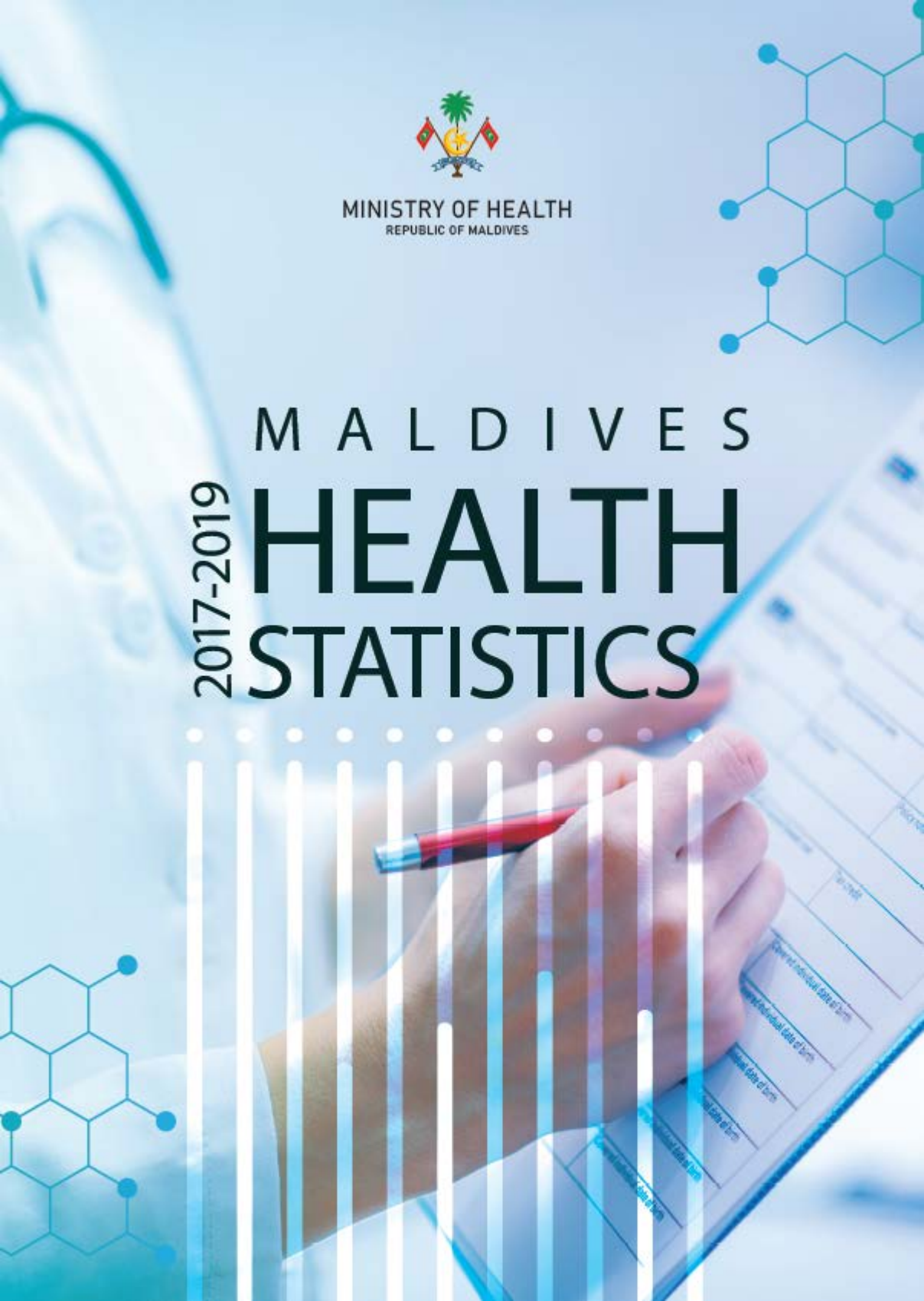
MINISTRY OF HEALTH
REPUBLIC OF MALDIVES

MALDIVES HEALTH STATISTICS 2017-2019



MALDIVES HEALTH STATISTICS 2017-19

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Health Information and Research Section,
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EXECUTIVE SUMMARY

The tenth series of Maldives Health Statistics book is published with the objective of providing easy access to up-to-date comprehensive statistical information on various aspects of health. Apart from prologue, this book contains 6 key chapters; Natality, Morbidity, Analysis of Cause of Death, Mortality, Public Health 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 1990 to 2014, for males and females. Additionally, in this chapter, fertility indices are reported from MDHS 2016-17, while up to date data on births, birth outcomes, birth weight, birth attendants and age of mother are from the vital registration system of the Maldives.

Chapter 2 Morbidity: The second chapter covers total inpatients by age-sex disaggregation, location, burden of diseases by principal diagnosis of admissions from all the hospitals of Maldives.

Chapter 3 Analysis of cause of death: Similar to chapter 1, this chapter uses information from the vital registration system of the Maldives. This chapter looks into age specific mortality rates, completeness of mortality data, broad classification of deaths and quality of cause of death data.

Chapter 4 Mortality: This chapter uses 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 2017-19.

Chapter 5 Public Health: This chapter presents data on immunization, breastfeeding and malnutrition among children Maldives Demographic Health Survey 2016-17 [MDHS 2016-17]. Thalassemia prevalence details from Maldives Blood Services. In addition, this chapter also looks health services availability in terms of inpatient beds and outpatient data.

Chapter 6 Health 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 human resources and medical staff in all hospitals and public health facilities in all cadres. The analysis in this chapter is based on the data collected from Health Facilities by Health Information and Research Section, Ministry of Health.

KEY HEALTH INDICATORS

SDG	SDG targets	Indicator	Indicator Value	Source	Year
3.1.1	**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	60.76	VRS	2018
			102.93	VRS	2017
			44.12	VRS	2016
			98.84	VRS	2015
			41.15	VRS	2014
3.1.2		3.1.2 Proportion of births attended by skilled health personnel	95.8%	VRS	2018
			94.9%	VRS	2017
			94.9%	VRS	2016
			94.5%	VRS	2015
			95.6%	VRS	2014
3.2.1	**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. Neonatal mortality rate (per 1000 live births)	4.25	VRS	2018
			7.65	VRS	2017
			6.76	VRS	2016
			5.79	VRS	2015
			6.03	VRS	2014
		4. Under-five mortality rate (per 1000 live births)	6.23	VRS	2018
			10.88	VRS	2017
			10.74	VRS	2016
			11.72	VRS	2015
			10.56	VRS	2014
3.3.2	**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 (**proxy: AIDS prevalence rate**)	0.001	HPA	2017
		3.3.2 Tuberculosis incidence per 1,000 population	49	HPA	2016
		3.3.3 Malaria incidence per 1,000 population	Eliminated	HPA	2015
		3.3.5 Number of people requiring interventions against neglected tropical diseases (**proxy: Number of Dengue cases reported**)		HPA	2018
			998	HPA	2017
3.4.1	**3.4** By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and	10. Probability of dying from any of CVD, cancer, diabetes, CRD between	9.34%	VRS and NBS	2018
			10.10%		2017
			9.81%		2016
			9.93%		2015

SDG	SDG targets	Indicator	Indicator Value	Source	Year
	treatment and promote mental health and well-being	age 30 and exact age 70 (%) (**proxy**: Percent of mortality from CVD, cancer, diabetes, CRD between age 30 and exact age 70)	10.69%		2014
3.4.2		11. Suicide mortality rate (per 100 000 population)	1.37	Maldives Police Service and NBS	2018
			3.46		2017
			3.60		2016
			2.86		2015
3.6.1	**3.6** By 2020, halve the number of global deaths and injuries from road traffic accidents	13. Road traffic mortality rate (per 100 000 population)	1.17	VRS and NBS	2018
			1.83		2017
			0.85		2016
			2.86		2015
3.7.1	**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	29.40%	**MDHS**	**2016-2017**
		20. Density of psychiatrists (per 100,000 population)	2.15	HI records and NBS	2018
			2.85		2017
		21. Density of surgeons (per 100,000 population)	7.81		2018
			7.73		2017
		22. Hospital beds per 10000 population (admission beds)	37.99		2018
			42.05		2017
			49.54		2016
			49.41		2015
		29. Population with household expenditures on health > 25% of total household expenditure or income (%)	6%	HIES, NBS	2016
3.a.1		33. Age-standardized prevalence of tobacco smoking among persons 15 years and older (%)	22.50%	MDHS	2016-2017
3.b.1		34. Diphtheria-tetanus-pertussis (DTP3) immunization coverage among 1-year-olds (%) (Proxy: Coverage of DPT containing vaccine (3rd dose)	85.0		2016-2017

SDG	SDG targets	Indicator	Indicator Value	Source	Year
		35. Measles-containing-vaccine second-dose (MCV2) immunization coverage by the nationally recommended age (%)	75.3		2016-2017
3.c.1		38. Density of dentistry personnel (per 1000 population)	0.08	HI records and NBS	2018
			0.07		2017
		39. Density of nursing and midwifery personnel (per 1000 population)	5.53		2018
			5.60		2017
		40. Density of pharmaceutical personnel (per 1000 population)	1.36		2018
			1.00		2017
		41. Density of physicians (per 1000 population)	1.01		2018
			1.02		2017
	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	15.3	MDHS	2016-2017
		2.2.2 Prevalence of malnutrition among children under 5 years of age[1]	14.1		2016-2017
2.2.2		a. Prevalence of overweight among children under 5 years of age	4.9		2016-2017
		b. Prevalence of wasting among children under 5 years of age	9.1		2016-2017
6.1.1	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]	98.6		2016-2017
6.2.1		6.2.1 Proportion of the population using safely managed sanitation services, including a handwashing facility with soap and water[15]	98.3	MDHS	2016-2017
7.1.2	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Proportion of population with access to electricity	99.8	MDHS	2016-2017
		7.1.2 Proportion of population with primary reliance on clean fuels and technology[16]	99	MDHS	2016-2017

SDG	SDG targets	Indicator	Indicator Value	Source	Year
	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]	68.5[a]	MDHS	2016-2017
16.1.1		Mortality rate due to homicide (per 100 000 population)	0.20	Maldives Police Service and NBS	2018
			2.03		2017
			1.06		2016
			2.42		2015
	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	98.8	MDHS	2016-2017
	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]	82.6	MDHS	2016-2017

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

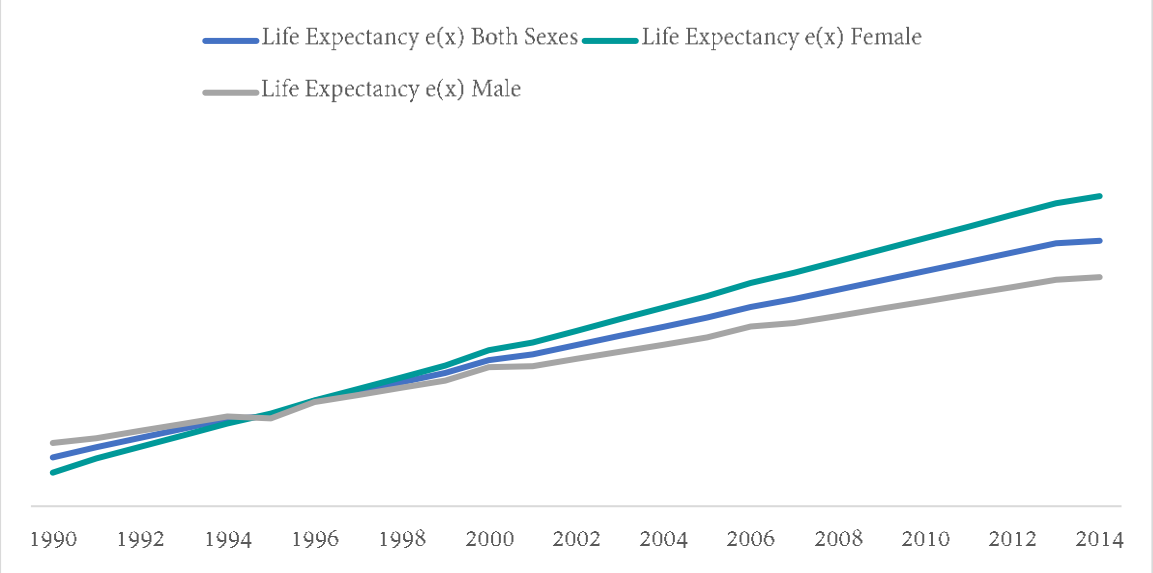
NATALITY

1. CHAPTER 1 NATALITY

1.1. LIFE EXPECTANCY AT BIRTH

A Maldivian born in 2014 can be expected to live around 82 years, while girl who was born in the year 2014 can be expected to live to around 85-86 years and a Maldivian boy who was born in the same year can be expected to live to around 79 years.

Figure 1-1: Life expectancy at birth 1990-2014



Source: NBS

Although in 1990, 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 6-7 years longer than a Maldivian boy born in the same year.

1.2. FERTILITY INDICES

The total fertility rate (TFR) [3] calculated from MDHS 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.

DEFINITION

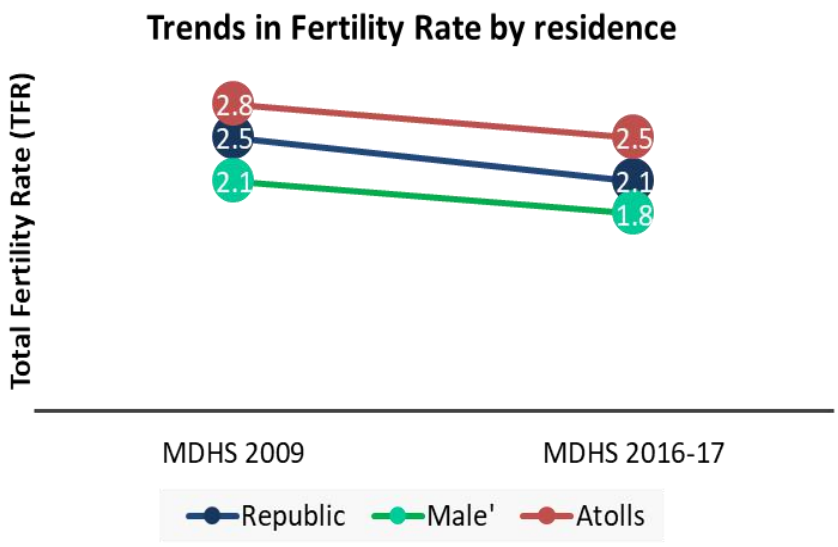
Total Fertility Rate [TFR] is defined in MDHS 2016-17 as "The average number of children a woman would have by the end of her childbearing years (15-49 years) if she bore children at the current age-specific fertility rates."

Table 1-1: Total Fertility Rate, 2016-17

	REPUBLIC	MALE'	ATOLLS
TFR	**2.1**	**1.8**	**2.5**

Fertility is lower 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 region. The TFR has declined in the Maldives in the last 7-8 years.

Figure 1-2: Trend in Fertility Rate by Residence



1.3. CRUDE BIRTH RATE

Over the past 10 years, Maldives has experienced a declining Crude Birth Rate (CBR) [4], where it peaked in 2012 with 23 live births per 1000 population and started declining with the lowest being in 13 live births per 1000 population in 2019.

DEFINITION

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".

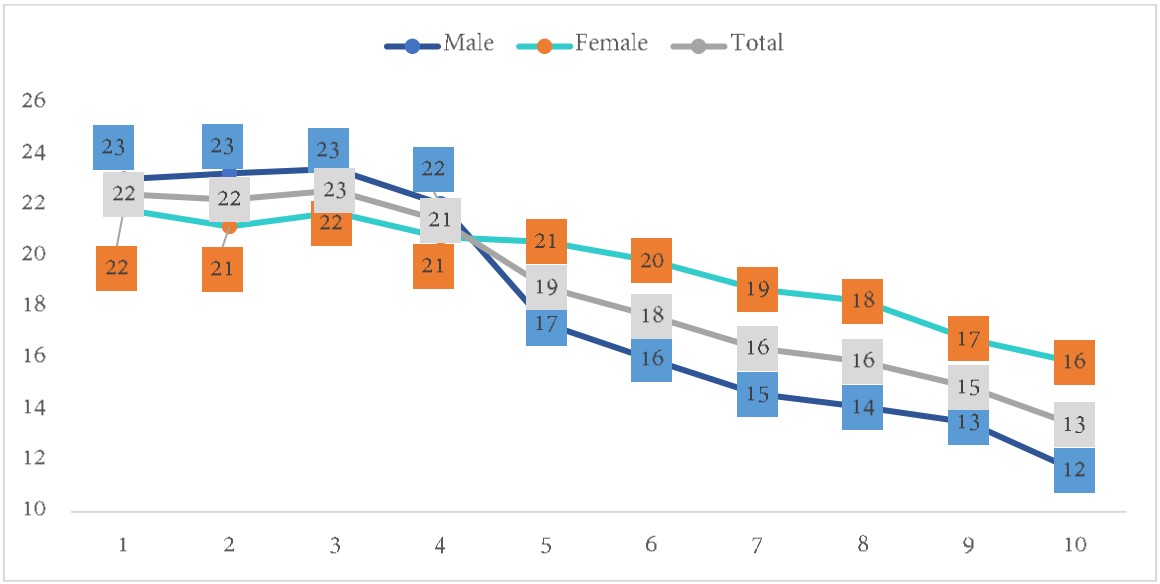
Equation 1.3-1: Crude Birth Rate

$$CBR = \frac{\text{Live Births in a given year}}{\text{Mid year population for the same year}} x\ 1000$$

Table 1-2: Crude Birth Rate by Gender for 2017, 2018 and 2019

Year	Male	Female	Total
2017	14	18	16
2018	13	17	15
2019	12	16	13

Figure 1-3: Trend of Crude Birth Rate by Gender, 2009 - 2018



1.4. TOTAL BIRTHS

The health of a baby at birth is a key determinant of health and wellbeing throughout life. Data on most births in Maldives are collected by health professionals and included in the "foolhumaa form" (delivery form) issued at birth of a baby. This snapshot uses these data to explore aspects of labour, birth and baby outcomes.

Total births in Maldives are aggregated data of all births recorded for Male' and Atolls in the Vital Registration System and also compiled data from health information section of MoH[1]. It also includes all reported births that had occurred abroad.

In 2017-19, there were a total of 20,188 births (7,030 in 2017, 6,808 in 2018 and 6,350 in 2019) out of which more than 96% were live births in all three years.

DEFINITIONSS

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 1.4: Total deliveries by type and nationality of the child, 2017, 2018 and 2019

Origin and type of delivery	2017	2018	2019
Abortion	**197**	**199**	**158**
Foreign	8	5	4
Maldivian	189	194	154
Live Birth	**6,802**	**6,586**	**6,153**
Foreign	20	22	26
Maldivian	6,782	6,564	6,127
Still Birth	**31**	**23**	**39**
Foreign			1
Maldivian	31	23	38
Total	**7,030**	**6,808**	**6,350**

[1] Birth data for 2019 is tentative and subject to change

1.5. GEOGRAPHIC LOCATION

Of all the live births in 2017-19,

- 62% in 2017, 64% in 2018 and 69% in 2019 occurred in Male' city – the capital island[2]

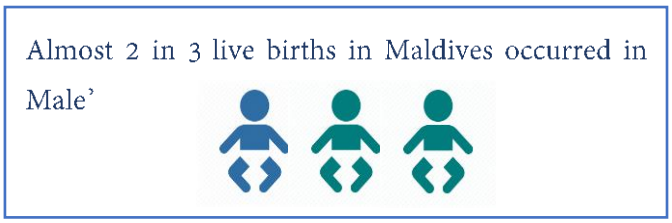
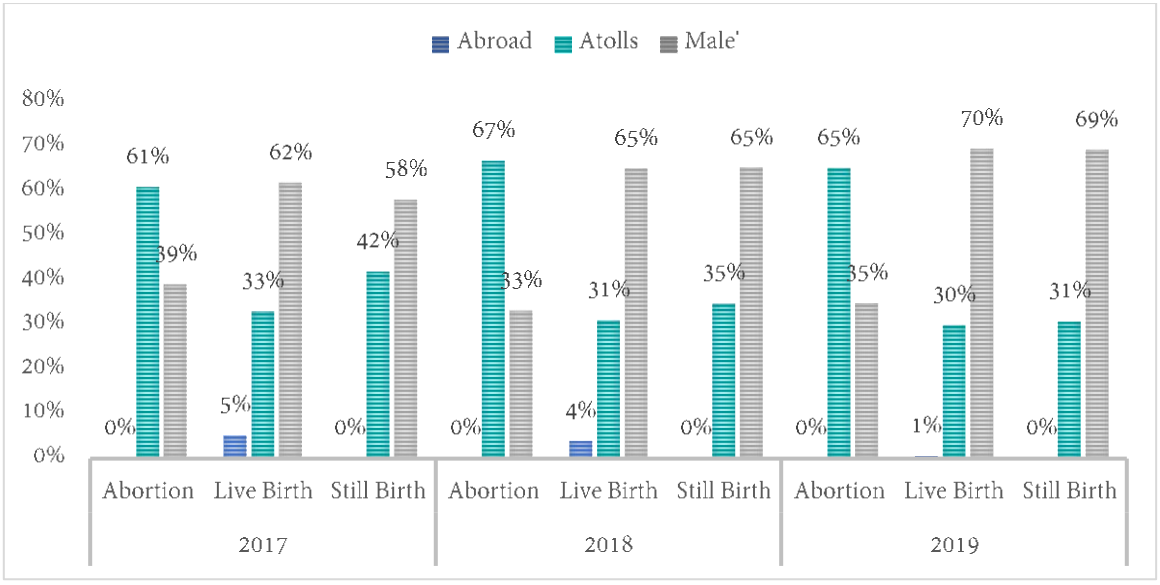


Figure 1-4: Geographic location by type of births, 2017, 2018 and 2019[3]



[2] 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.

