1143	2092
L	837	848	1685	2012	954	2966
GA	813	767	1580	1303	1616	2919
GDH	693	862	1555	1547	2682	4229
Gn	550	549	1099	1152	1148	2300
S	52	130	182	139	182	321
Male' Schools	2977	1385	4362	9284	10095	19379
Male Health Facilities	1287	1402	2689	12	13	25
Sub total	18264	16599	34863	36119	38501	74620
Population	28320	28320	56640	56944	56944	113888
%	64.49	58.61	61.55	63.43	67.61	65.52

Source: Health Protection Agency

Table 4-16: Nutritional status of children under 5 years of age, MDHS 2016-17

Source	Stunting (<-2SD)	Wasting (<-2SD)	Underweight (<-2SD)	Overweight (+ 2SD)
MDHS 2016-17	Height-for-age	Weight-for-height	Weight-for-age	Weight-for-height
	15.3	9.1	14.8	4.9

CHAPTER FIVE

HEALTH SERVICE DELIVERY & HUMAN RESOURCE

OUTPATIENT VISITS TO PUBLIC HOSPITALS

This chapter only discuss about the outpatient visits made to public hospitals. It does not include outpatient visits made to other public health facilities (i.e. health centers and health posts).

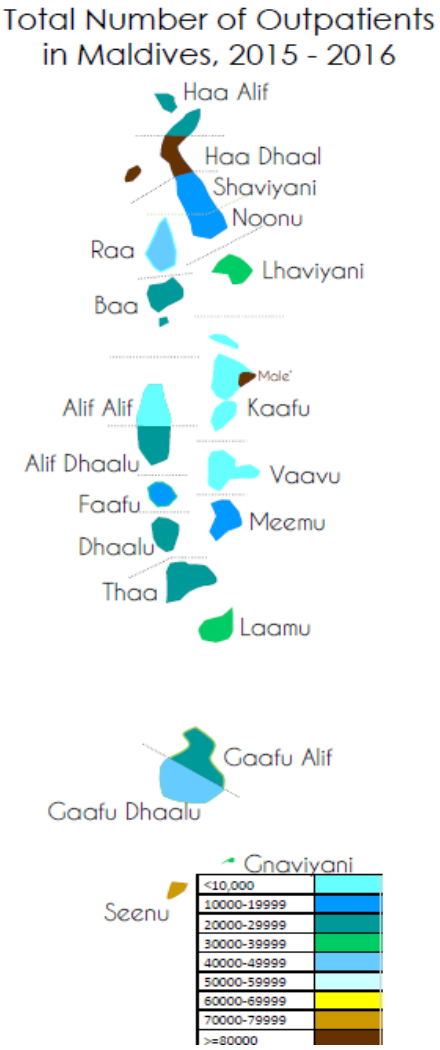

Figure 5-1: Map of total number of outpatients in Maldives, 2015-2016

From 1st January 2016 to 31st December 2016, a total of 1,074,781 outpatient visits were made to public hospitals located throughout Maldives. 28.34% of these visits were made to IGMH. When atolls were compared, 43.74 % of outpatient visits were made to a public hospital located in Kaafu atoll. This includes both IGMH, Hulhumale' Hospital and ViliMale' Hospital. On the other hand, more than half (56.26%) of outpatient visits were made to public hospitals located in other atolls.

WHO IS AN OUTPATIENT?

WHO defines outpatient as "a patient who attends an outpatient department, is not admitted to a healthcare facility and does not occupy a bed for any length of time".