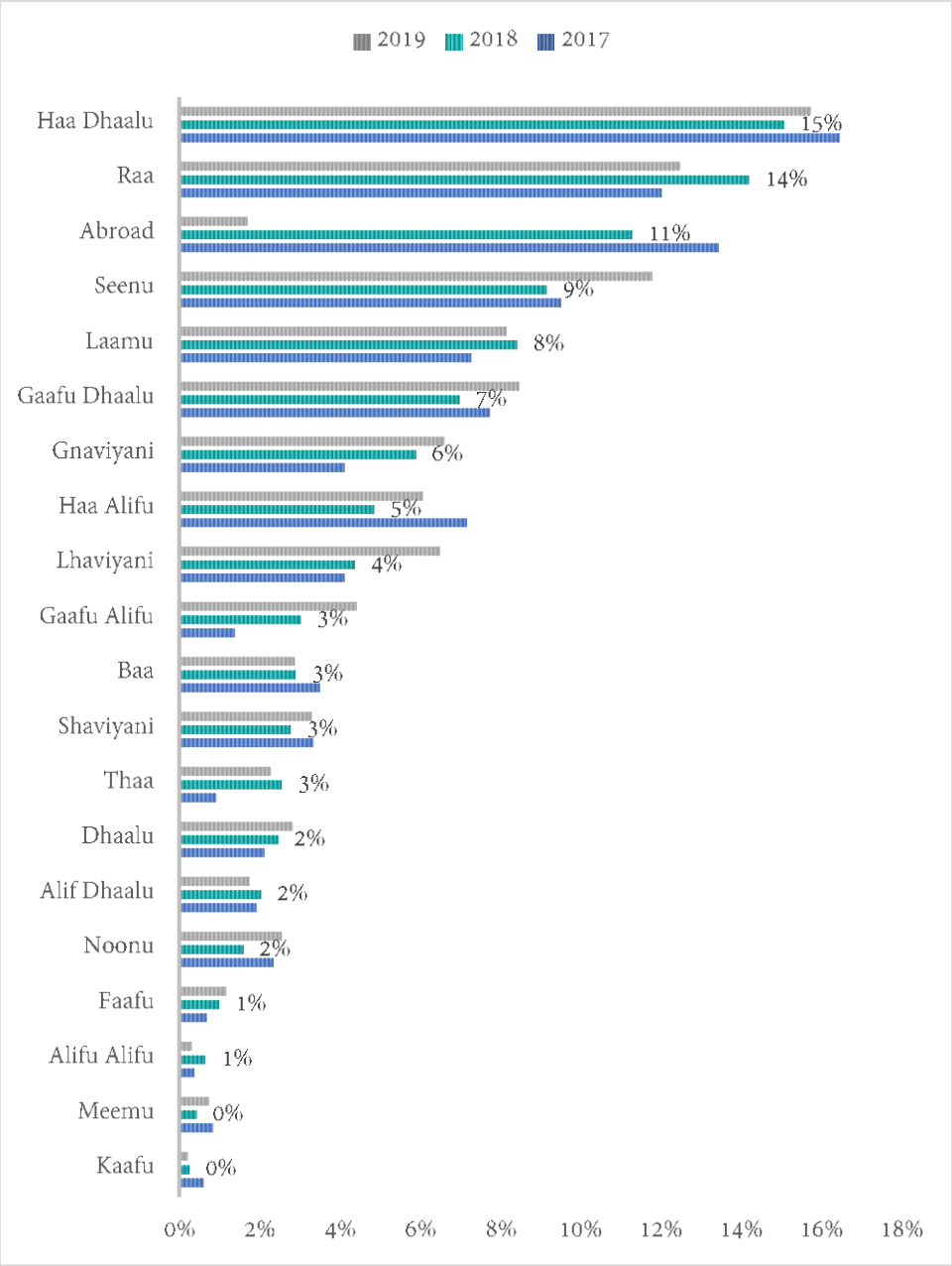
[3] Since majority of deliveries in Maldives (especially the complicated deliveries) occurred in Male', it is likely to skew the result towards more stillbirths occurring at Male'.

Table 1-3: Live Births by Location, 2017, 2018 and 2019

Location	2017	2018	2019
Male'	4,207	4,282	4,277
Haa Dhaalu	427	347	295
Raa	312	327	234
Seenu	247	211	221
Gaafu Dhaalu	201	161	159
Laamu	189	194	153
Gnaviyani	107	136	124
Lhaviyani	107	101	122
Haa Alifu	186	112	114
Gaafu Alifu	36	70	83
Shaviyani	87	64	62
Baa	91	67	54
Dhaalu	55	57	53
Noonu	61	37	48
Thaa	24	59	43
Alif Dhaalu	50	47	33
Abroad	349	260	32
Faafu	18	23	22
Meemu	22	10	14
Alifu Alifu	10	15	6
Kaafu	16	6	4
Total	**6,802**	**6,586**	**6,153**

In terms of atoll trend, it can be seen that except Male', all other regions had a similar trend with Haa Dhaal and Raa having the highest live births.

Figure 1-5: Atoll Trend of Live Births, 2017, 2018 and 2019



1.6. PLACE OF BIRTH

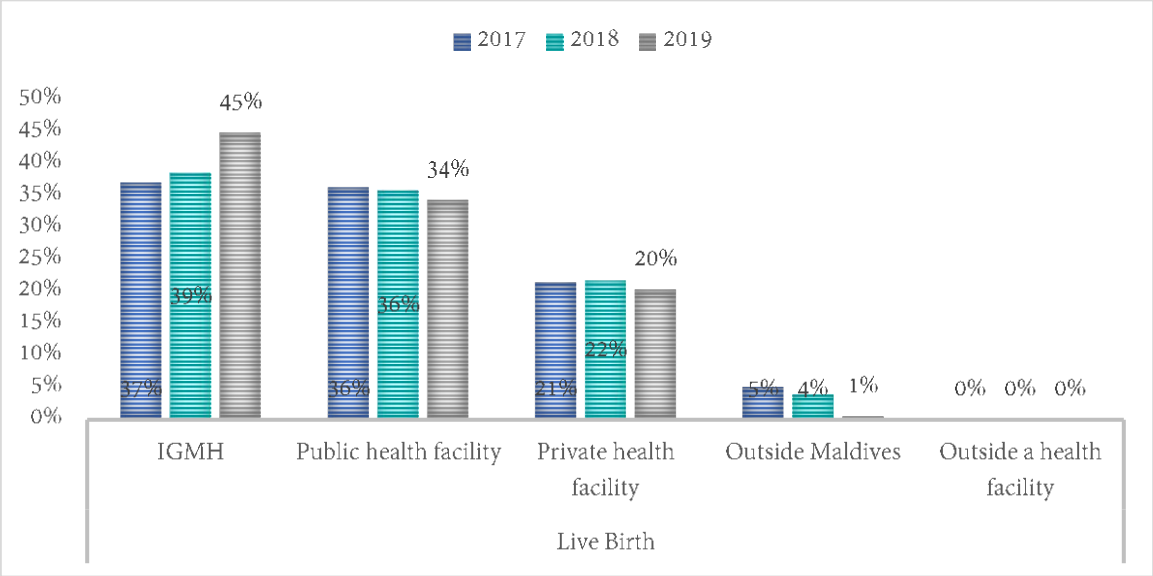
Of all the live birth in 2017-19,

- More than 70% took place in public health facility where IGMH had more than 37%-45% from 2017 to 2019 of live births
- 20% of live births took place in private hospitals
- Five percent (5%) in 2017 and four percent (4%) in 2018 took place outside of Maldives

Table 1-4: Place of birth, by type for 2017, 2018 and 2019

Birth place and type of delivery	2017	2018	2019
Abortion	**197**	**199**	**158**
Public health facility	122	142	105
IGMH	54	30	38
Private health facility	20	27	15
Outside a health facility	1		
Live Birth	**6,802**	**6,586**	**6,153**
IGMH	2,519	2,538	2,759
Public health facility	2,466	2,355	2,111
Private health facility	1,461	1,431	1,251
Outside Maldives	349	262	32
Outside a health facility	7		
Still Birth	**31**	**23**	**39**
IGMH	11	13	23
Public health facility	13	9	13
Private health facility	6	1	3
Outside a health facility	1		
Total	**7,030**	**6,808**	**6,350**

Figure 1-6: Place of Live Births in percent 2017, 2018 and 2019



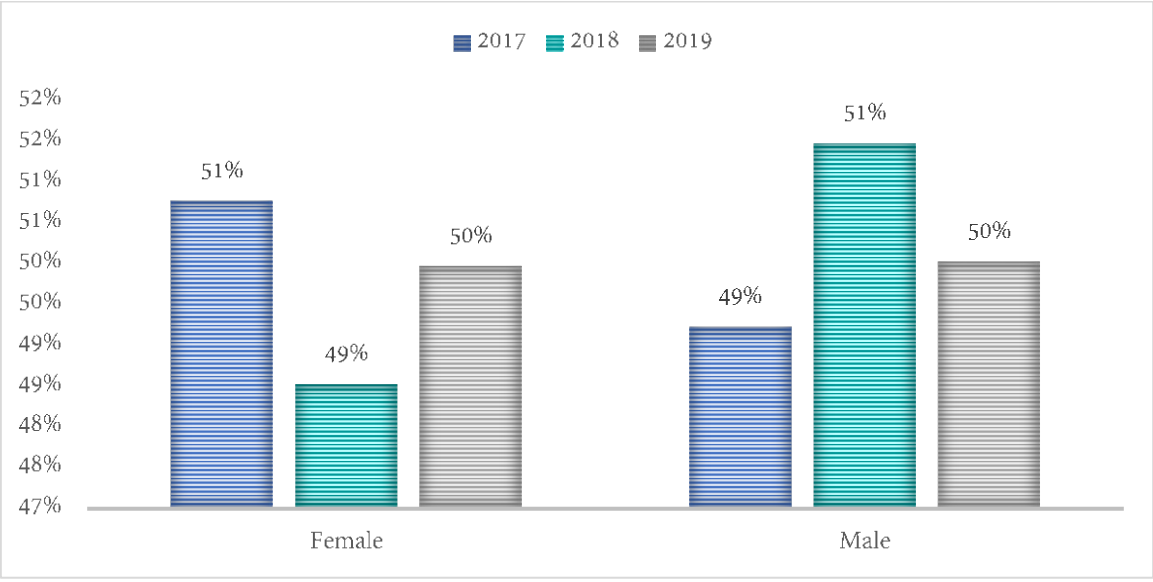
1.7. BIRTHS BY GENDER

Baby boys slightly outnumbered baby girls:

Table 1-5: Total Maldivian Live Births by Gender, 2017, 2018 and 2019

Gender	2017	2018	2019
Female	1,317	1,118	937
Male	1,277	1,186	938
Total	**2,594**	**2,304**	**1,875**

Figure 1-7: Gender of All Live Births, 2017, 2018 and 2019



1.8. MODE OF DELIVERY

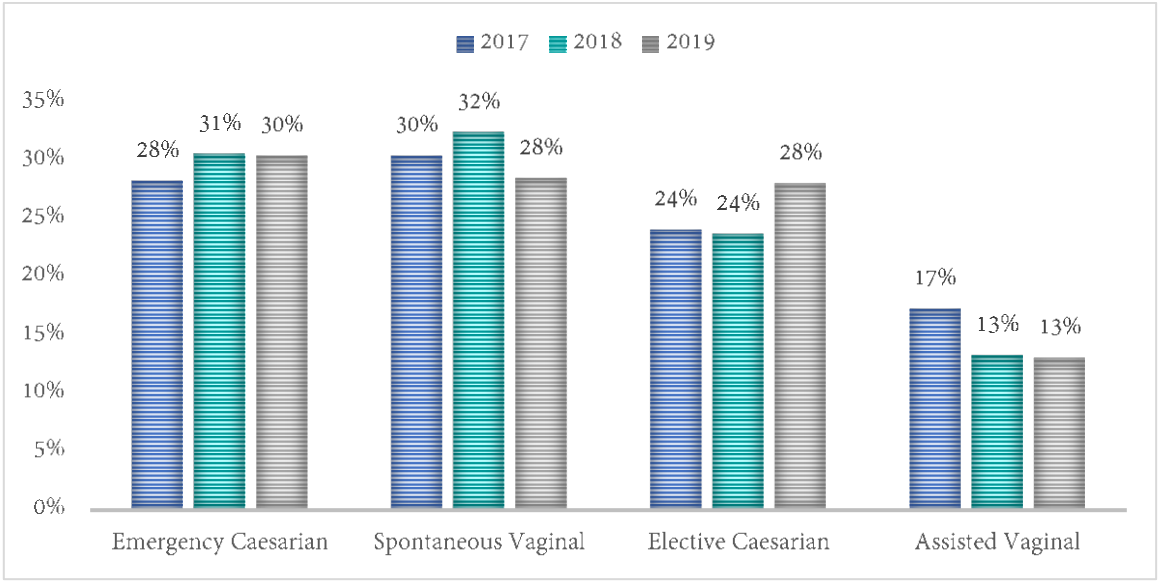
Cesarean birth increased over the years from 45% in 2017 to 58% in 2019.

Similarly, 3 in 5 (58% in 2019) women who had a live birth underwent a caesarean section, including women who:

- had elective caesarean (28% in 2019)
- required an emergency caesarean section (30% in 2019)

Almost 3 in 5 births or livebirths in Maldives are delivered by Cesarean section.

Figure 1-8: Mode of Delivery, 2017, 2018 and 2019



In 2019, rates of spontaneous labour onset were higher among younger mothers. Overall, emergency caesarean section rates had increased. It is a notable increase from the findings of MDHS 2016/17, where it was recorded as 40% of live births having a cesarean [5]. Once labour starts, it may be necessary to intervene to speed up or augment the labour.

1.9. GESTATIONAL AGE OF BABIES

The average gestational age for all live births was 38 weeks in 2017-19. This varied in relation to birth status (for example, liveborn or stillbirth) and multiple pregnancies (for example, twins and triplets). Still births had an average gestational age of 34 – 36 weeks in 2017-19.

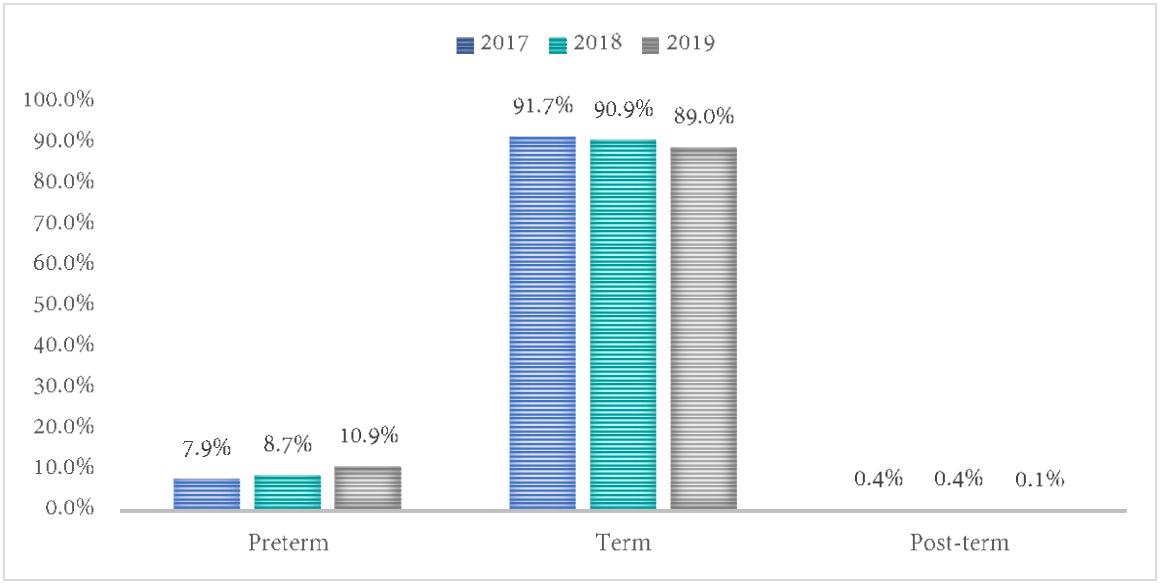
Table 1-6: Quick facts: gestational age of babies of all live births, 2017, 2018 and 2019

Gestational age	2017	2018	2019
Preterm	536	573	669
Term	6,240	5,989	5,477
Post-term	26	24	7
Total	**6,802**	**6,586**	**6,153**

Gestational age of live births:

- Preterm (20–36 weeks)
- Term (37–41 weeks)
- Post-term (42+ weeks)

Figure 1-9: Gestational age of babies of all live births, 2017, 2018 and 2019



1.10. BIRTHWEIGHT

Birthweight is a key indicator of infant health and a determinant of a baby's chance of survival and health later in life.

Incidence of babies born small for gestational age and of a low birthweight was more common among babies born to mothers who had multiple births (twins, triplets). For all live births in 2017-19, the average birth weight was 2,900 grams.

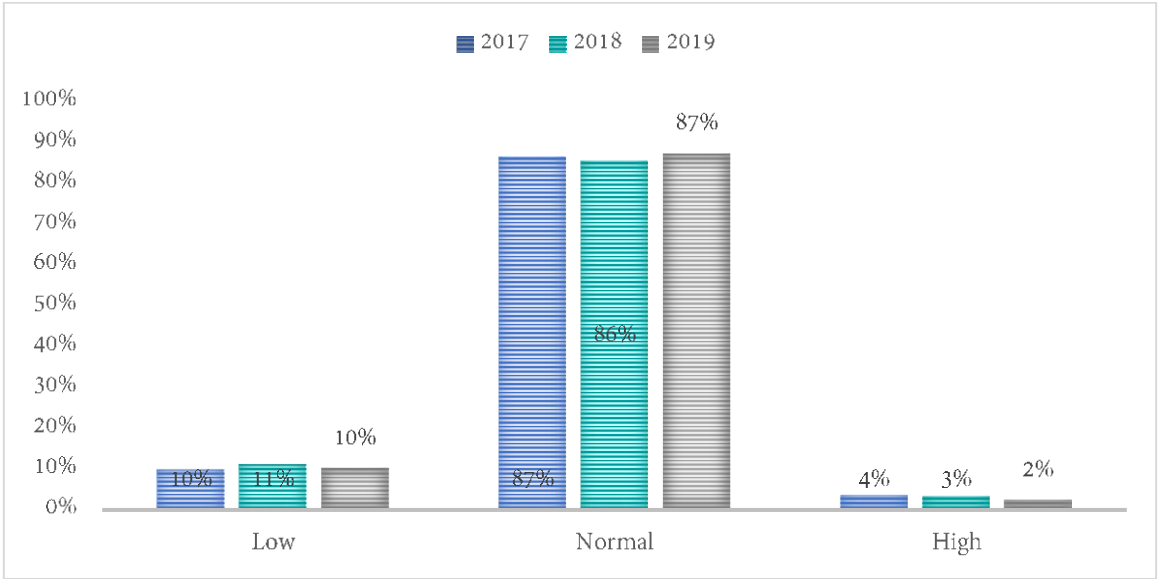
Birthweight categories:

- High: 4,000 grams and over
- Normal: 2,500–3,999 grams
- Low: =< 2,499 grams

Table 1-7: Quick facts: birthweight categories in number and per cent, 2017, 2018 and 2019

Birthweight	2017		2018		2019	
Low	707	10%	766	12%	759	12%
Normal	5,591	82%	5,402	82%	5,213	85%
High	212	3%	187	3%	146	2%
Not stated	292	4%	231	4%	35	1%
Total	6,802	100%	6,586	100%	6,153	100%

Figure 1-10: Live births weight, 2017, 2018 and 2019[4]



[4] Livebirths without birthweight omitted from graph

1.11. AGE OF MOTHER

Mother's age is an indicator of healthier babies. It is also referred to as maternal age or the age of the mother at the time of delivery. Advanced maternal age is usually defined as age 35 or more at delivery. In 2017-19, the average maternal age for all live births were 30 years.

Figure 1-11: Age of mother who had a live birth in 2017, 2018 and 2019[5]

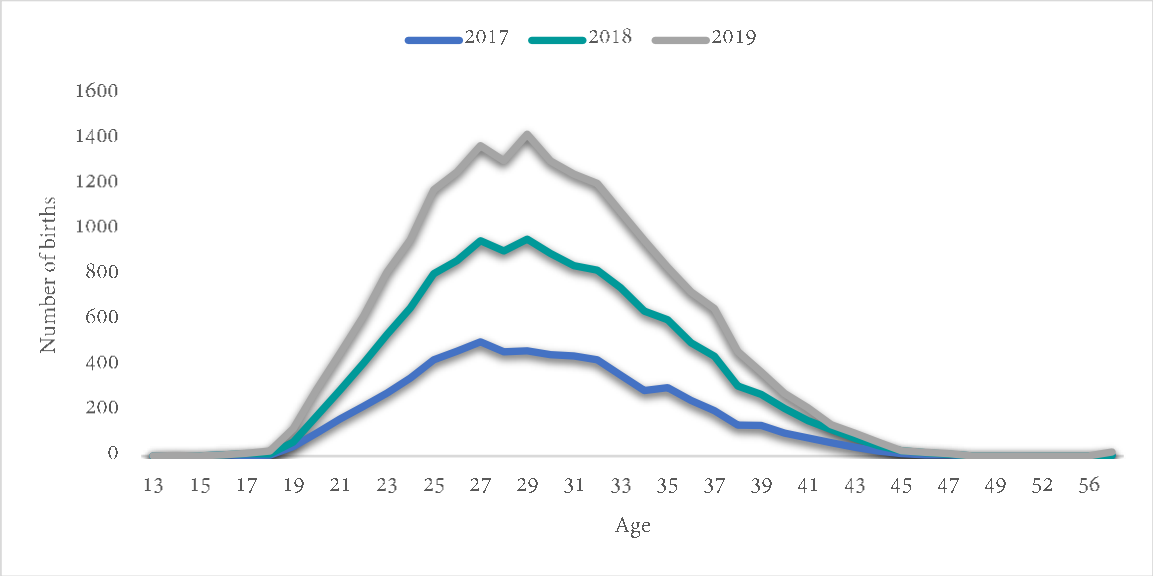


Table 1-8: Age of mothers by birth type for 2017, 2018 and 2019

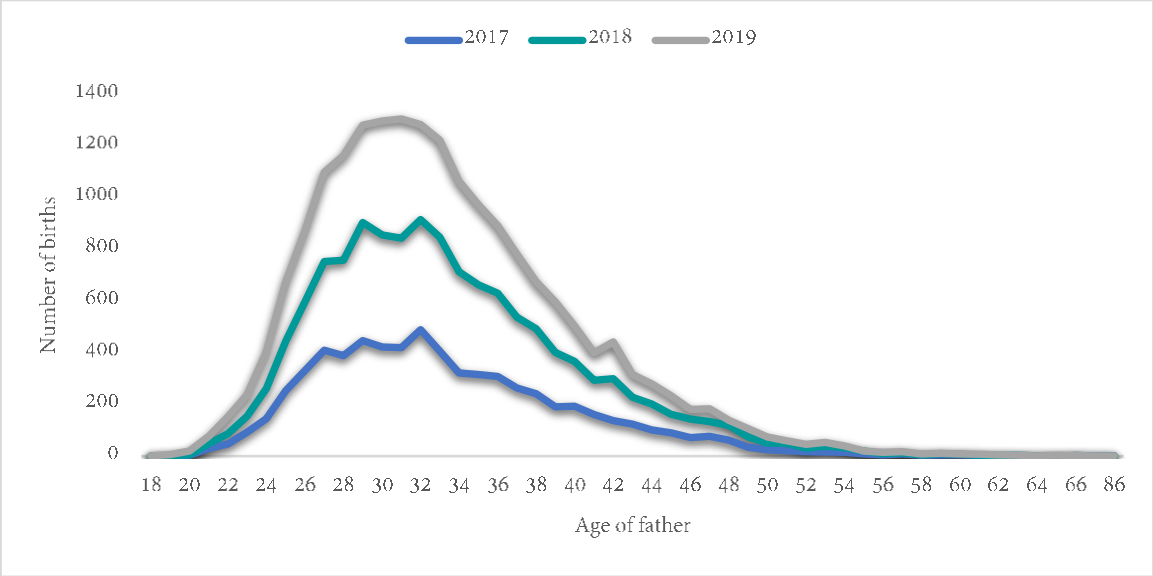
Age of mothers	2017		2018		2019	
13-19	55	0.81%	34	0.52%	77	1.25%
20-29	3429	50.41%	3132	47.56%	3111	50.56%
30-39	2984	43.87%	3088	46.89%	2762	44.89%
40-49	329	4.84%	331	5.03%	187	3.04%
50 and above	2	0.03%	1	0.02%	1	0.02%
Not stated	3	0.04%		0.00%	15	0.24%
Total	**6802**	**100.00%**	**6586**	**100.00%**	**6153**	**100.00%**

[5] Live births with unknown age of mothers omitted from graph

1.12. AGE OF FATHER

Similar to mother's age, the father's age also plays an important role. In 2017-19, the average or mean father's age is a bit higher than that of mothers. The average fathers age for all the live babies is 33-34 years in 2017-19. However, the median age of fathers for 2017-19 is 32 years.

Figure 1-12: Age of Father for Live Births, 2017, 2018 and 2019[6]



Unlike mothers age range, the range is higher for fathers age, with the youngest father being 18 years and oldest being 86 years of age in 2017-19.

[6] Live births with unknown age of fathers omitted from graph

1.13. BIRTH ATTENDANT

It can be noted that births are normally attended by doctors and nurses/mid wife nurse in the Maldives, where it increased from 95% to 99% from 2017 to 2019.

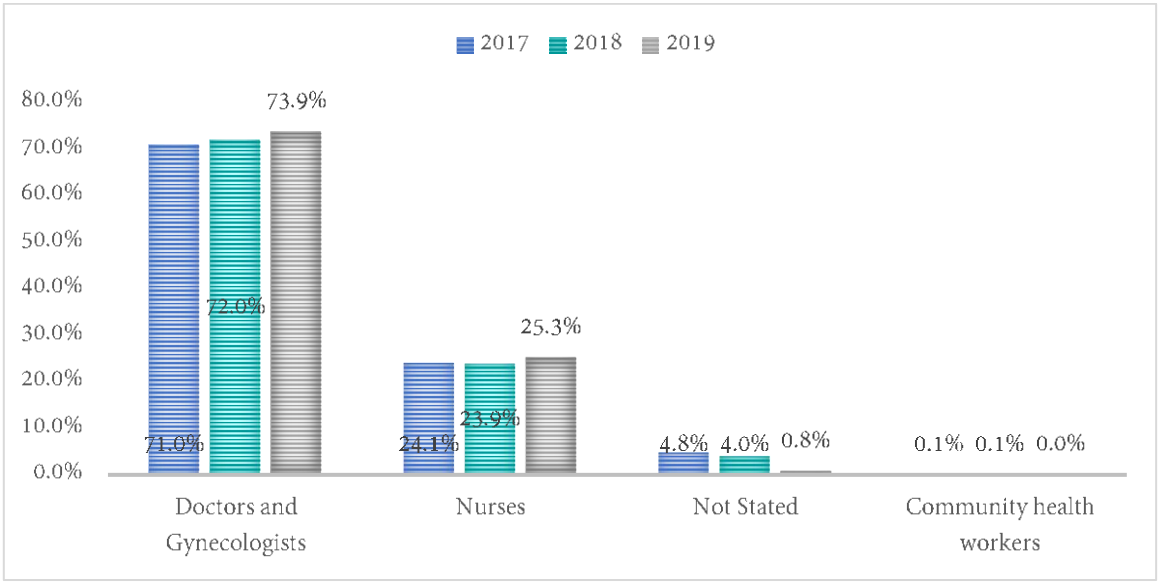
Table 1-9: Total number of live births attended by skilled professionals in 2017, 2018 and 2019

Attendant	2017	2018	2019
Doctors and Gynecologists	4,994	4,904	4,691
Nurses	1,693	1,627	1,604
Not Stated	337	270	52
Community health workers	6	7	3
Total	**7,030**	**6,808**	**6,350**

Skilled health professionals are defined as people who have undergone mid-wife training. Therefore doctors, gynecologists and nurse midwife are considered as skilled (trained) birth attendants.

It can also be noted that less than one per cent of births have been attended by community, family and community health workers combined in 2017-19.

Figure 1-13: Percentage of Live Births attended by Skilled Professionals, 2017, 2018 and 2019



1.14. ANNEXES

Table 1-10: Life expectancy at birth 1990-2014

Year	Life Expectancy e(x)		
	Both Sexes	Female	Male
1990	64.04	62.78	65.24
1991	64.90	63.96	65.64
1992	65.67	64.92	66.23
1993	66.43	65.88	66.83
1994	67.20	66.84	67.42
1995	67.48	67.68	67.27
1996	68.73	68.76	68.62
1997	69.50	69.72	69.21
1998	70.27	70.68	69.81
1999	71.03	71.64	70.40
2000	72.11	72.93	71.50
2001	72.57	73.56	71.60
2002	73.33	74.52	72.19
2003	74.10	75.48	72.79
2004	74.87	76.44	73.38
2005	75.63	77.40	73.98
2006	76.51	78.50	74.87
2007	77.17	79.32	75.17
2008	77.93	80.28	75.77
2009	78.70	81.24	76.36
2010	79.47	82.20	76.96
2011	80.23	83.17	77.55
2012	81.00	84.13	78.15
2013	81.77	85.09	78.75
2014	81.98	85.68	78.97

Source: NBS

Table 1-11: 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

Age-group	Male'	Atolls	Republic
45-49	0	5	3
TFR	1.8	2.5	2.1

Table 1-12: Geographic location of birth by gender and type of birth 2017, 2018 and 2019

Location	2017			2017 Total	2018			2018 Total	2019			2019 Total
	Abortion	Live Birth	Still Birth		Abortion	Live Birth	Still Birth		Abortion	Live Birth	Still Birth	
Male'	**77**	**4207**	**18**	**4,302**	**66**	**4282**	**15**	**4,363**	**55**	**4277**	**27**	**4,359**
Female	10	2049	9	2,068	8	2041	7	2,056	8	2114	9	2,131
Male	58	2158	9	2,225	47	2240	8	2,295	34	2163	18	2,215
Not stated	9			9	11	1		12	13			13
Haa Dhaalu		**427**	**4**	**431**	**2**	**347**	**1**	**350**	**5**	**295**		**300**
Female		224	1	225		160	1	161	2	149		151
Male		203	3	206	2	187		189		146		146
Not stated									3			3
Raa	**12**	**312**		**324**	**29**	**327**	**2**	**358**	**31**	**234**	**4**	**269**
Female		144		144		170		170		119	3	122
Male		168		168	3	157	2	162	3	114	1	118
Not stated	12			12	26			26	28	1		29
Seenu		**247**	**1**	**248**	**4**	**211**	**1**	**216**	**3**	**221**	**6**	**230**
Female		127		127		97		97	1	112	2	115
Male		120	1	121	3	114	1	118	2	109	4	115
Not stated					1			1				
Laamu	**33**	**189**	**1**	**223**	**43**	**194**		**237**	**16**	**153**		**169**
Female		103		103		91		91		74		74
Male		86	1	87	4	103		107	1	79		80
Not stated	33			33	39			39	15			15
Gaafu Dhaalu	**22**	**201**	**1**	**224**	**22**	**161**		**183**		**159**		**159**
Female		91		91	2	77		79		85		85
Male	21	110	1	132	15	84		99		74		74
Not stated	1			1	5			5				
Gnaviyani	**18**	**107**		**125**	**17**	**136**	**1**	**154**	**17**	**124**		**141**
Female		57		57		74		74	10	63		73
Male	1	50		51		62	1	63	7	61		68
Not stated	17			17	17			17				
Lhaviyani	**9**	**107**		**116**	**8**	**101**		**109**	**12**	**122**		**134**
Female		54		54		45		45		57		57
Male	1	53		54		56		56	1	65		66
Not stated	8			8	8			8	11			11
Haa Alifu		**186**		**186**	**1**	**112**		**113**	**1**	**114**		**115**
Female		101		101		63		63	1	62		63
Male		85		85	1	49		50		52		52
Gaafu Alifu	1	**36**	1	**38**		**70**		**70**	**2**	**83**	1	**86**

Female		18		18		39		39		45	1	46
Male	1	18	1	20		31		31	2	38		40
Baa	**21**	**91**	**1**	**113**	**5**	**67**		**72**	**11**	**54**		**65**
Female		47	1	48		27		27		28		28
Male		44		44		40		40		26		26
Not stated	21			21	5			5	11			11
Shaviyani		**87**	**1**	**88**		**64**	**1**	**65**		**62**		**62**
Female		36		36		25	1	26		32		32
Male		51	1	52		39		39		30		30
Dhaalu		**55**		**55**		**57**		**57**	**2**	**53**		**55**
Female		25		25		26		26		25		25
Male		30		30		31		31	1	28		29
Not stated									1			1
Noonu		**61**	**1**	**62**		**37**	**1**	**38**		**48**		**48**
Female		32		32		20	1	21		23		23
Male		29	1	30		17		17		25		25
Thaa	**2**	**24**	**1**	**27**	**1**	**59**		**60**		**43**		**43**
Female		7		7		31		31		18		18
Male	1	17	1	19	1	28		29		25		25
Not stated	1			1								
Alif Dhaalu		**50**	**1**	**51**	**1**	**47**		**48**		**33**	**1**	**34**
Female		21		21		31		31		12	1	13
Male		29	1	30	1	16		17		21		21
Abroad		**349**		**349**		**260**		**260**		**32**		**32**
Female		194		194		117		117		17		17
Male		154		154		143		143		15		15
Not stated		1		1								
Faafu	1	**18**		**19**		**23**	1	**24**	**2**	**22**		**24**
Female		10		10		13	1	14		4		4
Male		8		8		10		10		18		18
Not stated	1			1					2			2
Meemu		**22**		**22**		**10**		**10**		**14**		**14**
Female		11		11		4		4		8		8
Male		11		11		6		6		6		6
Alifu Alifu		**10**		**10**		**15**		**15**		**6**		**6**
Female		8		8		6		6		2		2
Male		2		2		9		9		4		4
Kaafu		**16**		**16**		**6**		**6**	1	**4**		**5**
Female		7		7		2		2		2		2
Male		9		9		4		4		2		2
Not stated									1			1
Not stated	1			**1**								
Male	1			1								
Total	**197**	**6802**	**31**	**7,030**	**199**	**6586**	**23**	**6,808**	**158**	**6153**	**39**	**6,350**


MORBIDITY

2. CHAPTER 2 MORBIDITY

In this chapter burden of disease is expressed as ill state (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 wellbeing". 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.

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).

The morbidity statistics are primarily measured in incidence and prevalence. In this report, morbidity is expressed as the number of admissions (inpatients) of the principal diagnosis by ICD 10 [2].

2.1INPATIENTS IN HOSPITALS OF MALDIVES

In this chapter, admissions/inpatients [6] of 24 hospitals in 2017 and 25 hospitals in 2018-19 are considered. This increase was due to an additional tertiary facility established in Male' in 2018.

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".

Table 2-1: Total hospitals in Maldives by location and type of facility, 2017, 2018 and 2019[7]

Hospital location	Facility type	2017		2018-2019	
		Private	Public	Private	Public
AA	Atoll Hospital	0	1	0	1
ADh	Atoll Hospital	0	1	0	1
B	Atoll Hospital	0	1	0	1
DH	Atoll Hospital	0	1	0	1
F	Atoll Hospital	0	1	0	1
GA	Atoll Hospital	0	1	0	1
Gn	Atoll Hospital	0	1	0	1

[7] Villimale hospital is not taken into account in this analysis since there were no admissions

Hospital location	Facility type	2017		2018-2019	
		Private	Public	Private	Public
HA	Atoll Hospital	0	1	0	1
Lh	Atoll Hospital	0	1	0	1
N	Atoll Hospital	0	1	0	1
Sh	Atoll Hospital	0	1	0	1
Th	Atoll Hospital	0	1	0	1
V	Atoll Hospital	0	1	0	1
GDh	Regional Hospital	0	1	0	1
HDh	Regional Hospital	0	1	0	1
L	Regional Hospital	0	1	0	1
M	Regional Hospital	0	1	0	1
R	Regional Hospital	0	1	0	1
S	Regional Hospital	0	1	0	1
S	Private Hospital	1	0	1	0
Male'	Tertiary Hospital	1	1	2	1
Male'	Hospital	1	1	1	1
Total		3	21	4	21

2.1.1 INPATIENTS BY GENDER

The total inpatients in hospitals of Maldives were 39,610 in 2017, 39,526 in 2018 and 44,640 in 2019 with more than 55% of females in all three years.

Table 2-2: Quick facts: Inpatients by gender 2017, 2018 and 2019

Gender	2,017	2,018	2,019
Female	22,138	21,833	24,777
Male	17,456	17,587	19,860
Not Stated	16	106	3
Total	**39,610**	**39,526**	**44,640**

Figure 2-1: Inpatients by gender for 2017, 2018 and 2019, in percentage

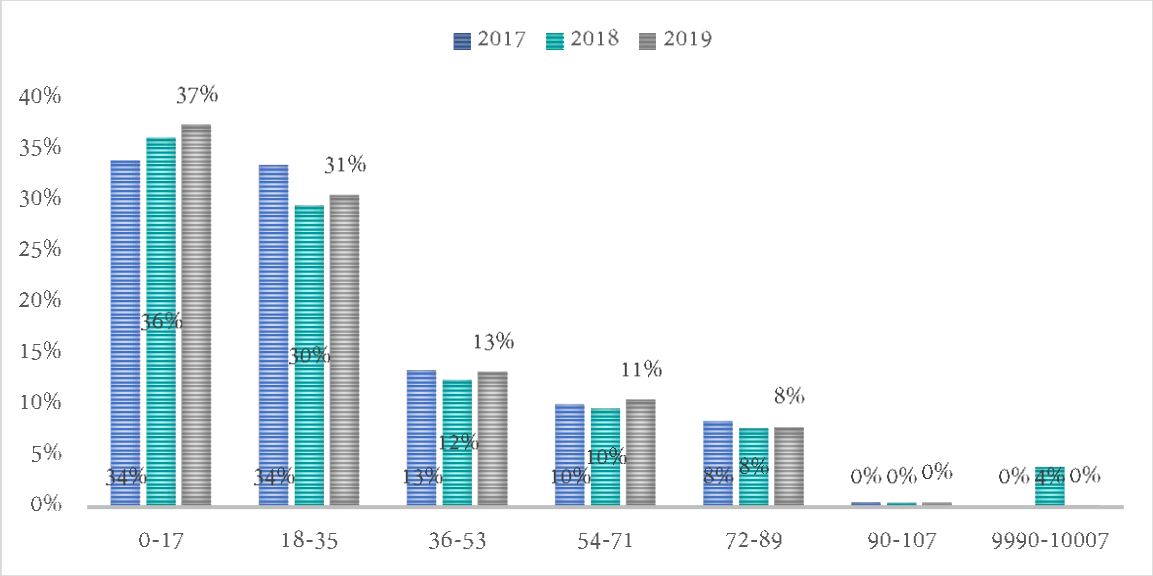
2.1.2 INPATIENTS BY AGE

Similarly, when presented the age brackets of inpatients it can be seen that highest are children under 17 years of age followed by reproductive age group.

Table 2-3: Inpatients by age for 2017, 2018 and 2019, in per cent

Age groups	2017	2018	2019
0-17	13,470	14,323	16,713
18-35	13,287	11,696	13,627
36-53	5,322	4,922	5,900
54-71	3,995	3,823	4,689
72-89	3,333	3,049	3,473
90-107	169	167	187
9990-10007	34	1,546	51
Total	**39,610**	**39,526**	**44,640**

Figure 2-2: Inpatients by age for 2017, 2018 and 2019, in per cent[8]



[8] *Note: 9990 and above are unknown age groups*

2.1.3 INPATIENTS BY GEOGRAPHIC LOCATION

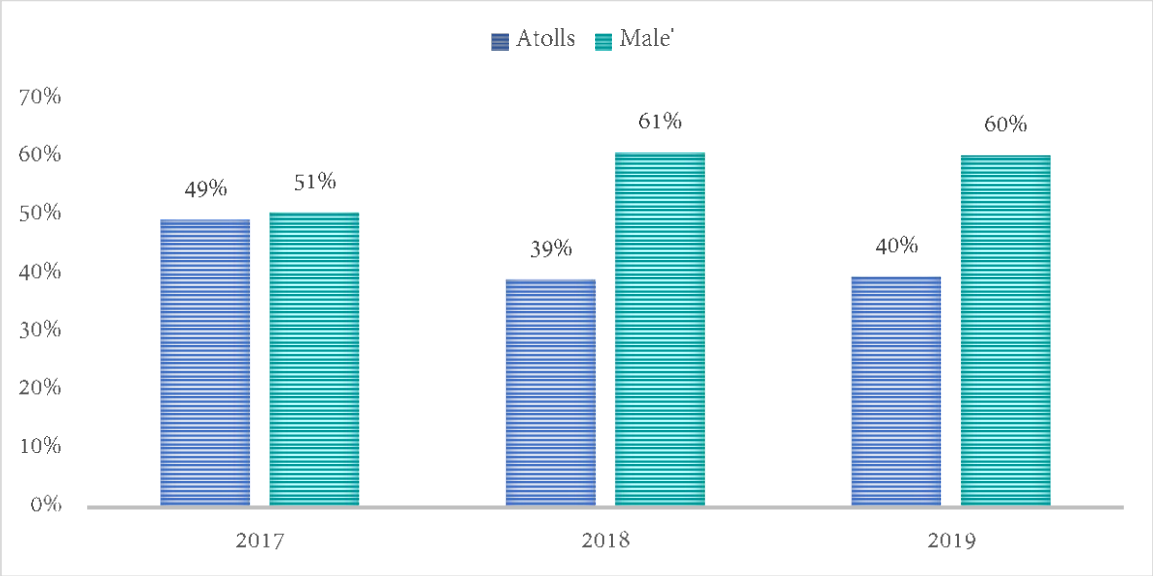
Inpatients in Male' region (Male', Hulhumale and Villingili) accounts for 51% in 2017, 61% in 2018 and 60% in 2019.

Table 2-4 Quick facts: inpatients by geographic location for 2017, 2018 and 2019, in per cent

Location	2017	2018	2019
Atolls	19,563	15,461	17,677
Male'	20,047	24,065	26,963
Total	**39,610**	**39,526**	**44,640**

This data is a combination of all hospitals in Maldives, including public hospitals (IGMH and Hulhumale), Private hospitals in Male' region (ADK, Treetop and Medica Hospital) and IMDC in Seenu atoll.