Table 5-1: Outpatient visits, 2015-2016

QUICK FACTS	2015	2016
Total Number of Outpatient Visits to Public Hospitals	1,043,598	1,074,781
Percentage of Outpatient Visits to IGMH	32.0%	28.3%
Percentage of Outpatient Visits to Kaafu Atoll Public Hospitals (Includes IGMH , ViliMale' and Hulhumale' Hospital)	45.0%	43.7%
Percentage of Outpatient Visits to Public Hospitals Located in Atolls Except Kaafu Atoll	55.0%	56.3%

Table 5-2: Highest top 10 outpatients visits to public hospital, 2015-2016

TOP 10 ATOLLS WITH HIGHEST OUTPATIENT VISITS TO PUBLIC HOSPITALS	2015	2016
1.Kaafu *	469,743	470114
2.H.Dh. Kulhudhuffushi	80162	85088
3.S. Hithadhoo	70188	77402
4.R. Ugoofaaru	47625	48206
5.G.Dh. Thinadhoo	47063	56540
6.Gn.Fuahmulah	38159	35858
7.L. Gan	38062	42430
8.Lh.Naifaru	36813	39982
9.Ga. Villigilli	29192	22295
10.Ha. Dhiddhoo	23707	30106

***KAAFU includes:**

	2015	2016
IGMH	333585	304631
Hulhumale' Hospital	105064	122166
Villimale' Hospital	31094	43317

After Kaafu atoll, the highest number of outpatient visits was made to the public hospital located in H.Dh atoll (i.e. H.dh Kulhudhufushi Regional Hospital). This is followed by S and GDh atoll which amounts to 85088, 77402 and 56540 outpatient visits, respectively.

Haa Alif, Lhaniyani and Gnaviyani atolls had outpatient visits within the range of 30,000 – 39,999 visits, while B, A.Dh, D and Th had outpatient visits within the range of 20,000 to 29,999a. This is followed closely by, Shaviyani, Noonu, Faafu and meemu atolls. All of these latter atolls had 10,000 – 19,999 outpatient visits in 2016. Meanwhile, Alif Alif and Vaavu atolls are the only atolls who had outpatient visits below 10,000 in 2016.

INPATIENT VISITS TO PUBLIC HOSPITALS

WHO IS AN INPATIENT?

WHO defines inpatient as "a patient who has been admitted to the health care facility. Inpatients usually occupy a bed in a health care facility for at least four hours to overnight".