Figure 2-3: Inpatients by geographic location for 2017, 2018 and 2019, in per cent

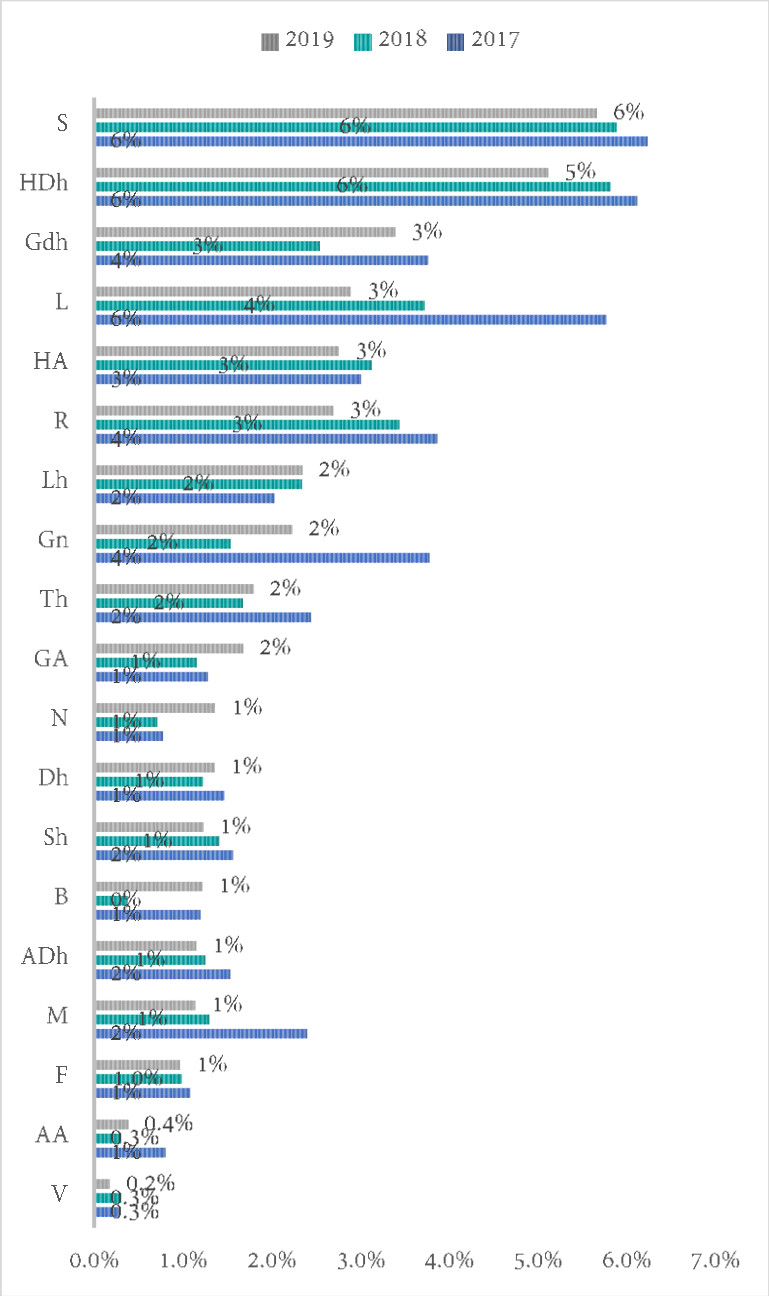


Apart from Male', Seenu atoll has two hospitals, Hithadhoo regional hospital and IMDC hospital. Thus, ranks the highest inpatients overall inpatients of the country. This is followed by Haa Dhaal hospital and Gaaf Dhaal hospital. Except Male' and Seenu atoll, all the other atolls had one hospital in operation in 2017, 2018 and 2019.

Table 2-5: Quick facts: Inpatients by atolls for 2017, 2018 and 2019

Atoll	2017	2018	2019
V	110	121	79
AA	318	121	172
F	429	390	432
M	951	513	509
ADh	607	495	513
B	474	149	546
Sh	620	557	551
Dh	580	485	607
N	307	281	609
GA	507	456	751
Th	968	663	803
Gn	1,496	607	997
Lh	805	925	1,049
R	1,532	1,359	1,205
HA	1,191	1,237	1,232
L	2,285	1,472	1,292
Gdh	1,490	1,005	1,515
HDh	2,424	2,299	2,285
S	2,469	2,326	2,530
Male'	20,047	24,065	26,963
Total	**39,610**	**39,526**	**44,640**

Figure 2-4: Inpatients by atolls for 2017, 2018 and 2019, in per cent

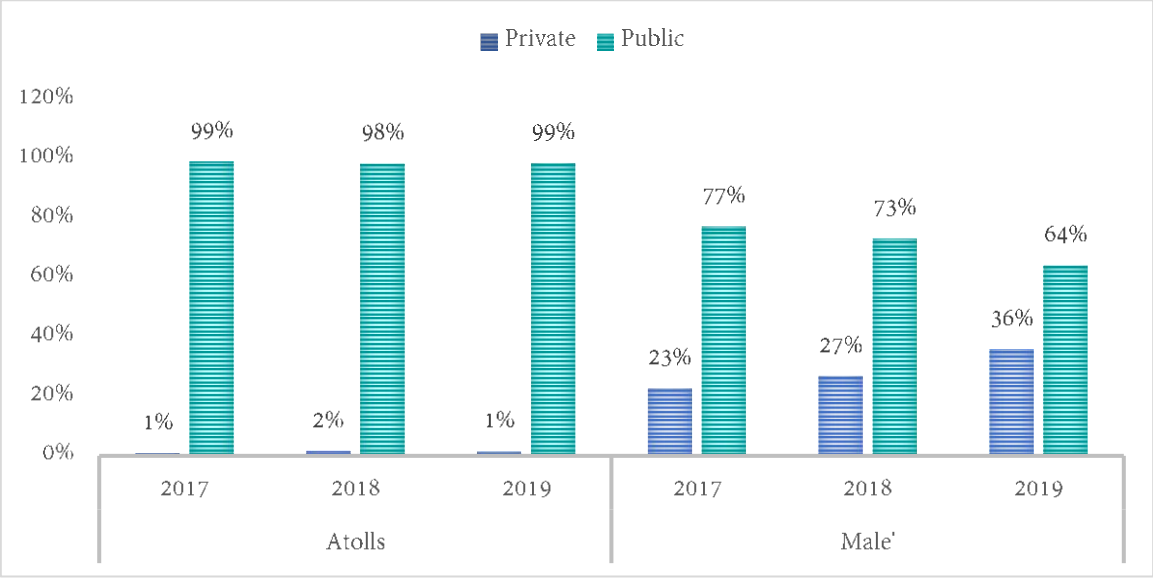


Therefore, more than 98% of inpatients accounts for public health facilities in atolls and more than 64% of inpatients accounts for public health facilities in all three years.

Table 2-6: Quick facts: inpatients by type of hospital for 2017, 2018 and 2019

Location	Private	Public	Total
Atolls	**644**	**52,057**	**52701**
2017	160	19,403	19563
2018	244	15,217	15461
2019	240	17,437	17677
Male'	**20,688**	**50,387**	**71075**
2017	4,554	15,493	20047
2018	6,468	17,597	24065
2019	9,666	17,297	26963

Figure 2-5: Inpatients by type of hospital for 2017, 2018 and 2019, in percentage



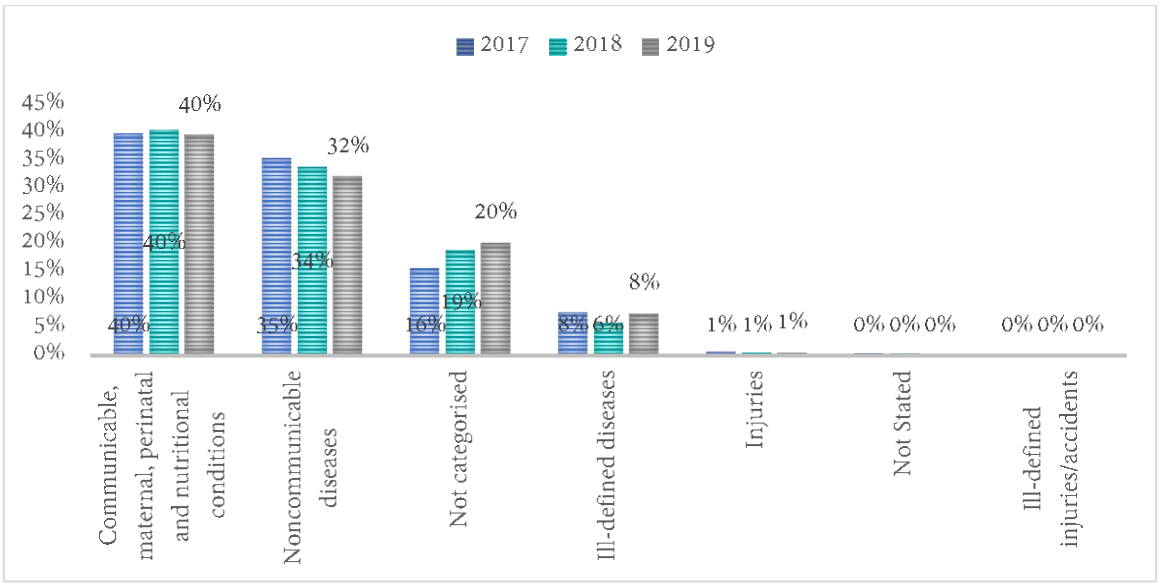
2.1.4 INPATIENTS BY MAJOR DISEASE CATEGORIES

The highest burden of inpatients is from the broad category of communicable, maternal, perinatal and nutritional conditions with more than 40% accounting in 2017, 2018 and 2019. This is followed by non-communicable diseases.

Table 2-7: Quick facts: Inpatients by major disease categories for 2017, 2018 and 2019 in numbers

Major Global of Burden Disease (GBD) categories	2017	2018	2019
Communicable, maternal, perinatal and nutritional conditions	15,781	15,975	17,654
Noncommunicable diseases	14,040	13,361	14,318
Not categorized	6,210	7,494	9,026
Ill-defined diseases	3,102	2,333	3,369
Injuries	299	224	249
Not Stated	173	135	16
Ill-defined injuries/accidents	5	4	8
Total	**39,610**	**39,526**	**44,640**

Figure 2-6: Inpatients by major disease categories for 2017, 2018 and 2019, in percentage[9]



[9] Not categorized includes mainly for Z codes in ICD-10 describing factors influencing health status and condition with health services

2.2BURDEN OF DISEASE ACROSS THE LIFE STAGES

People experience different health problems at different times of their lives—from infancy and childhood to old age. Hence, they have different health needs at different life stages. This chapter presents the leading causes of total burden at each life stage. Burden of disease analysis is useful to measure the impact of different diseases or injuries on a population. It combines the burden of living with ill health (non-fatal burden) with the burden of dying prematurely (fatal burden). In this section, burden is analyzed using non-fatal burden – inpatients from the hospitals.

For all ages combined, the leading cause of admissions was digestive diseases, at 6% of total burden, making it the leading cause for males while maternal conditions were on the top for females in 2017.

Figure 2-7: Figure 2-8: Top 5 leading causes for admissions for all ages, 2017

2017	Female	Other maternal conditions 11%	Other genitourinary system diseases 6%	Other digestive diseases 5%	Abortion 4%	Lower respiratory infections 3%
	Male	Other digestive diseases 8%	Other perinatal conditions 5%	Ischemic heart disease 5%	Lower respiratory infections 5%	Upper respiratory infections 4%
	All Persons	Other digestive diseases 6%	Other maternal conditions 6%	Other genitourinary system diseases 5%	Lower respiratory infections 4%	Other perinatal conditions 4%

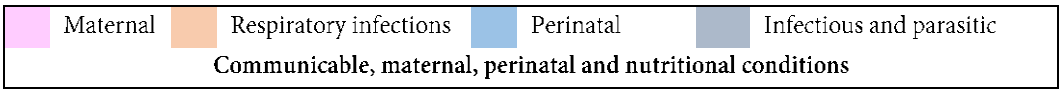
For all ages combined, the leading cause of admissions was maternal conditions, at 6% of total burden, making it the leading cause for females (12%) while Dengue for males (7%) in 2018.

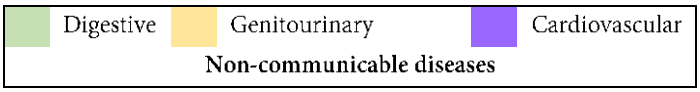
Figure 2-9: Figure 2-10: Top 5 leading causes for admissions for all ages, 2018

2018	Female	Other maternal conditions 12%	Other genitourinary system diseases 5%	Other perinatal conditions 4%	Other digestive diseases 4%	Abortion 3%
	Male	Dengue 7%	Other perinatal conditions 6%	Other digestive diseases 6%	Ischemic heart disease 5%	Lower respiratory infections 4%
	All Persons	Other maternal conditions 6%	Other perinatal conditions 5%	Dengue 5%	Other digestive diseases 5%	Other genitourinary system diseases 4%

Similar to 2018, for all ages combined, the leading cause of admissions was maternal conditions, at 5% of total burden, making it the leading cause for females (9%) while Dengue for males (7%) in 2018.

2019	Female	Other maternal conditions 9%	Other genitourinary system diseases 5%	Other perinatal conditions 4%	Other digestive diseases 4%	Dengue 3%
	Male	Dengue 7%	Other digestive diseases 6%	Other perinatal conditions 5%	Ischemic heart disease 4%	Other infectious diseases 4%
	All Persons	Other maternal conditions 5%	Dengue 5%	Other digestive diseases 5%	Other perinatal conditions 4%	Other genitourinary system diseases 4%





2.2.1 INFANTS, CHILDREN AND YOUNG PEOPLE (AGED 0–14)

Other perinatal conditions and respiratory infections were highest burden in children aged under 5. Similarly, among children aged 5–14 infections and parasitic diseases (e.g.: Dengue and diarrheal diseases) and respiratory infections (upper and lower) were most common, followed digestive disease.

Figure 2-11: Top 5 leading causes for admissions for infants, children and young people (aged 0-14 years), 2017, 2018 and 2019

	Age	1st	2nd	3rd	4th	5th
2017	0-4	Other perinatal conditions 18%	Lower respiratory infections 8%	Upper respiratory infections 7%	Diarrhoeal diseases 6%	Other digestive diseases 6%
	5-9	Upper respiratory infections 8%	Other digestive diseases 6%	Lower respiratory infections 5%	Dengue 5%	Diarrhoeal diseases 4%
	10-14	Dengue 9%	Upper respiratory infections 8%	Other digestive diseases 6%	Other genitourinary system diseases 5%	Lower respiratory infections 4%
2018	0-4	Other perinatal conditions 21%	Lower respiratory infections 5%	Upper respiratory infections 4%	Low birth weight 4%	Dengue 3%
	5-9	Dengue 11%	Upper respiratory infections 7%	Lower respiratory infections 4%	Diarrhoeal diseases 3%	Other digestive diseases 3%
	10-14	Dengue 18%	Upper respiratory infections 6%	Other respiratory diseases 5%	Other genitourinary system diseases 5%	Other digestive diseases 4%
2019	0-4	Other perinatal conditions 17%	Lower respiratory infections 5%	Dengue 4%	Upper respiratory infections 4%	Low birth weight 4%
	5-9	Dengue 13%	Other infectious diseases 6%	Upper respiratory infections 6%	Other digestive diseases 3%	Diarrhoeal diseases 3%
	10-14	Dengue 18%	Other infectious diseases 8%	Upper respiratory infections 5%	Other genitourinary system diseases 5%	Other respiratory diseases 4%

Maternal | Respiratory infections | Perinatal | Infectious and parasitic
Communicable, maternal, perinatal and nutritional conditions

Digestive | Genitourinary | Cardiovascular | Respiratory | Musculoskeletal
Non-communicable diseases

2.2.2 REPRODUCTIVE AGE ADULTS (AGED 15–49)

Since more women had been admitted as inpatients in the hospitals, it can be seen that maternal conditions are the lead cause throughout these age groups, followed by genitourinary system diseases, other digestive diseases and dengue (infectious and parasitic diseases). This reflects the population dividend of the country with majority of the population in the reproductive age.

Figure 2-12: Top 5 leading causes for admissions for reproductive aged adults (aged 15-49 years), 2017, 2018 and 2019

2017	15-24	Other maternal conditions 14%	Other genitourinary system diseases 6%	Other digestive diseases 5%	Abortion 3%	Dengue 3%
	25-34	Other maternal conditions 16%	Abortion 5%	Other genitourinary system diseases 5%	Other digestive diseases 4%	Dengue 2%
	35-49	Other genitourinary system diseases 9%	Other maternal conditions 8%	Other digestive diseases 8%	Ischemic heart disease 4%	Abortion 4%
2018	15-24	Other maternal conditions 13%	Dengue 9%	Other genitourinary system diseases 5%	Other digestive diseases 3%	Abortion 3%
	25-34	Other maternal conditions 19%	Abortion 5%	Other genitourinary system diseases 4%	Dengue 4%	Other digestive diseases 4%
	35-49	Other maternal conditions 9%	Other genitourinary system diseases 7%	Other digestive diseases 6%	Ischemic heart disease 5%	Abortion 4%
2019	15-24	Other maternal conditions 11%	Dengue 7%	Other genitourinary system diseases 5%	Other digestive diseases 4%	Other infectious diseases 3%
	25-34	Other maternal conditions 15%	Other genitourinary system diseases 4%	Abortion 4%	Dengue 4%	Other digestive diseases 4%
	35-49	Other genitourinary system diseases 8%	Other maternal conditions 8%	Other digestive diseases 6%	Abortion 4%	Ischemic heart disease 4%

Maternal | Infectious and parasitic

Communicable, maternal, perinatal and nutritional conditions

Digestive | Genitourinary | Cardiovascular

Non-communicable diseases

2.2.3 OLDER PEOPLE (AGED 50 AND OVER)

The burden from ischemic heart disease was highest among older people aged 50 and above for 2017, 2018 and 2019. Cardiovascular diseases are thus common in this age group followed by digestive diseases.

Figure 2-13: Top 5 leading causes for admissions for older people (aged 50 and over years), 2017, 2018 and 2019

2017	50-64	Ischemic heart disease 12%	Other digestive diseases 10%	Other genitourinary system diseases 6%	Cerebrovascular disease 5%	Other musculoskeletal disorders 4%
	65+	Ischemic heart disease 9%	Other digestive diseases 8%	Cerebrovascular disease 7%	Lower respiratory infections 7%	Hypertensive heart disease 7%
2018	50-64	Ischemic heart disease 12%	Other digestive diseases 10%	Other genitourinary system diseases 6%	Cerebrovascular disease 6%	Other musculoskeletal disorders 4%
	65+	Ischemic heart disease 9%	Chronic obstructive pulmonary disease 8%	Lower respiratory infections 7%	Cerebrovascular disease 7%	Other digestive diseases 7%
2019	50-64	Ischemic heart disease 11%	Other digestive diseases 9%	Other genitourinary system diseases 6%	Cerebrovascular disease 5%	Other musculoskeletal disorders 4%
	65+	Lower respiratory infections 8%	Ischemic heart disease 8%	Other digestive diseases 7%	Cerebrovascular disease 7%	Chronic obstructive pulmonary disease 6%

Maternal | Respiratory infections

Communicable, maternal, perinatal and nutritional conditions

Digestive | Genitourinary | Cardiovascular | Respiratory | Musculoskeletal

Non-communicable diseases

The rest of this chapter focuses on discussing communicable, maternal, perinatal and nutritional conditions and non-communicable diseases in detail. The following parts of this chapter will focus on;

Highest number inpatients from communicable, maternal, perinatal and nutritional conditions are;

.1. Maternal conditions
.2. Infectious and parasitic diseases
.3. Respiratory infections
.4. Perinatal conditions

Highest inpatients from non-communicable diseases are;

.1. Cardiovascular diseases
.2. Digestive diseases
.3. Genitourinary diseases
.4. Respiratory diseases
.5. Musculoskeletal diseases

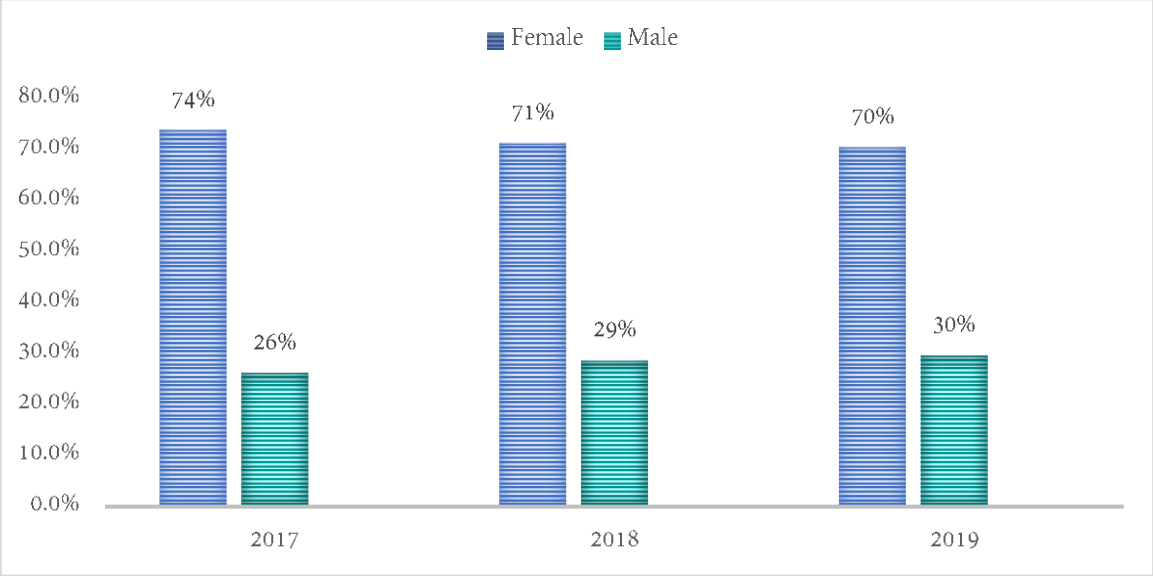
2.3 COMMUNICABLE, MATERNAL, PERINATAL AND NUTRITIONAL CONDITIONS

Communicable, maternal, perinatal and nutritional conditions had the highest number of inpatients 15,781 in 2017, 15,974 in 2018 and 17,654 in 2019. In terms of communicable, maternal, perinatal and nutritional conditions by gender, more than 70% of admissions were females.