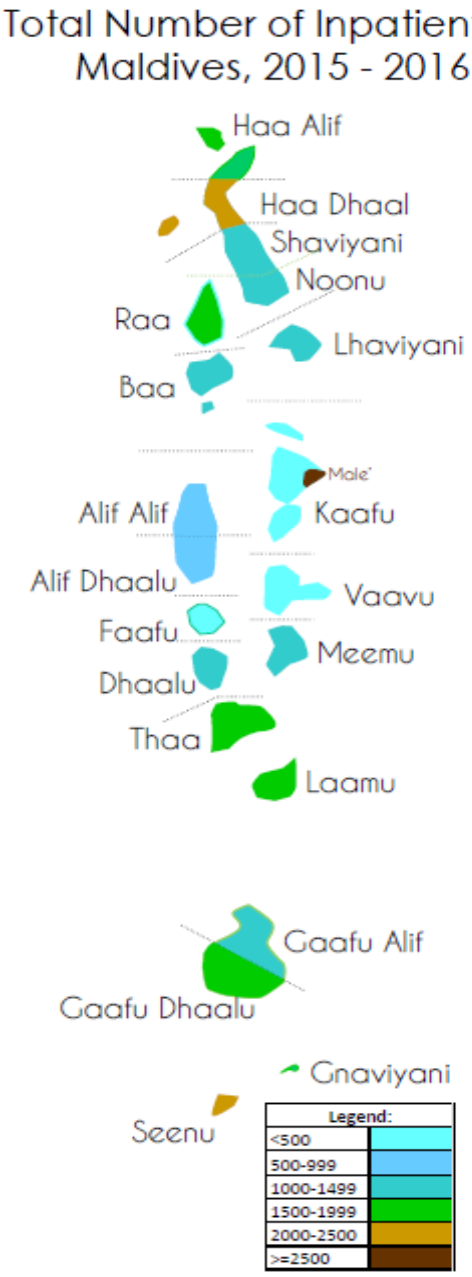

Figure 5-2: Map of total number of inpatients in Maldives, 2015-2016

Table 5-3: Inpatient visits, 2015-2016

QUICK FACTS	2015	2016
Number of Inpatient Visits to Public Hospitals	34104	34327
Percentage of Inpatient Visits to IGMH	37.3%	38.3%
Percentage of Inpatient Visits to Kaafu Atoll Public Hospitals (Includes IGMH Vilimale' hosp and Hulhumale' Hospital)	41.4%	44.1%
Percentage of Inpatient Visits to Public Hospitals Located in Atolls Except Kaafu Atoll	55.0%	56.3%

Table 5-4: Highest top 10 inpatients visits to public hospital, 2015-2016

TOP 10 ATOLLS WITH HIGHEST INPATIENT VISITS TO PUBLIC HOSPITALS	2015	2016
1.Kaafu *	14,131	15130
2.H.Dh. Kulhudhuffushi	2668	1976
3.L. Gan	2068	1774
4.Gn.Fuahmulah	1674	1788
5.V. Felidhoo	1555	117
6.G.Dh. Thinadhoo	1523	1975
7.S. Hithadhoo	1332	1542
8.Lh.Naifaru	1308	1053
9.F. Nilandhoo	1161	578
10.N. Manadhoo	859	561

*Kaafu includes	2015	2016
IGMH	12720	13164
Hulhumale' Hospital	1367	1962
Villimale' Hospital	44	4

The analysis and write-up is based on monthly activity data collected from Health Facilities by Health Information and Research Section, Policy Planning and international Health Division, Ministry of Health.

In 2015, 45% outpatient visits were made to a public hospital located in Kaafu atoll, out of which 71% visits were made to IGMH.

During this period, 41% inpatient visits were made to a public hospital located in Kaafu atoll, out of which 90% of these visits were made to IGMH.

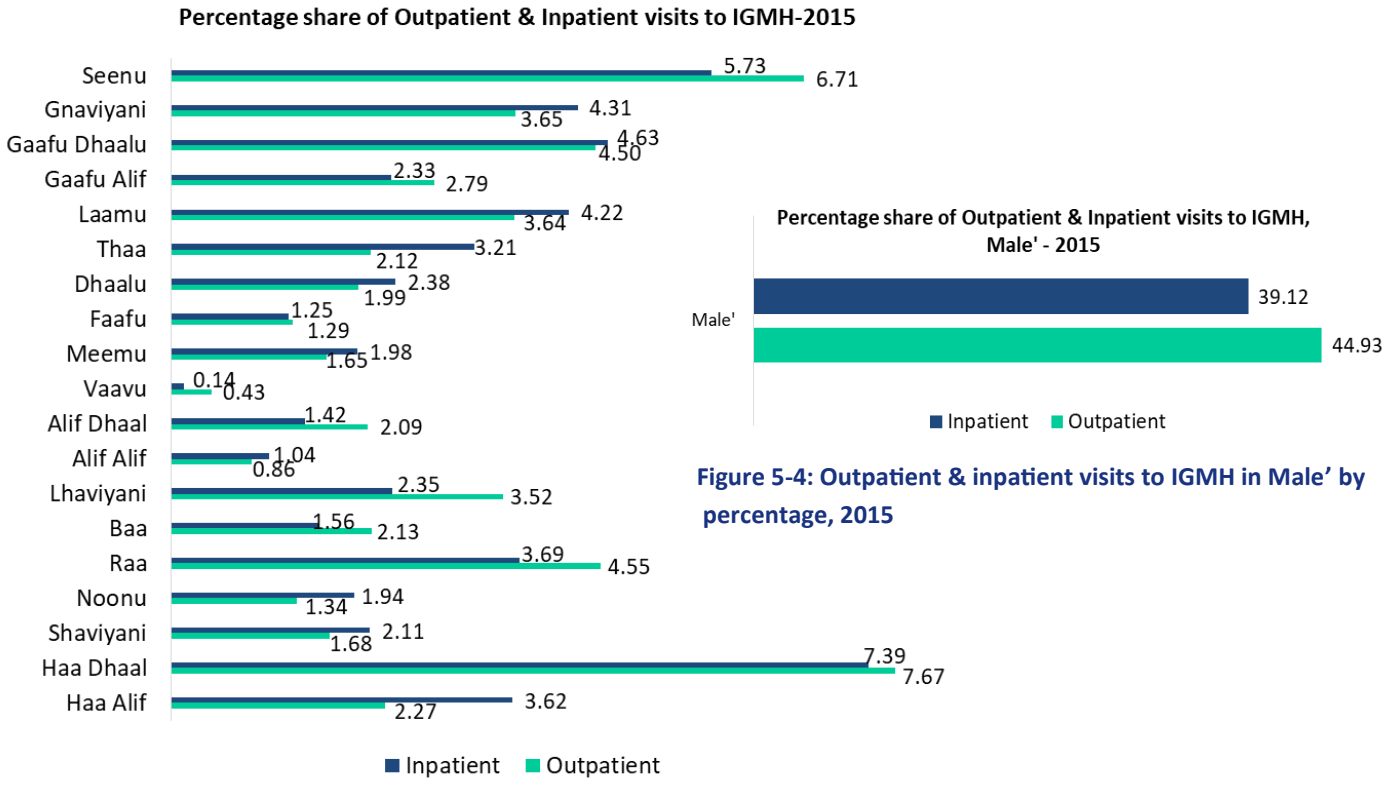

Figure 5-4: Outpatient & inpatient visits to IGMH in Male' by percentage, 2015

Figure 5-3: Outpatient & inpatient visits to IGMH by percentage, 2015

In 2016, inpatients and outpatient visits were made to a public hospital located in Kaafu atoll remained at 44%, out of which 65% of outpatient and 87% of inpatients visits were made to IGMH.