Table 2-8: Communicable, maternal, perinatal and nutritional condition inpatients by gender for 2017, 2018 and 2019

Gender	2017	2018	2019
Female	11,645	11,371	12,428
Male	4,133	4,574	5,225
Not Stated	3	30	1
Total	**15,781**	**15,975**	**17,654**

Figure 2-14: Communicable, maternal, perinatal and nutritional condition inpatients by gender for 2017, 2018 and 2019, in percentage[10]



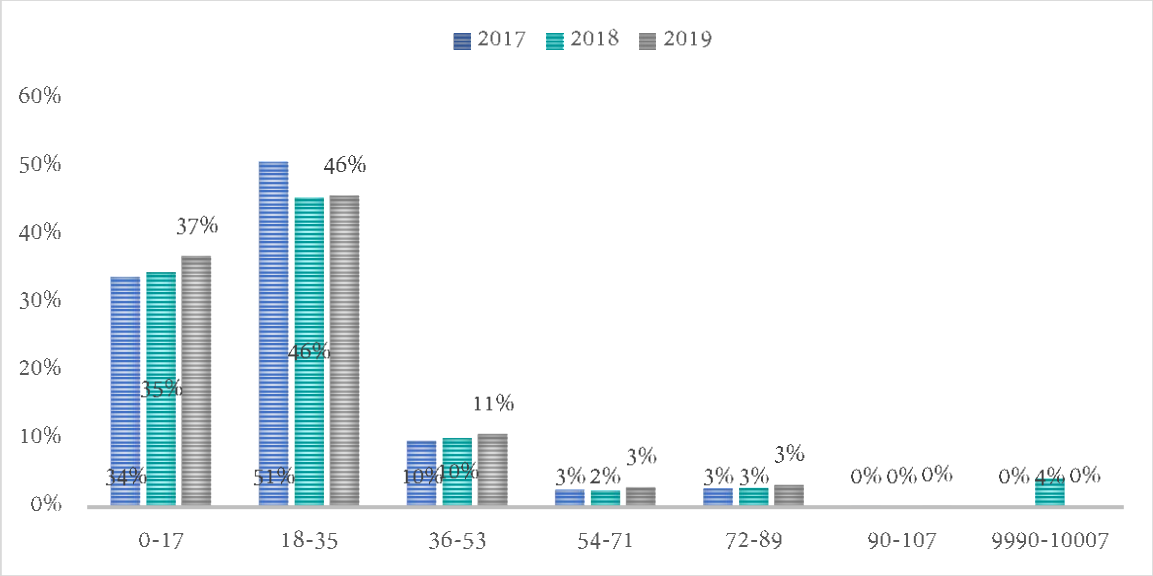
[10] Unknown gender is excluded from the graph

Apart from reproductive age groups, inpatients due to communicable, maternal, perinatal and nutritional conditions are highest among infants and children under 5 years of age.

Table 2-9: Communicable, maternal, perinatal and nutritional condition inpatients by age groups for 2017, 2018 and 2019 in numbers

Age Group	2017	2018	2019
0-17	5,340	5,519	6,510
18-35	8,010	7,275	8,079
36-53	1,544	1,624	1,900
54-71	410	398	522
72-89	439	456	579
90-107	27	20	36
Not stated	11	683	28
Total	**15,781**	**15,975**	**17,654**

Figure 2-15: Communicable, maternal, perinatal and nutritional condition inpatients by age groups for 2017, 2018 and 2019, in percentage[11]



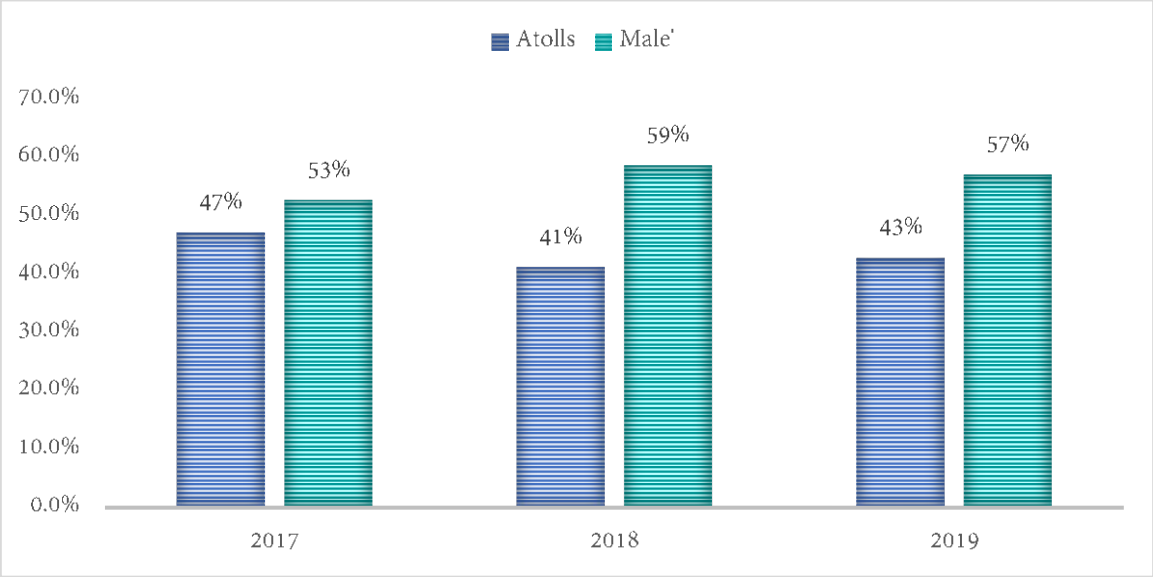
[11] 9990 -10007 unknown age group

Table 2-10: Communicable, maternal, perinatal and nutritional condition inpatients by geographic location for 2017, 2018 and 2019, in numbers

Year	Atolls	Male'
2017	7,451	8,330
2018	6,590	9,385
2019	7,570	10,084
Total	**21,611**	**27,799**

In terms of geographic location, for communicable, maternal, perinatal and nutritional conditions, Male' admissions accounted for more than 50% of all admissions in the country.

Figure 2-16: Communicable, maternal, perinatal and nutritional condition inpatients by geographic location for 2017, 2018 and 2019, in percentage



When disaggregated by atolls, it can be seen that inpatients of communicable, maternal, perinatal and nutritional conditions were highest in Haa Dhaal (one hospital) followed by Seenu atoll (two hospitals) and Laamu atoll hospital in 2019.

Table 2-11: Communicable, maternal, perinatal and nutritional condition inpatients by atolls for 2017, 2018 and 2019

Atolls	2017	2018	2019
V	44	46	44
AA	83	67	77
N	119	103	220
F	128	179	196
GA	148	169	234
M	219	175	164
Sh	195	272	210
Dh	209	207	280
B	303	98	360
Th	336	247	245
ADh	324	297	389
Lh	301	411	455
Gn	613	281	510
Gdh	601	401	510
HA	458	510	698
R	690	629	536
L	830	625	567
S	824	833	758
HDh	1,026	1,040	1,117
Male'	8,330	9,385	10,084
Total	**15,781**	**15,975**	**17,654**

Figure 2-17: Communicable, maternal, perinatal and nutritional condition inpatients by atolls for 2017, 2018 and 2019, in percentage

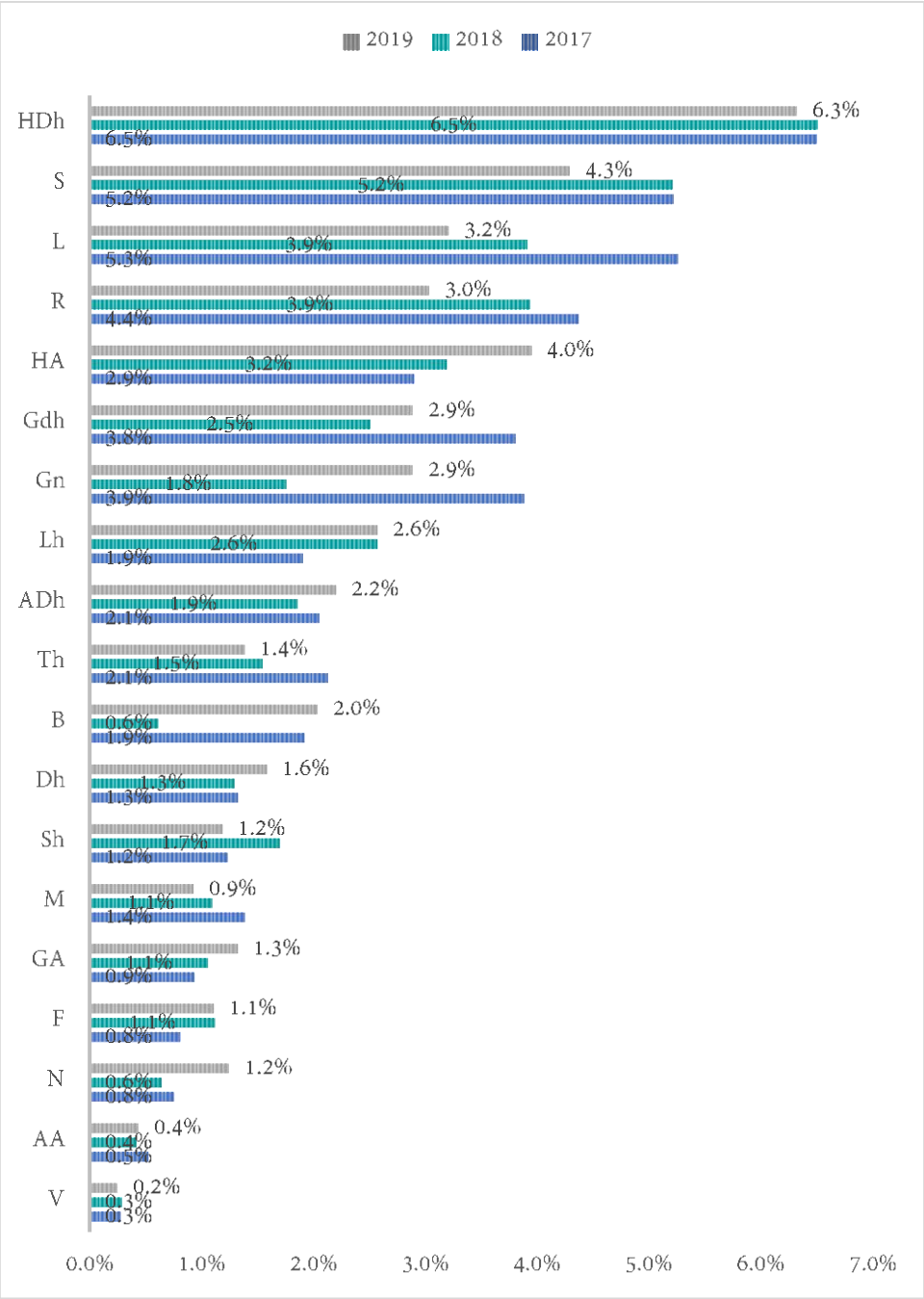


Table 2-12: Communicable, maternal, perinatal and nutritional condition inpatients by type of hospital for 2017, 2018 and 2019

Year	Private	Public	Total
2017	**1,537**	**14,244**	**15,781**
Atolls	57	7,394	7,451
Male'	1,480	6,850	8,330
2018	**2,098**	**13,877**	**15,975**
Atolls	124	6,466	6,590
Male'	1,974	7,411	9,385
2019	**3,183**	**14,471**	**17,654**
Atolls	97	7,473	7,570
Male'	3,086	6,998	10,084

In 2017 there was one tertiary and one island level hospital in the private sector. In 2018 this changed to 2 private tertiary hospitals and one island level hospital in private sector. This change can be seen in the inpatient admissions in private sector, which increased from 10% in 2017 to 13% in 2018 and 18% in 2019.

Figure 2-18: Communicable, maternal, perinatal and nutritional condition inpatients by type of hospital for 2017, 2018 and 2019, in percentage

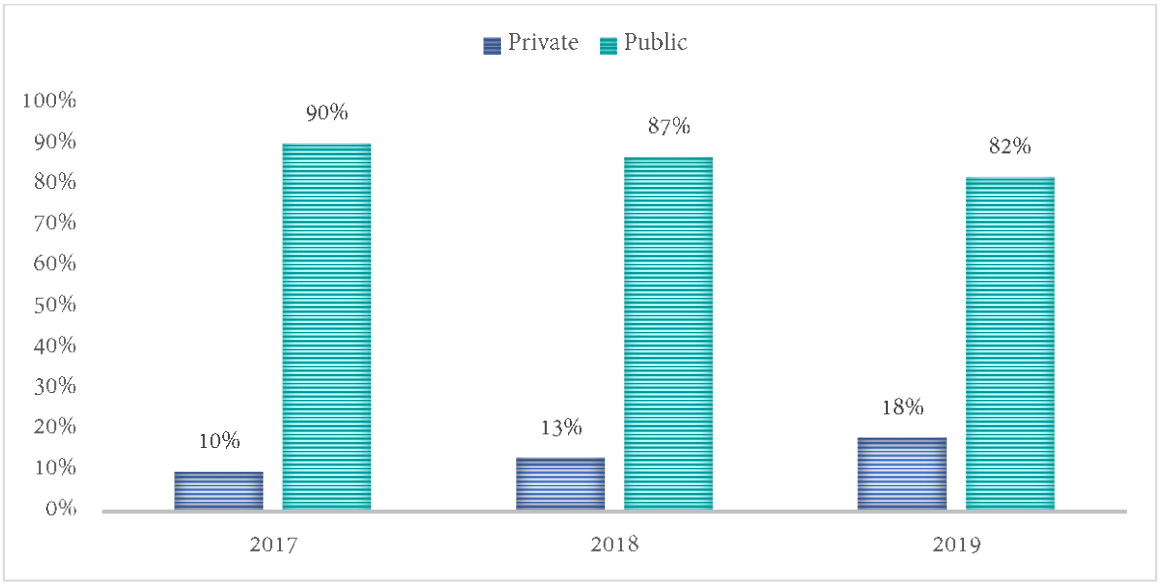


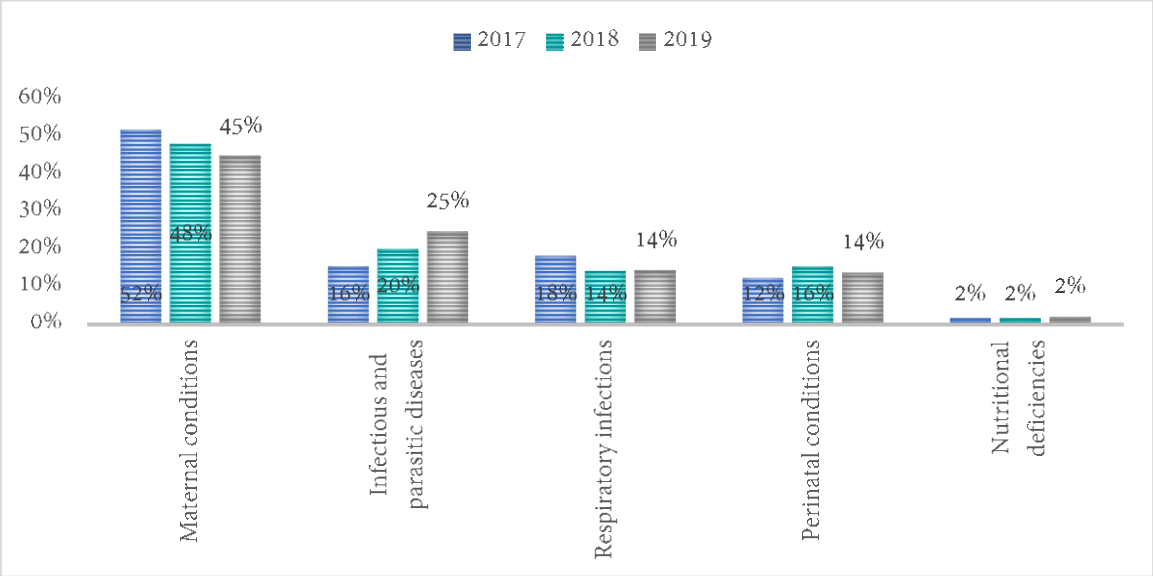
Table 2-13: Sub-groups for communicable, maternal, perinatal and nutritional condition inpatients for 2017, 2018 and 2019

GBD sub-groups and gender	2,017	2,018	2,019
Maternal conditions	**8,192**	**7,695**	**7,924**
Female	8,192	7,695	7,924
Infectious and parasitic diseases	**2,458**	**3,234**	**4,369**
Female	1,004	1,314	1,819
Male	1,452	1,907	2,549
Not Stated	2	13	1
Respiratory infections	**2,890**	**2,288**	**2,559**
Female	1,402	1,084	1,293
Male	1,488	1,193	1,266
Not Stated		11	
Perinatal conditions	**1,967**	**2,482**	**2,445**
Female	862	1,095	1,135
Male	1,104	1,381	1,310
Not Stated	1	6	
Nutritional deficiencies	**274**	**276**	**357**
Female	185	183	257
Male	89	93	100
Total	**15,781**	**15,975**	**17,654**

It was seen that more females were admitted overall in 2017, 2018 and 2019.

Thus, the sub-disease categories show that maternal condition tops the communicable, maternal, perinatal and nutritional conditions by major sub-disease groups.

Figure 2-19: Sub-groups for communicable, maternal, perinatal and nutritional condition inpatients for 2017, 2018 and 2019, in percentage



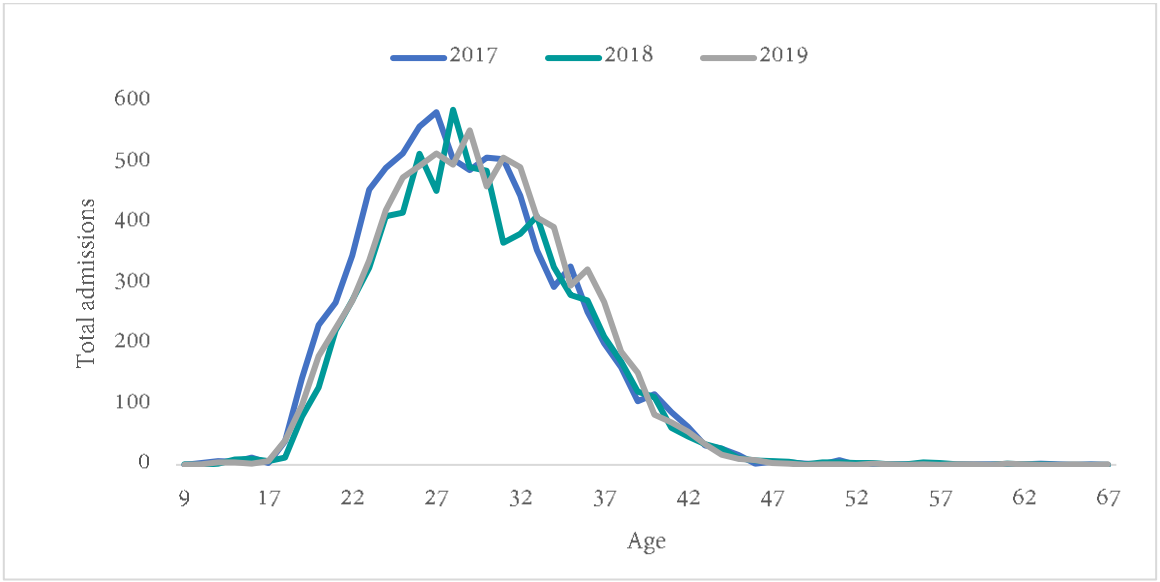
Therefore, this section will focus on the top communicable, maternal, perinatal and nutritional conditions:

1. Maternal conditions
2. Infectious and parasitic diseases
3. Respiratory infections
4. Perinatal conditions

2.3.1 MATERNAL CONDITIONS

The total inpatients for maternal conditions decreased from 8,192 in 2017 to 7,695 in 2018 and slightly increase to 7,924 in 2019. The age of inpatients due to maternal conditions have shifted, showing an increase in maternal age but a decrease in total number of inpatients due to maternal conditions over the years.