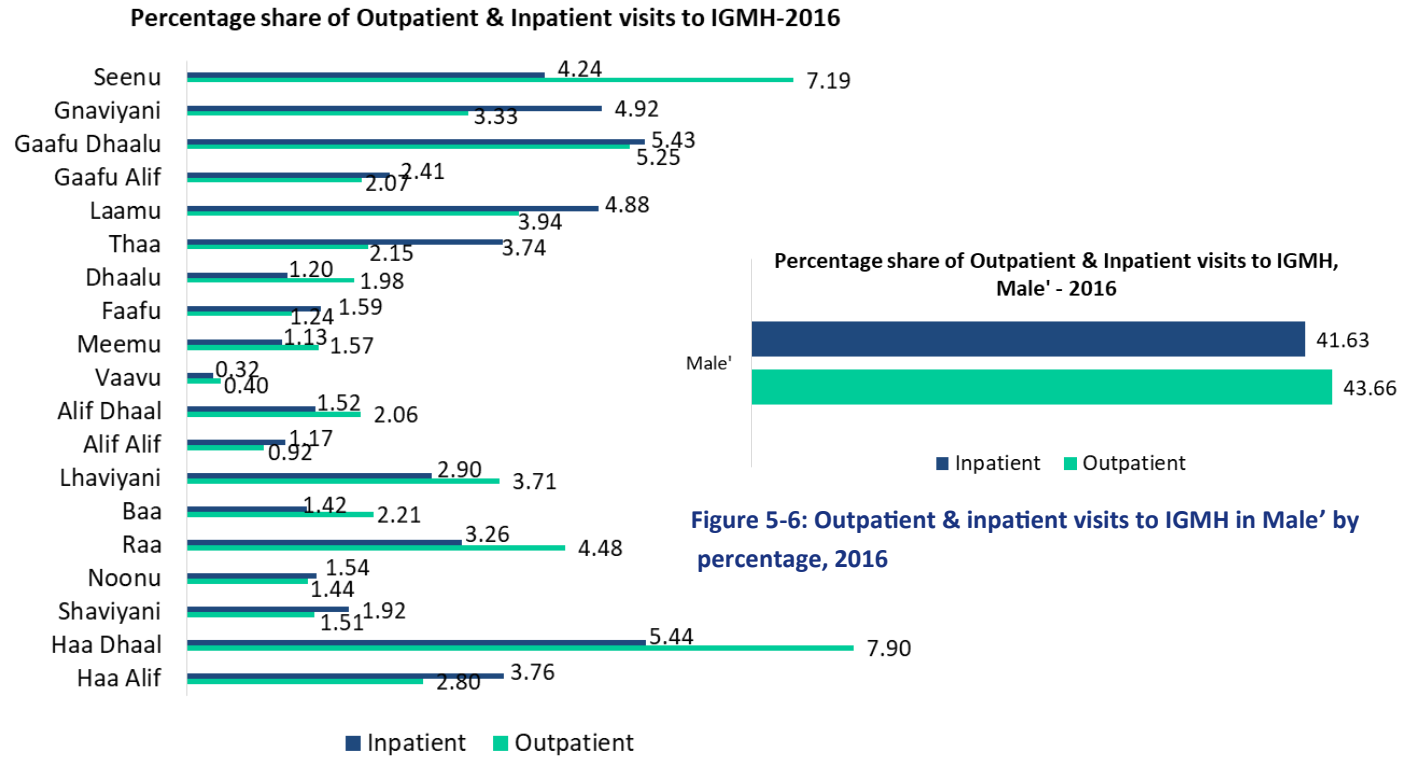

Figure 5-6: Outpatient & inpatient visits to IGMH in Male' by percentage, 2016

Figure 5-5: Outpatient & inpatient visits to IGMH by percentage, 2016

MEDICAL STAFF

Table 5-5: Number of medical staff working in health facilities, 2015-2016

QUICK FACTS	2015	2016
Total Number of medical staff recorded to be working in health facilities	4092	4797
Male medical staff	29.15%	29.83%
Female medical staff	70.85%	70.17%
Medical staff in Male'	35.19%	35.69%
Medical staff in Atolls	64.81%	56.76%
Doctors	19.70%	16.89%
Nurses	56.26%	54.66%
Allied Health Staff	10.48%	17.24%
Community Health Personnel	13.56%	11.22%

*Medical staff includes doctors, nurses, allied health staff and community health personnel

In 2015, a cumulative total of 4092 medical staff were reported to be working in all public health facilities in Maldives. More than half (56.26%) of these staff were nurses. 19.70% of the medical staff were doctors, while another 13.56% were attributed to community health personnel such as community health workers, family health workers and trained traditional birth attendants. Allied health staff such as laboratory staff, dental staff, radiographers and physiotherapists contributed to 10.48% of the medical staff working in Maldives in 2015.

In 2016, a cumulative total of 4797 medical staff were reported to be working in all public health facilities in Maldives. More than half (54.66%) of these staff were nurses. 16.89% of the medical staff were doctors, while another 11.22% were attributed to community health personnel such as community health workers, family health workers and trained traditional birth attendants. Allied health staff such as laboratory staff, dental staff, radiographers and physiotherapists contributed to 17.24% of the medical staff working in Maldives in 2016.

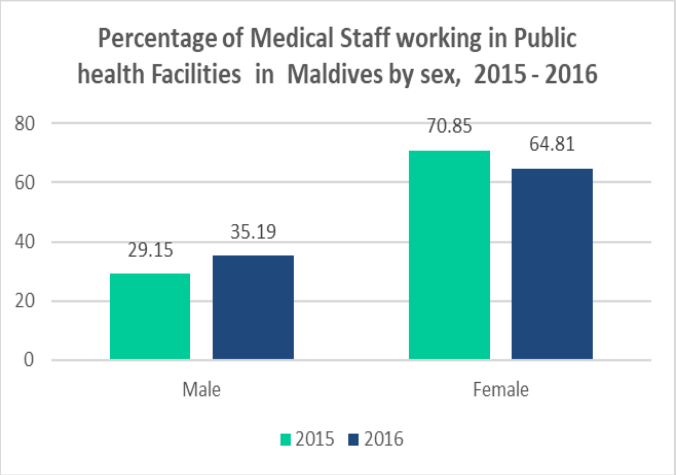

Figure 5-7: Percentage of medical staff working in health facilities by gender, 2015-2016

In 2015 and 2016, a total of 70% and 65% of the medical staff working in public heath facilities were females respectively. This is mainly due to the high number of female nurses and community health personnel working in the Maldives.

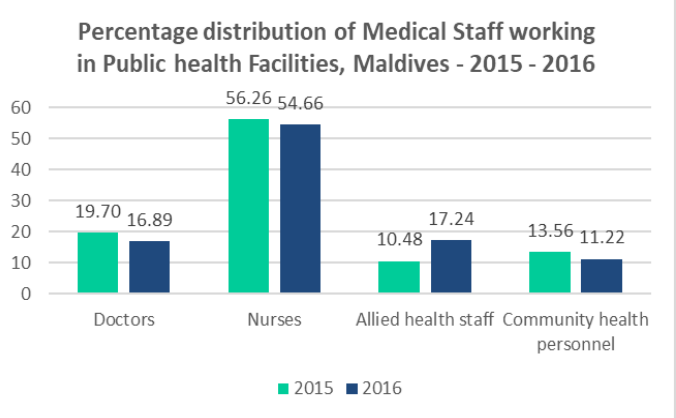

Figure 5-8: Distribution of medical staffs by percentage, 2015-2016

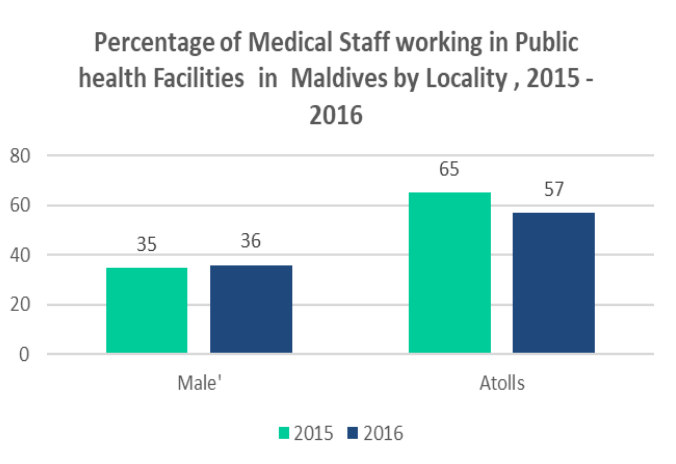

Figure 5-9: Percentage of medical staff working in health facilities by locality, 2015-2016

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1. Mohamed Ismail Fulhu. Healthcare in Maldives – yesterday and past. Maldives: Print-N-Gard (Pvt) Ltd; 2010. 311 p.

2. WHO. Medical Records Manual- A Guide for Developing Countries[document on the internet]. 2006 [cited 2016 Nov 9]. Available from: http://www.wpro.who.int/publications/docs/MedicalRecordsManual.pdf

SUMMARY TABLES - HEALTH SERVICE DELIVERY

Table 5-6: Total Number of Outpatient and Inpatient Visits Made to Public Hospitals, Maldives, 2015