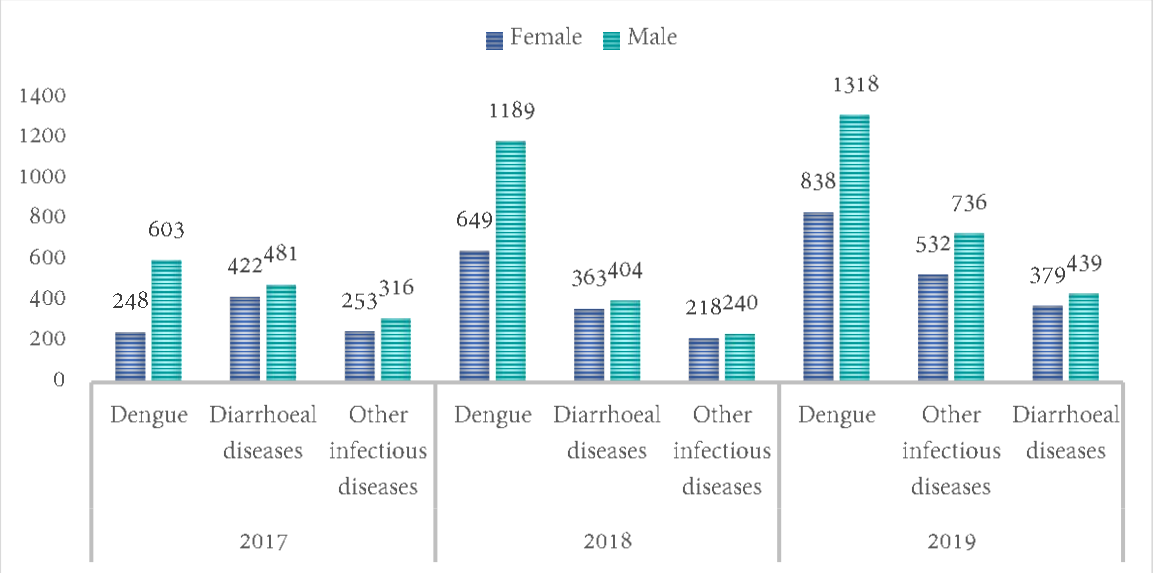
Figure 2-20: Maternal conditions by age for 2017, 2018 and 2019, in numbers



2.3.2 INFECTIOUS AND PARASITIC DISEASES

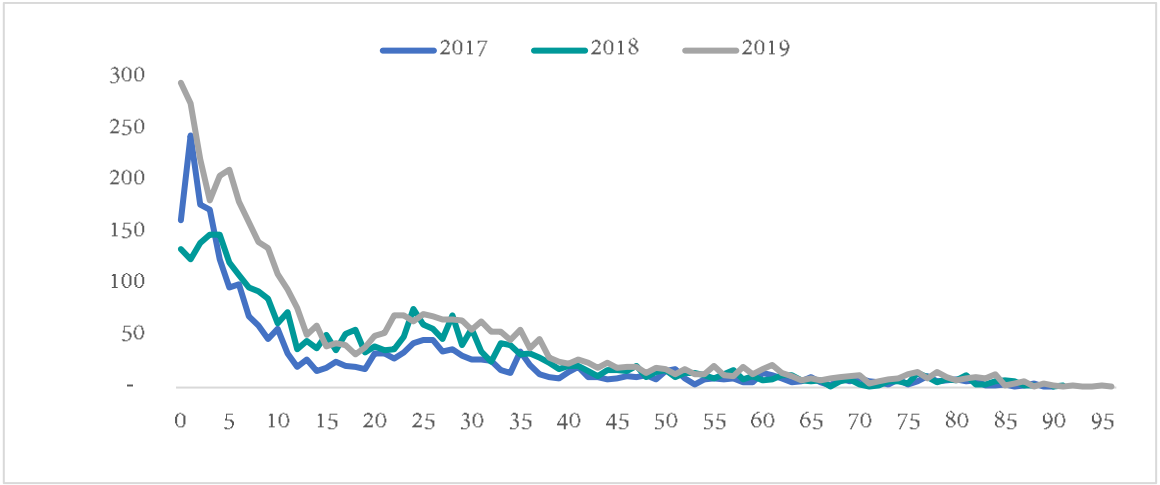
The total inpatients for Infectious and parasitic diseases increased over the years from 2,458 in 2017, 3,234 in 2018 and 4,369 in 2019. From all the infectious and parasitic diseases, dengue was the disease with the most admissions in this disease group, followed by diarrheal diseases and other infectious diseases in 2017, 2018 and 2019. Male admissions were high in three years compared to females in this category.

Figure 2-21: Infectious and parasitic diseases by gender for 2017, 2018 and 2019, in numbers



More than 50% of inpatients were below 15 years of age for infectious and parasitic diseases for all three years.

Figure 2-22: Infectious and parasitic diseases by age for 2017, 2018 and 2019, in numbers[12]

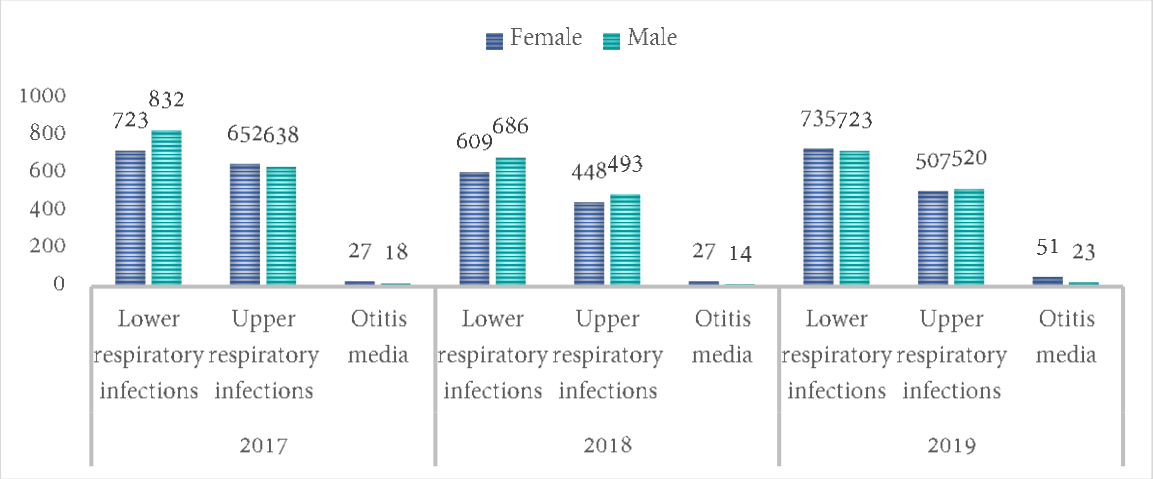


[12] Admissions with unknown age-group is excluded from the graph

2.3.3 RESPIRATORY INFECTIONS

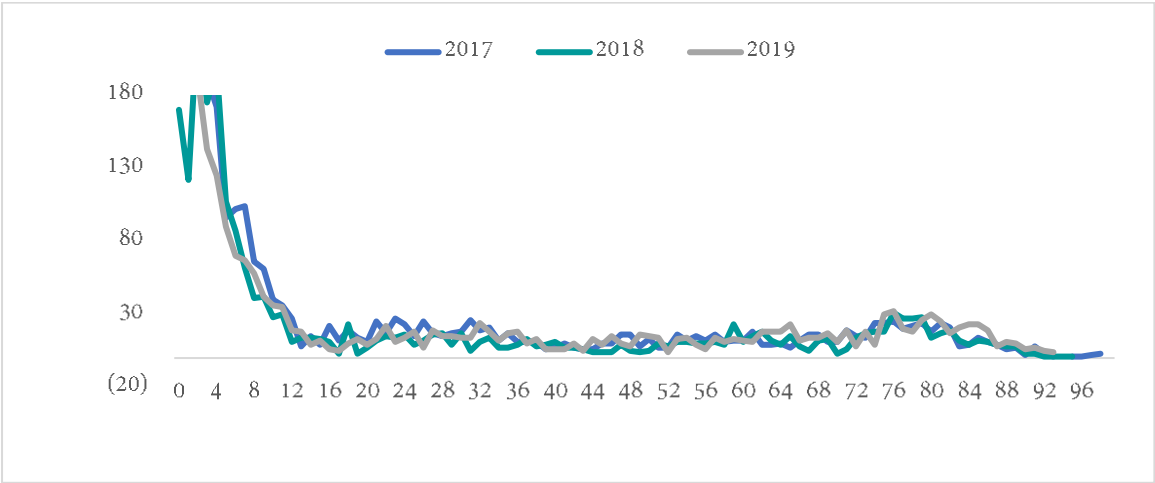
The total inpatients for respiratory infections decreased slightly over the years from 2,890 in 2017, 2277 in 2018 and 2,559 in 2019. Male admissions were high in three years compared to females.

Figure 2-23: Respiratory infections by gender for 2017, 2018 and 2019, in numbers



More than 40% of inpatients due to respiratory infections in 2017, 2018 and 2019 are under 5 year of age.

Figure 2-24: Respiratory infections by age for 2017, 2018 and 2019, in numbers[13]

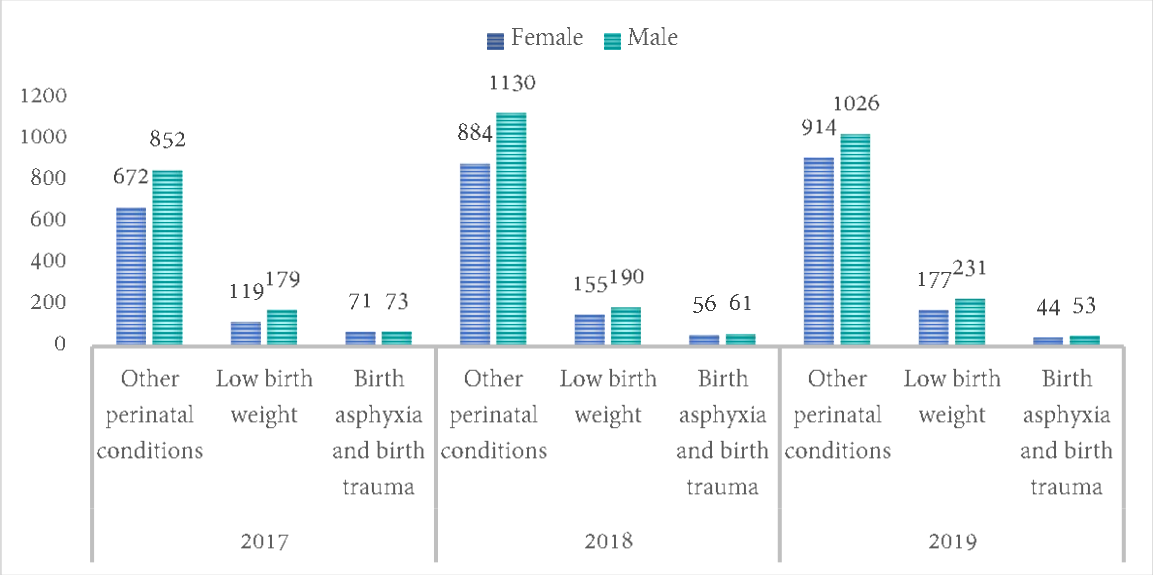


[13] Admissions with unknown age-group is excluded from the graph

2.3.4 PERINATAL CONDITIONS

The total inpatients for perinatal conditions increased over the years from 1,967 in 2017, 2,482 in 2018 and 2,445 in 2019. Admissions of males were high in all three years compared to females.

Figure 2-25: Perinatal conditions by gender for 2017, 2018 and 2019, in numbers[14]



[14] Admissions with unknown gender (1 in 2017 and 6 in 2018) is excluded from the graph

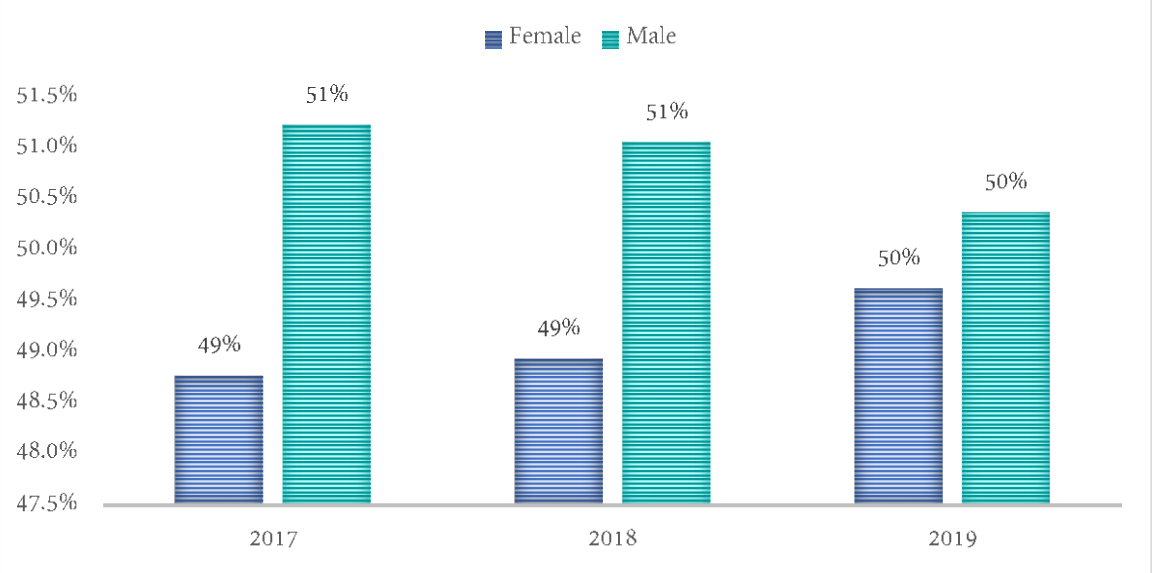
2.4NON-COMMUNICABLE DISEASES

The second disease category for inpatients was non-communicable diseases (NCDs) with 14,040 in 2017, 13,361 in 2018 and 14,318 in 2019. Non-communicable diseases by gender, showed a slight increase for males compared to females in all years.

Table 2-14: NCDs by gender for 2017, 2018 and 2019

Gender	2017	2018	2019
Female	6,844	6,523	7,105
Male	7,189	6,806	7,212
Not Stated	7	32	1
Total	**14,040**	**13,361**	**14,318**

Figure 2-26: NCDs by gender for 2017, 2018 and 2019, in percentage[15]



[15] Admissions with unknown gender is excluded from the graph

Non-communicable diseases by age were highest for children under 5 years of age.

Figure 2-27: NCDs by age for 2017, 2018 and 2019, in numbers[16]

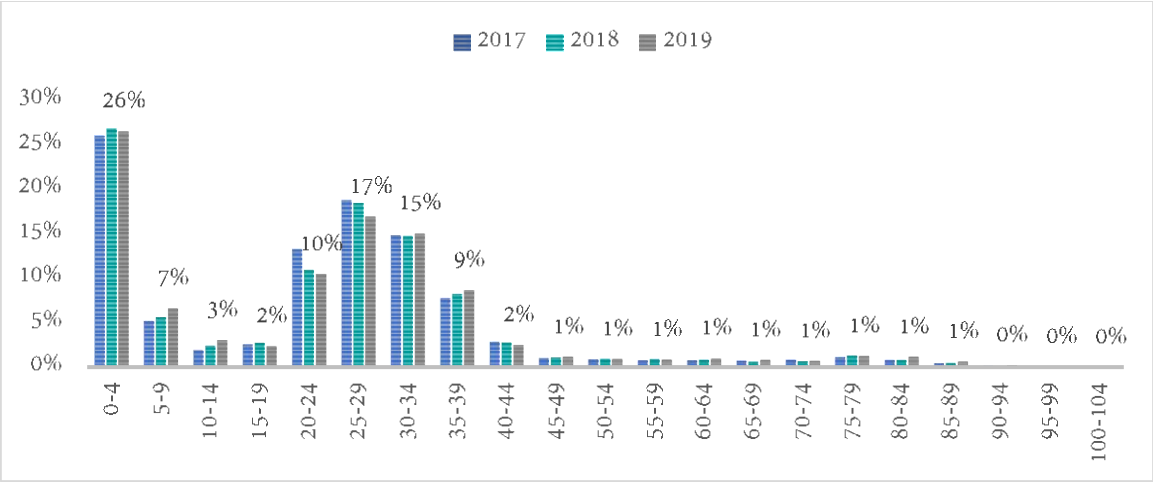
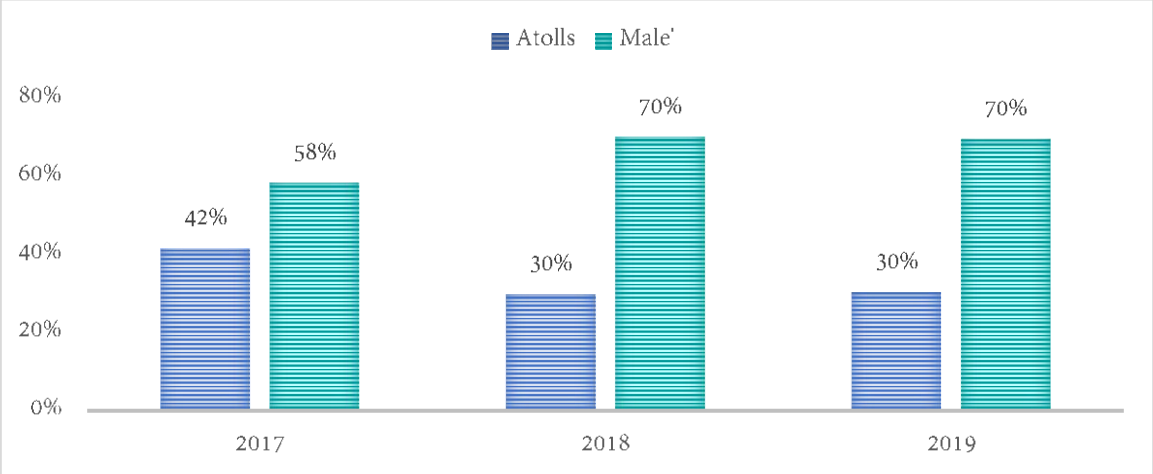


Table 2-15: NCDs by geographic location for 2017, 2018 and 2019

Year	Atolls	Male'	Total
2017	5,841	8,199	14040
2018	3,987	9,374	13361
2019	4,355	9,963	14318

Non-communicable diseases by geographic location showed an increase for Male' over three years.

Figure 2-28: NCDs by geographic location for 2017, 2018 and 2019, in percentage



However, when Male' is taken out of the picture, Haa Dhaal showed the highest per cent of inpatients followed by Seenu and Laamu atoll in 2019.

[16] Admissions with unknown age-group is excluded from the graph

Table 2-16: NCDs by atolls for 2017, 2018 and 2019

Atolls	2017	2018	2019
V	44	46	44
AA	83	67	77
N	119	103	220
F	128	179	196
GA	148	169	234
M	219	175	164
Sh	195	272	210
Dh	209	207	280
B	303	98	360
Th	336	247	245
ADh	324	297	389
Lh	301	411	455
Gn	613	281	510
Gdh	601	401	510
HA	458	510	698
R	690	629	536
L	830	625	567
S	824	833	758
HDh	1,026	1,040	1,117
Male'	8,330	9,385	10,084
Total	**15,781**	**15,975**	**17,654**

Figure 2-29: NCDs by atolls for 2017, 2018 and 2019, in percentage

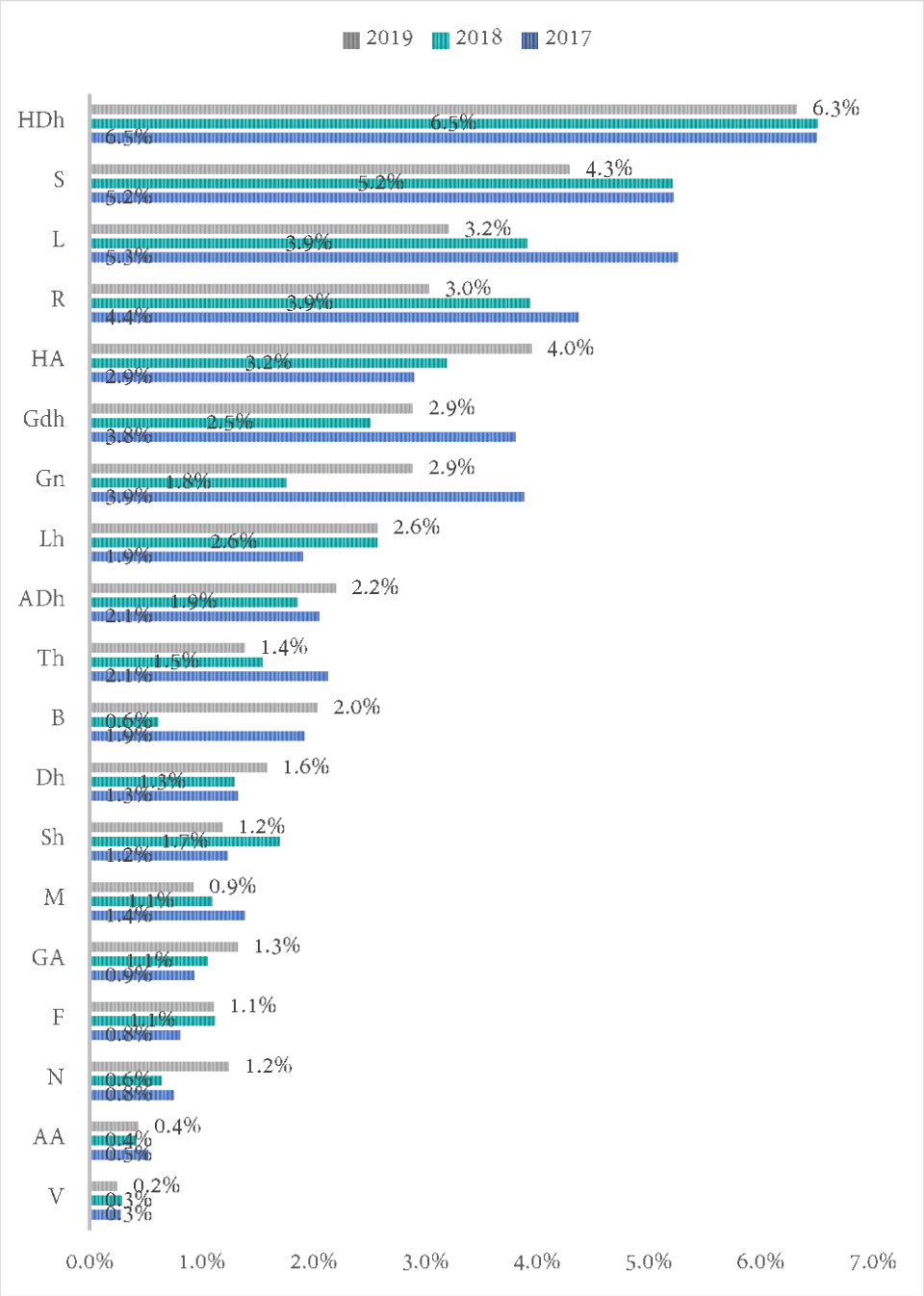
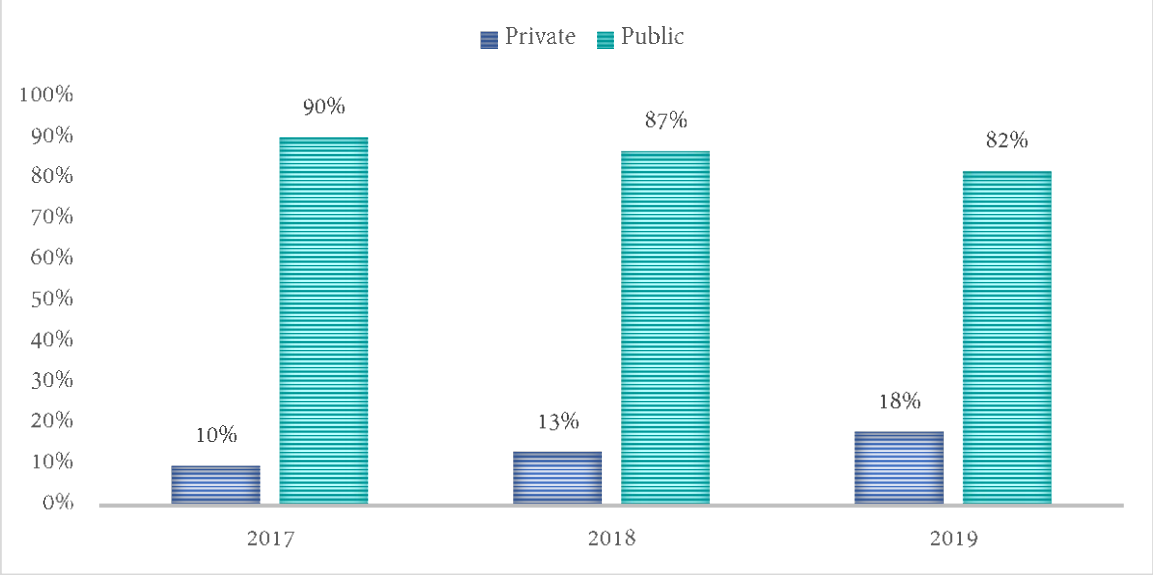


Table 2-17: NCDs by type of hospital for 2017, 2018 and 2019

Year	Private	Public	Total
2017	**1,537**	**14,244**	**15,781**
Atolls	57	7,394	7,451
Male'	1,480	6,850	8,330
2018	**2,098**	**13,877**	**15,975**
Atolls	124	6,466	6,590
Male'	1,974	7,411	9,385
2019	**3,183**	**14,471**	**17,654**
Atolls	97	7,473	7,570
Male'	3,086	6,998	10,084

Non-communicable diseases by type of hospital showed that more than 80% of NCD inpatients were admitted in public facility in all three years.

Figure 2-30: NCDs by type of hospital for 2017, 2018 and 2019, in percentage

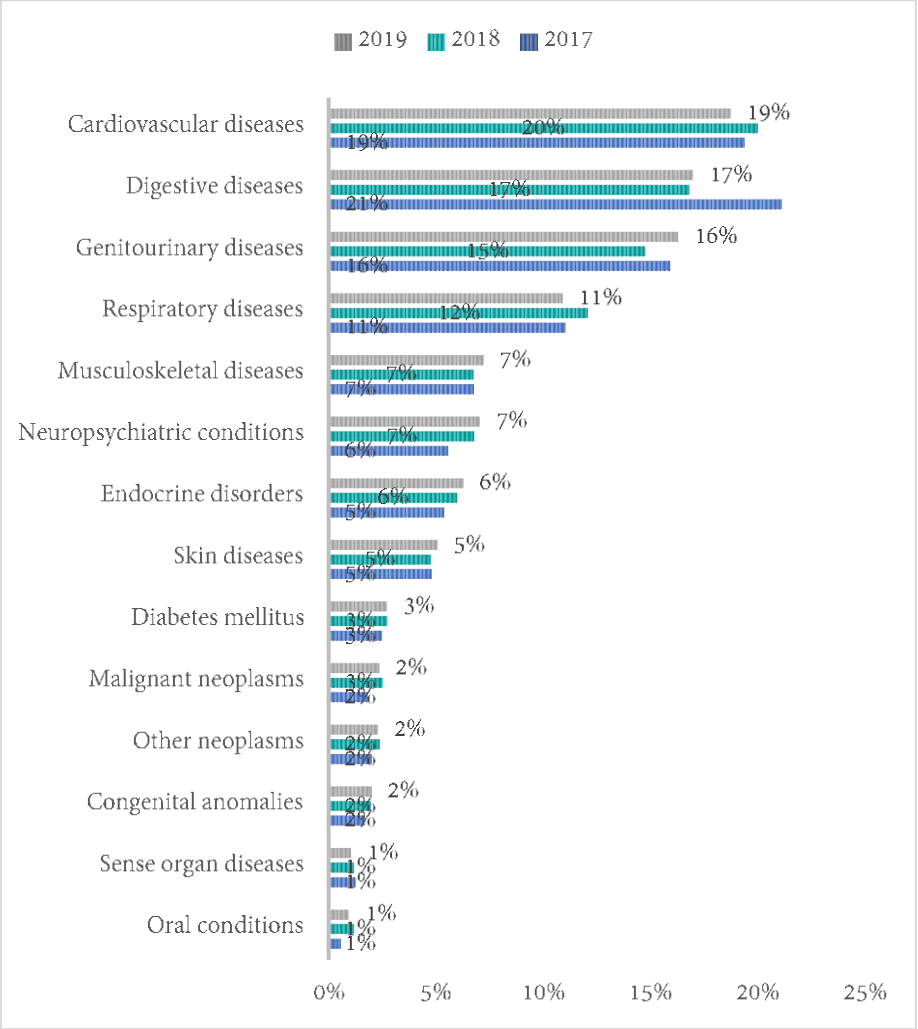


Non-communicable diseases have more disaggregation compared to communicable, maternal, perinatal and nutritional conditions sub-group. However, the diseases that ranks top stayed the same over the years.

Table 2-18: NCDs major sub-disease groups for 2017, 2018 and 2019

NCDs major sub-disease groups	2017	2018	2019
Maternal conditions	8,192	7,695	7,924
Infectious and parasitic diseases	2,458	3,234	4,369
Cardiovascular diseases	2,726	2,672	2,682
Respiratory infections	2,890	2,288	2,559
Perinatal conditions	1,967	2,482	2,445
Digestive diseases	2,969	2,245	2,431
Genitourinary diseases	2,236	1,973	2,332
Respiratory diseases	1,552	1,614	1,561
Musculoskeletal diseases	953	902	1,036
Musculoskeletal diseases	782	909	1,011
Endocrine disorders	758	803	902
Skin diseases	673	636	729
Diabetes mellitus	352	367	391
Nutritional deficiencies	274	276	357
Malignant neoplasms	254	338	340
Other neoplasms	283	318	330
Congenital anomalies	241	264	287
Sense organ diseases	179	158	149
Oral conditions	82	159	137
Not categorized / Multiple Sub-categories		3	
Total	**29,821**	**29,336**	**31,972**

Figure 2-31: NCDs major sub-disease groups for 2017, 2018 and 2019, in percentage



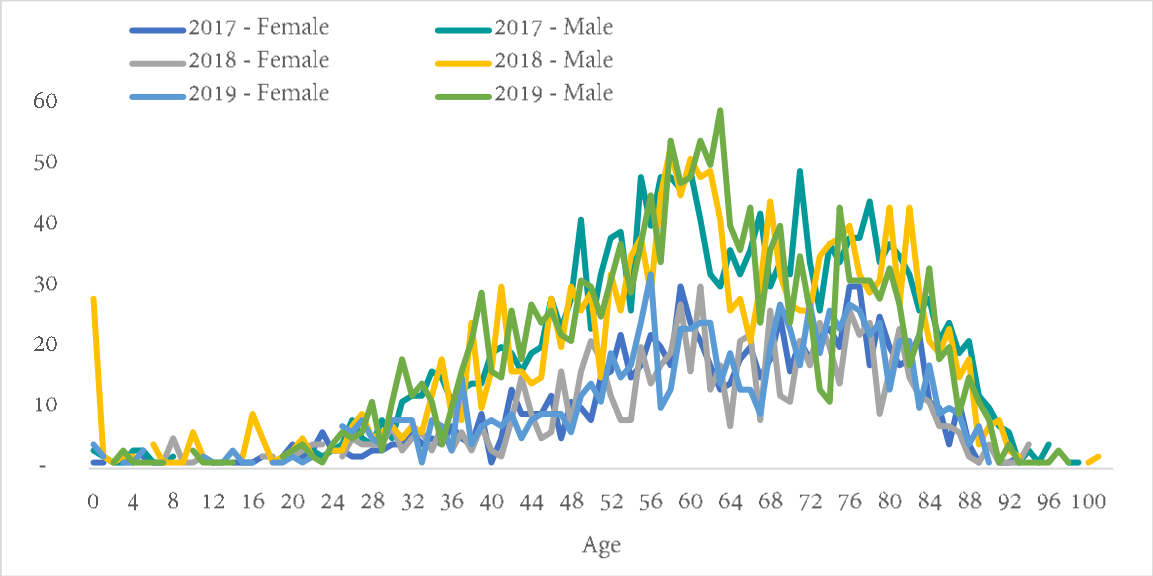
Therefore, this section will focus in detail on the top five non-communicable diseases of 2017, 2018 and 2019.

1. Cardiovascular diseases
2. Digestive diseases
3. Genitourinary diseases
4. Respiratory diseases
5. Musculoskeletal diseases

2.4.1 CARDIOVASCULAR DISEASES

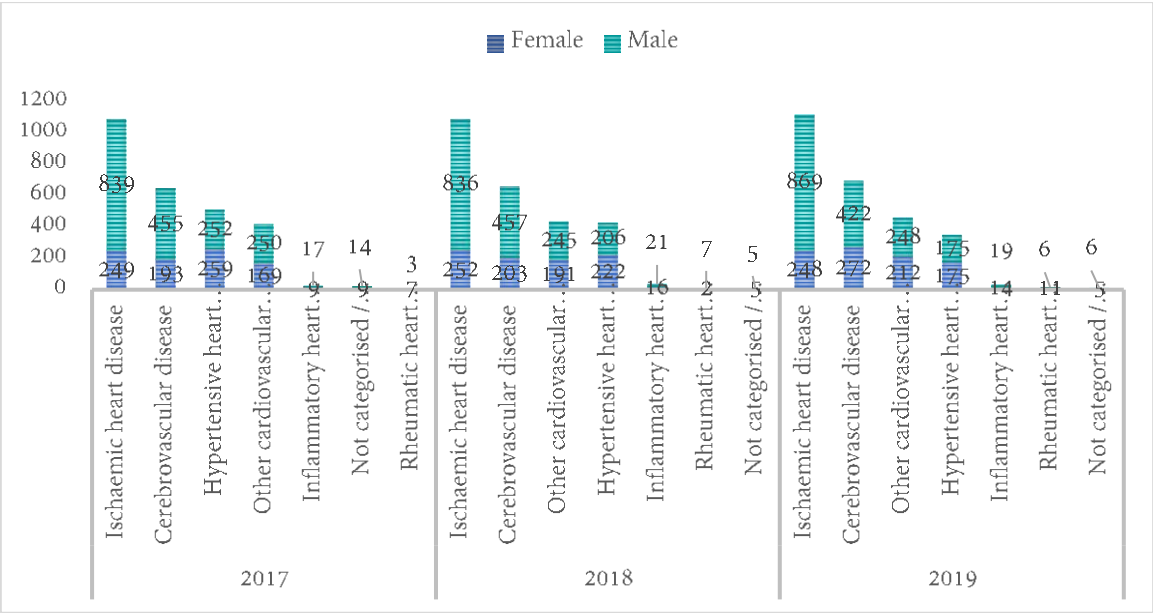
There was a total of 2,726 inpatients in 2017, 2,672 in 2018 and 2,682 in 2019 due to cardiovascular diseases. Cardiovascular diseases increased with age and is more common for males in all the years, peaking between ages 55-64 years.

Figure 2-32: Cardiovascular diseases by age and gender for 2017, 2018 and 2019, in numbers



For both genders, it can be seen that ischemic heart diseases are the main cause of admission for cardiovascular diseases sub-groups in all the years.

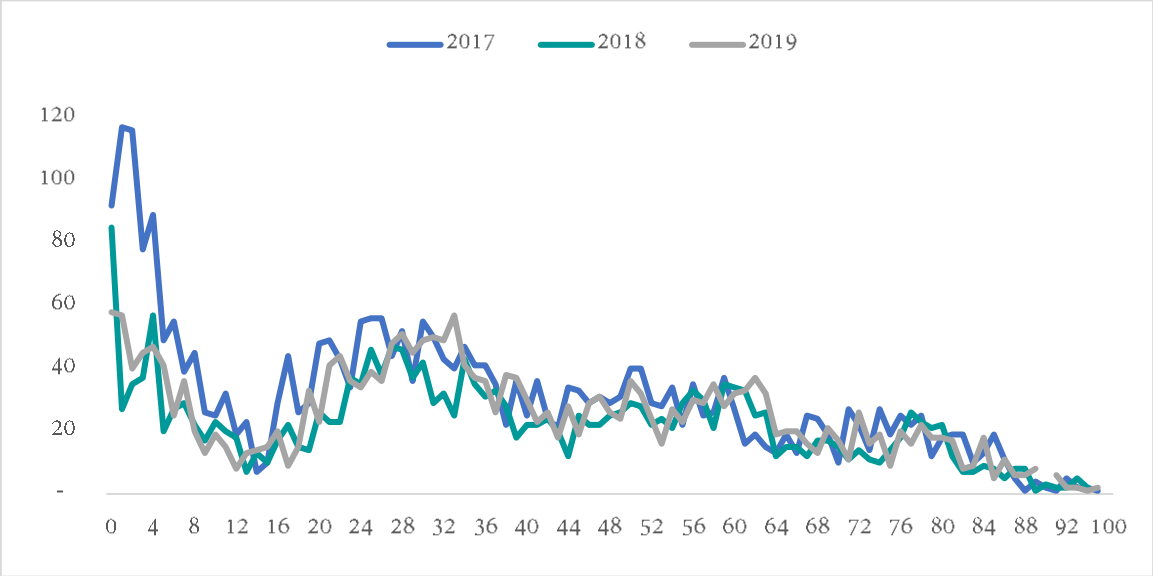
Figure 2-33: Cardiovascular diseases sub-groups by gender for 2017, 2018 and 2019, in numbers



2.4.2 DIGESTIVE DISEASES

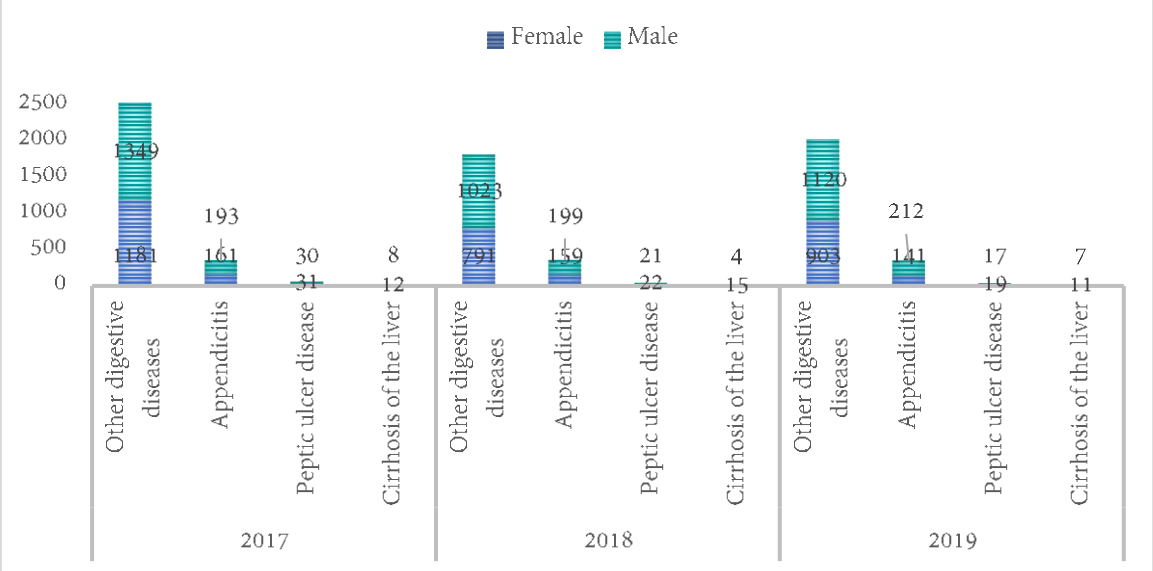
There was a total of 2,969 inpatients in 2017, 2,245 in 2018 and 2,431 in 2019 due to digestive diseases. Digestive disease admissions peaked for children under 5 years of age in all three years and decreased with age.

Figure 2-34: Digestive diseases by age and gender for 2017, 2018 and 2019, in numbers



Digestive diseases were more common among males in all three years.

Figure 2-35: Digestive diseases sub-groups by gender for 2017, 2018 and 2019, in numbers



2.4.3 GENITOURINARY DISEASES

Unlike, digestive diseases, genitourinary diseases were common among young female adults age 20-39 years of age in all three years. Among males, genitourinary diseases were common at a younger age (below 10 years of age).

Figure 2-36: Genitourinary diseases by age and gender for 2017, 2018 and 2019, in numbers[17]

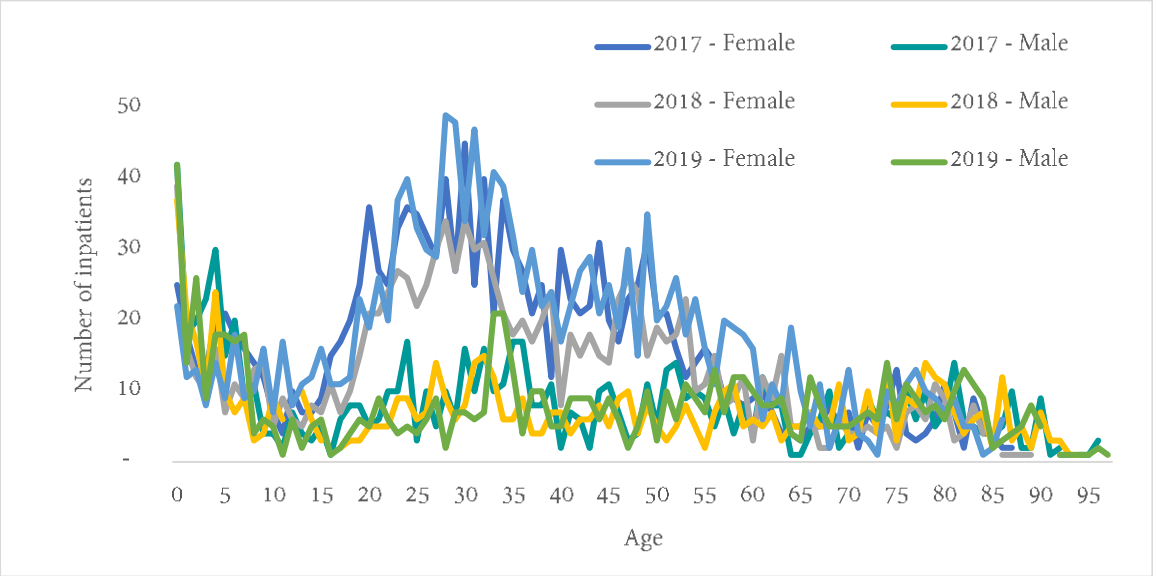
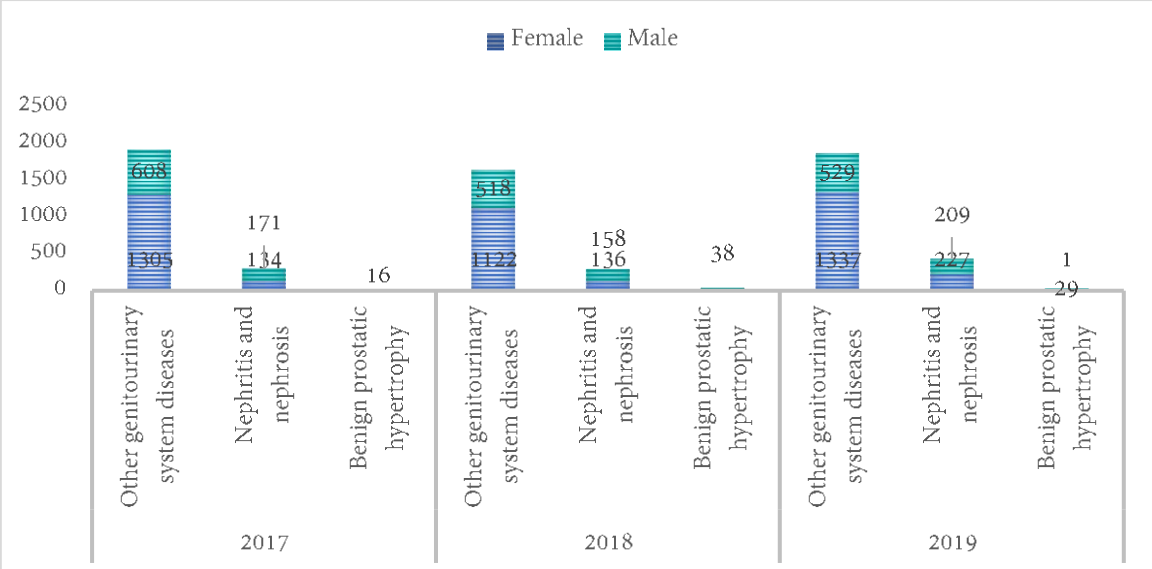