	Location of Hospital			
	Atoll	**Island**	**Outpatient Visits (Number)**	**Inpatient Visits (Number)**
1	Haa Alif	Dhihdhoo	23,707	1,308
2	Haa Dhaal	Kulhudhuhfushi	80,162	2,668
3	Shaviyani	Funadhoo	17,584	762
4	Noonu	Manadhoo	14,018	702
5	Raa	Ungoofaaru	47,625	1,332
6	Baa	Ehdhafushi	22,303	564
7	Lhaviyani	Naifaru	36,813	847
8	Alif Alif	Rasdhoo	9,042	377
9	Alif Dhaal	Mahibadhoo	21,828	514
10	Vaavu	Felidhoo	4,454	52
11	Meemu	Muli	17,207	715
12	Faafu	Nilandhoo	13,514	450
13	Dhaalu	Kudahuvadhoo	20,766	859
14	Thaa	Veymandoo	22,168	1,161
15	Laamu	Gan	38,062	1,523
16	Gaafu Alif	Villingili	29,192	842
17	Gaafu Dhaalu	Thinadhoo	47,063	1,674
18	Gnaviyani	Fuvahmulah	38,159	1,555
19	Seenu	Hithadhoo	70,188	2,068
20	Kaafu	Male' (IGMH)	333,585	12,720
21	Kaafu	Male' (Hulhumale')	105,064	1,367
22	Kaafu	(ViliMale')	31,094	44

Source: Health Information and Research Section, PIH

Table 5-7: Total Number of Outpatient and Inpatient Visits Made to Public Hospitals, Maldives , 2016

	Location of Hospital			
	Atoll	**Island**	**Outpatient Visits (Number)**	**Inpatient Visits (Number)**
1	Haa Alif	Dhihdhoo	30,106	1,368
2	Haa Dhaal	Kulhudhuhfushi	85,088	1,976
3	Shaviyani	Funadhoo	16,261	699
4	Noonu	Manadhoo	15,522	561
5	Raa	Ungoofaaru	48,206	1,184
6	Baa	Ehdhafushi	23,839	515
7	Lhaviyani	Naifaru	39,982	1,053
8	Alif Alif	Rasdhoo	9,941	427
9	Alif Dhaal	Mahibadhoo	22,149	554
10	Vaavu	Felidhoo	4,334	117
11	Meemu	Muli	16,859	411
12	Faafu	Nilandhoo	13,321	578
13	Dhaalu	Kudahuvadhoo	21,351	437
14	Thaa	Veymandoo	23,183	1,361
15	Laamu	Gan	42,430	1,774
16	Gaafu Alif	Villingili	22,295	877
17	Gaafu Dhaalu	Thinadhoo	56,540	1,975
18	Gnaviyani	Fuvahmulah	35,858	1,788
19	Seenu	Hithadhoo	77,402	1,542
20	Kaafu	Male' (IGMH)	304,631	13,164
21	Kaafu	Male' (Hulhumale')	122,166	1,962
22	Kaafu	(ViliMale')	43,317	4

Source: Health Information and Research Section, PIH

Table 5-8: Distribution of Medical Staff Working in Health Facilities by Locality & Sex, Maldives , 2015

Medical Staff/ Locality & Sex	Doctors	Nurses	Allied Health Staff	Community Health Personnel
REPUBLIC				
Male	599	225	217	152
Female	207	2077	212	403
Total	806	2302	429	555
MALE'				
Male	210	109	91	2
Female	140	764	122	2
Total	350	873	213	4
ATOLLS				
Male	389	116	126	150
Female	67	1313	90	401
Total	456	1429	216	551

Table 5-9: Distribution of Medical Staff Working in Health Facilities by Locality & Sex, Maldives , 2016

Medical Staff/ Locality & Sex	Doctors	Nurses	Allied Health Staff	Community Health Personnel
REPUBLIC				
Male	560	271	450	150
Female	250	2351	377	388
Total	810	2622	827	538
MALE'				
Male	222	137	100	1
Female	174	933	138	7
Total	396	1070	238	8
ATOLLS				
Male	338	134	138	149
Female	76	1418	89	381
Total	414	1552	227	530

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