Figure 2-37: Genitourinary diseases sub-groups by gender for 2017, 2018 and 2019, in numbers[18]



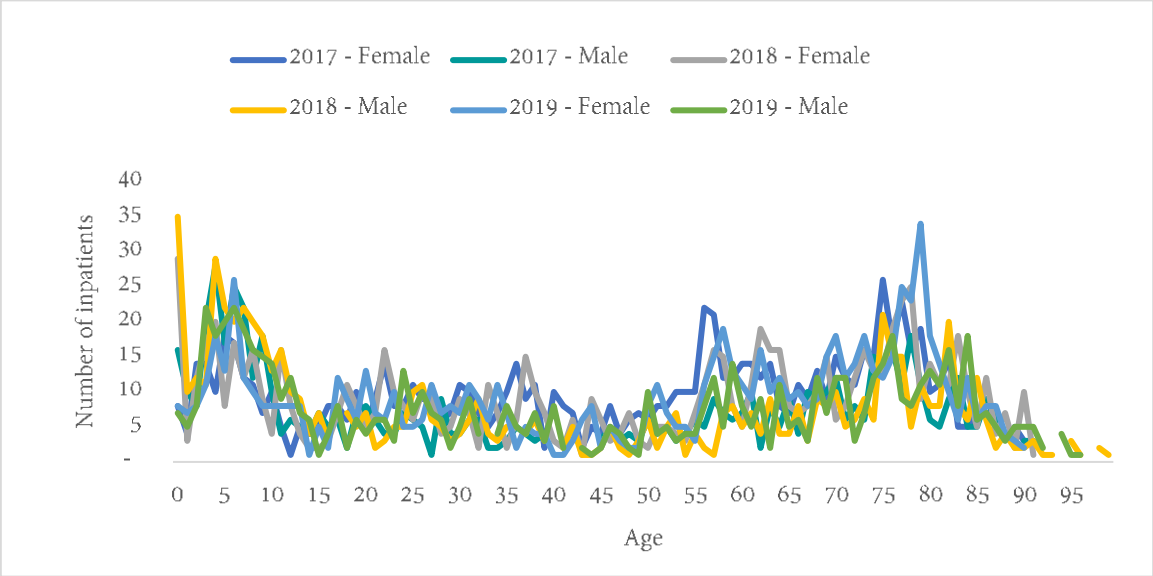
[17] Admissions with unknown age-group is excluded from the graph

[18] Admissions with unknown gender is excluded from the graph

2.4.4 RESPIRATORY DISEASES

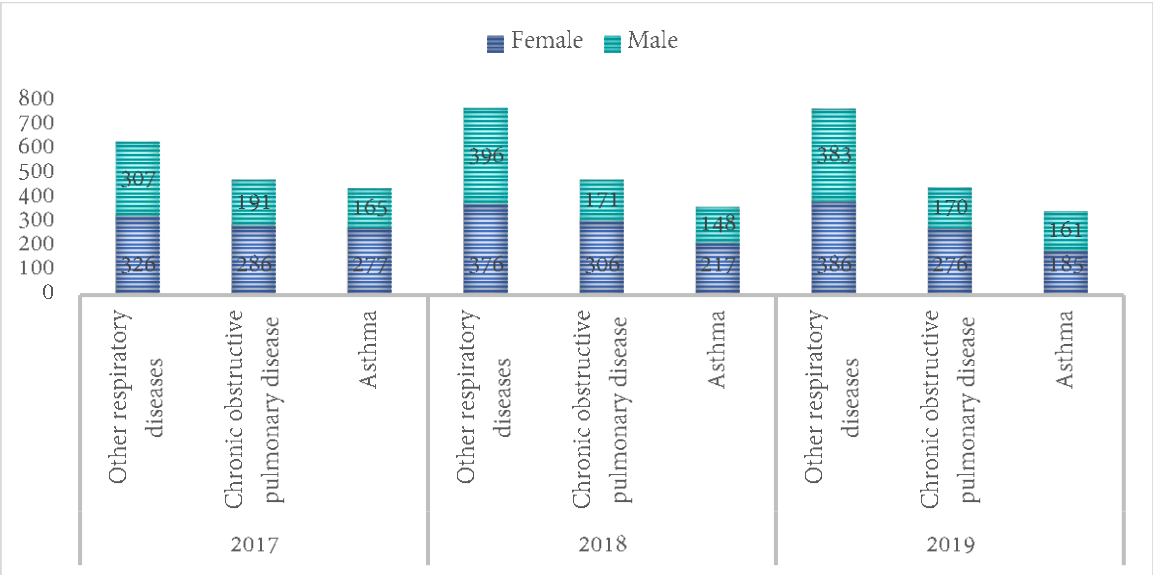
The total admissions due to respiratory diseases were 1,552 in 2017, 1,614 in 2018 and 1,561 in 2019 making it the fourth highest condition of admission in NCD. Respiratory diseases admissions were common for all age groups, mostly for young children and females of older populations.

Figure 2-38: Respiratory diseases by age and gender for 2017, 2018 and 2019, in numbers[19]



Respiratory diseases were more common among females in all three years.

Figure 2-39: Respiratory diseases sub-groups by gender for 2017, 2018 and 2019, in numbers

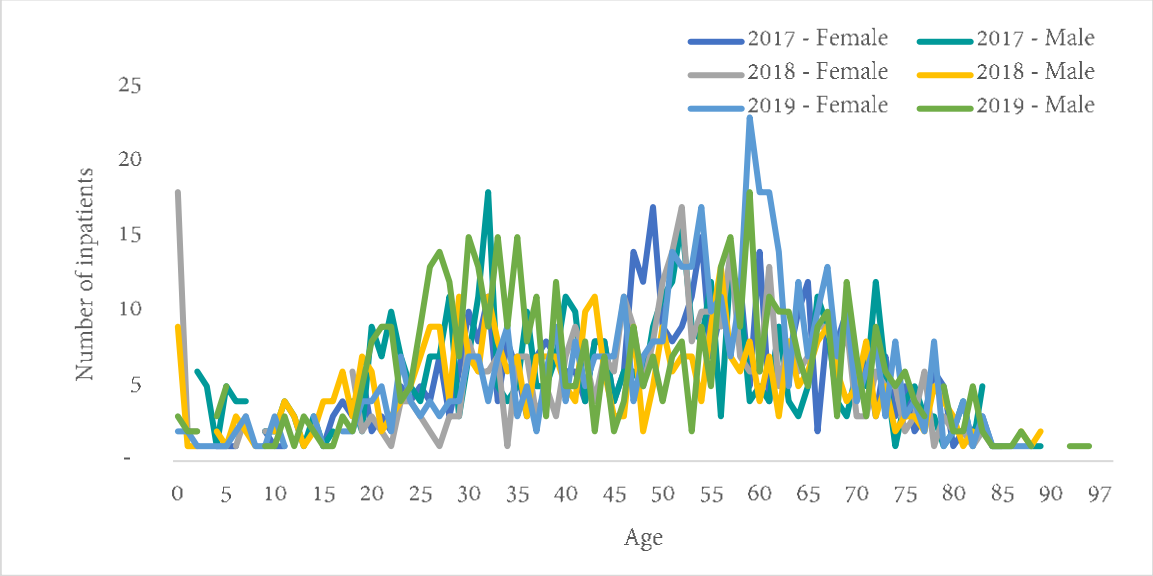


[19] Admissions with unknown age-group is excluded from the graph

2.4.5 MUSCULOSKELETAL DISEASES

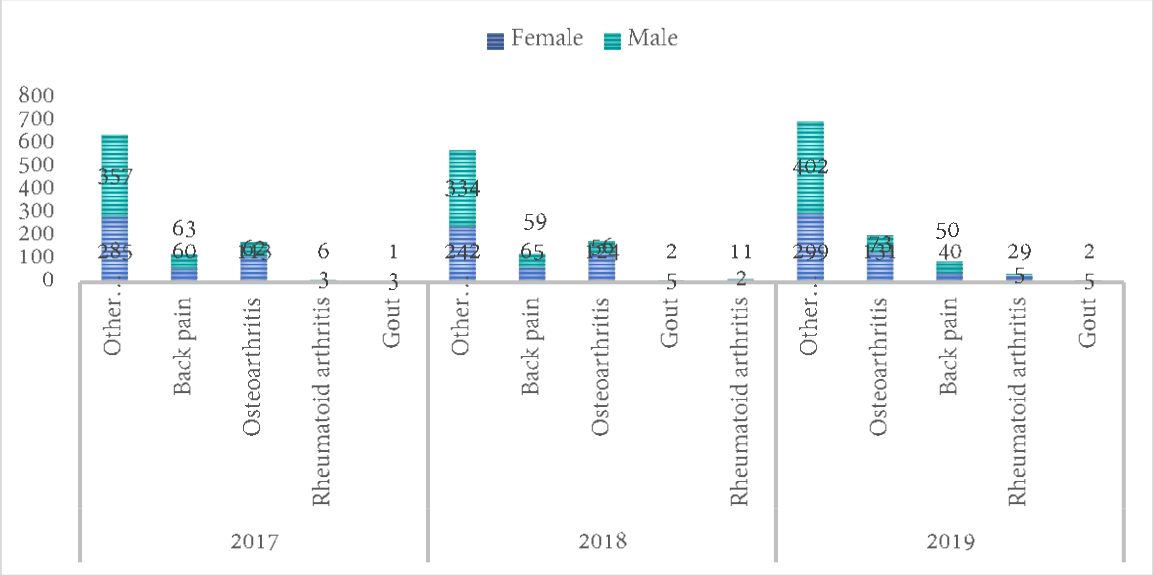
Musculoskeletal diseases increased over the years, from 953 in 2017, 902 in 2018 and 1,036 in 2019.

Figure 2-40: Musculoskeletal diseases by age and gender for 2017, 2018 and 2019, in numbers



Musculoskeletal diseases affected both genders.

Figure 2-41: Musculoskeletal diseases sub-groups by gender for 2017, 2018 and 2019, in numbers



2.5ANNEXES

Table 2-19: Inpatients by gender, age and origin[20] for 2017, 2018 and 2019

Origin & age	2017 Female	2017 Male	2017 Total	2018 Female	2018 Male	2018 Total	2019 Female	2019 Male	2019 Total
Foreign				**33**	**141**	**174**	**119**	**477**	**596**
0-17				4	16	20	30	33	63
18-35				12	64	76	43	255	298
36-53				7	39	46	22	149	171
54-71				6	5	11	18	33	51
72-89				1	1	2	4	3	7
9990-10007				3	16	19	2	4	6
Local	**3,649**	**6,134**	**9,783**	**3,906**	**6,066**	**9,972**	**5,125**	**6,946**	**12,071**
0-17	1,644	3,800	5,444	2,217	4,114	6,331	2,845	4,829	7,674
18-35	1,014	1,086	2,100	732	818	1,550	1,108	839	1,947
36-53	435	531	966	351	399	750	488	498	986
54-71	282	356	638	254	312	566	371	424	795
72-89	256	336	592	223	223	446	301	319	620
90-107	14	18	32	9	21	30	10	34	44
9990-10007	4	7	11	120	179	299	2	3	5
Total	**3,649**	**6,134**	**9,783**	**3,939**	**6,207**	**10,146**	**5,244**	**7,423**	**12,667**

Table 2-20: Inpatients by origin, atoll and admission by type of facility for 2017, 2018 and 2019

	2,017 Private	2,017 Public	2017 Total	2,018 Private	2,018 Public	2018 Total	2,019 Private	2,019 Public	2019 Total
Foreign				**5**	**169**	**174**	**230**	**366**	**596**
N					2	2			
ADh					6	6		1	1
Gn					4	4		2	2
F					9	9		2	2
AA					4	4		3	3
V					9	9		4	4
Sh					4	4		8	8
Gdh					9	9		8	8
Th					5	5		8	8
HDh					7	7		12	12
M					8	8		15	15
HA					7	7		16	16
B					3	3		17	17
L					8	8		19	19
Dh					14	14		21	21
GA					9	9		21	21

[20] 9990 -10007 is data with unavailable age-groups

	2,017 Private	Public	2017 Total	2,018 Private	Public	2018 Total	2,019 Private	Public	2019 Total
Lh					16	16		22	22
R					20	20		24	24
S				5	10	15	3	43	46
Male'					15	15	227	120	347
Local	**1,269**	**8,514**	**9,783**	**1,970**	**8,002**	**9,972**	**2,853**	**9,218**	**12,071**
V		25	25		18	18		16	16
AA		112	112		34	34		45	45
ADh		137	137		88	88		63	63
B		87	87		32	32		117	117
F		100	100		117	117		122	122
Sh		189	189		125	125		148	148
M		438	438		147	147		177	177
Dh		243	243		170	170		213	213
N		132	132		113	113		220	220
Th		224	224		155	155		252	252
Gn		286	286		166	166		281	281
GA		164	164		159	159		311	311
HA		535	535		514	514		324	324
Lh		278	278		247	247		324	324
L		834	834		436	436		400	400
R		526	526		437	437		433	433
Gdh		501	501		284	284		494	494
HDh		664	664		669	669		623	623
S	31	759	790	26	749	775	74	865	939
Male'	1,238	2,280	3,518	1,944	3,342	5,286	2,779	3,790	6,569
Total	**1,269**	**8,514**	**9,783**	**1,975**	**8,171**	**10,146**	**3,083**	**9,584**	**12,667**

Table 2-21: Average number of days and total admissions by atoll and facility in 2019

	Facility type/name	Average of Duration of stay (days)	Total Admission
2019		**3.7**	**44,640**
AA	Atoll Hospital	2.3	172
ADh	Atoll Hospital	2.3	513
B	Atoll Hospital	2.5	546
Dh	Atoll Hospital	2.2	607
F	Atoll Hospital	1.8	432
GA	Atoll Hospital	1.7	751
Gdh	Regional Hospital	4.3	1,515
Gn	Atoll Hospital	2.8	997
HA	Atoll Hospital	3.3	1,232
HDh	Regional Hospital	3.1	2,285
L	Regional Hospital	2.2	1,292
Lh	Atoll Hospital	3.8	1,049

	Facility type/name	Average of Duration of stay (days)	Total Admission
M	Regional Hospital	2.2	509
Male'	Tertiary (Public)	5.1	15,256
Male'	Tertiary (Private)	3.4	7,365
Male'	Tertiary (Private)	2.8	2,042
Male'	Hospital (Public)	3.0	2,041
Male'	Hospital (Private)	2.4	259
N	Atoll Hospital	1.8	609
R	Regional Hospital	2.3	1,205
S	Regional Hospital	3.6	2,290
S	Hospital (Private)	1.5	240
Sh	Atoll Hospital	1.9	551
Th	Atoll Hospital	2.1	803
V	Atoll Hospital	2.1	79
Total		3.7	44,640

Table 2-22: Sub-groups up to level 3 of global burden of diseases categories for Communicable, maternal, perinatal and nutritional conditions by age and gender, 2017, 2018 and 2019[21]

Communicable, maternal, perinatal and nutritional conditions	2017		2017 Total	2018		2018 Total	2019		2019 Total
	Female	Male		Female	Male		Female	Male	
Infectious and parasitic diseases	**1,004**	**1,452**	**2,456**	**1,314**	**1,907**	**3,221**	**1,819**	**2,549**	**4,368**
Childhood-cluster diseases	**2**	**3**	**5**		**1**	**1**	**2**	**6**	**8**
0-17	2	1	3		1	1	2	5	7
18-35		1	1					1	1
36-53		1	1						
Dengue	**248**	**603**	**851**	**649**	**1,189**	**1,838**	**838**	**1,318**	**2,156**
0-17	183	248	431	393	532	925	574	696	1,270
18-35	43	270	313	160	426	586	183	425	608
36-53	15	76	91	46	138	184	54	139	193
54-71	6	8	14	16	23	39	20	37	57
72-89	1	1	2	4	5	9	6	12	18
90-107				1		1		1	1
9990-10007				29	65	94	1	8	9
Diarrhoeal diseases	**422**	**481**	**903**	**363**	**404**	**767**	**379**	**439**	**818**
0-17	298	379	677	186	230	416	229	304	533
18-35	51	47	98	66	62	128	76	72	148
36-53	16	22	38	31	27	58	27	24	51
54-71	37	18	55	15	25	40	30	21	51

[21] 9990 -10007 is data with unavailable age-groups

Communicable, maternal, perinatal and nutritional conditions	2017		2017 Total	2018		2018 Total	2019		2019 Total
	Female	Male		Female	Male		Female	Male	
72-89	20	15	35	15	17	32	17	17	34
90-107				1		1		1	1
9990-10007				49	43	92			
Hepatitis B	**12**	**7**	**19**	**4**	**12**	**16**	**6**	**5**	**11**
0-17	5	1	6		2	2	2	2	4
18-35	3	1	4		7	7	1	1	2
36-53	2	1	3		2	2		1	1
54-71	1	2	3	3		3	3		3
72-89	1	2	3	1	1	2		1	1
Hepatitis C								**1**	**1**
54-71								1	1
Leprosy								**1**	**1**
36-53								1	1
Malaria								**1**	**1**
36-53								1	1
Meningitis	**4**	**4**	**8**	**11**	**15**	**26**	**17**	**12**	**29**
0-17	1	2	3	8	8	16	12	6	18
18-35	3	1	4	1	4	5	1	3	4
36-53				2	1	3	4	2	6
54-71		1	1		1	1		1	1
9990-10007					1	1			
Not categorised / Multiple Sub-categories		**1**	**1**	**1**		**1**			
36-53		1	1						
72-89				1		1			
Other infectious diseases	**253**	**316**	**569**	**218**	**240**	**458**	**532**	**736**	**1,268**
0-17	161	181	342	98	116	214	288	398	686
18-35	38	58	96	37	44	81	98	160	258
36-53	25	31	56	32	23	55	62	73	135
54-71	19	21	40	18	18	36	42	55	97
72-89	10	23	33	16	25	41	40	46	86
90-107		1	1		2	2	2	4	6
9990-10007		1	1	17	12	29			
STDs excluding HIV	**39**	**6**	**45**	**36**	**6**	**42**	**30**	**5**	**35**
0-17	5		5	3		3	1		1
18-35	20	4	24	11	4	15	12	2	14
36-53	14	1	15	13		13	15	2	17
54-71		1	1	2		2	2	1	3
72-89				1		1			

Communicable, maternal, perinatal and nutritional conditions	2017		2017 Total	2018		2018 Total	2019		2019 Total
	Female	Male		Female	Male		Female	Male	
9990-10007				6	2	8			
Tropical-cluster diseases							**2**	**1**	**3**
0-17							1		1
18-35							1		1
72-89								1	1
Tuberculosis	**24**	**31**	**55**	**32**	**40**	**72**	**13**	**24**	**37**
0-17	1	1	2	1	7	8			
18-35	1	9	10	2	11	13	1	8	9
36-53	1	7	8		7	7		5	5
54-71	16	7	23	17	10	27	8	3	11
72-89	5	7	12	12	5	17	2	8	10
90-107							2		2
Maternal conditions	**8,192**		**8,192**	**7,695**		**7,695**	**7,924**		**7,924**
Abortion	**779**		**779**	**717**		**717**	**708**		**708**
0-17	5		5	2		2	2		2
18-35	603		603	515		515	511		511
36-53	164		164	164		164	190		190
54-71	7		7	2		2	3		3
9990-10007				34		34	2		2
Hypertensive disorders	**111**		**111**	**132**		**132**	**101**		**101**
18-35	77		77	99		99	70		70
36-53	34		34	33		33	31		31
Maternal haemorrhage	**53**		**53**	**78**		**78**	**60**		**60**
18-35	46		46	50		50	45		45
36-53	7		7	24		24	15		15
9990-10007				4		4			
Maternal sepsis	**17**		**17**	**14**		**14**	**28**		**28**
18-35	11		11	10		10	21		21
36-53	5		5	4		4	5		5
9990-10007	1		1				2		2
Not categorised / Multiple Sub-categories	**4,604**		**4,604**	**4,155**		**4,155**	**4,679**		**4,679**
0-17	8		8	13		13	9		9
18-35	4,069		4,069	3,359		3,359	4,045		4,045
36-53	518		518	523		523	619		619
54-71	3		3	8		8	2		2
9990-10007	6		6	252		252	4		4

Communicable, maternal, perinatal and nutritional conditions	2017		2017 Total	2018		2018 Total	2019		2019 Total
	Female	Male		Female	Male		Female	Male	
Obstructed labour	**205**		**205**	**73**		**73**	**99**		**99**
0-17	1		1						
18-35	166		166	61		61	81		81
36-53	37		37	12		12	18		18
9990-10007	1		1						
Other maternal conditions	**2,423**		**2,423**	**2,526**		**2,526**	**2,249**		**2,249**
0-17	15		15	13		13	6		6
18-35	2,085		2,085	2,074		2,074	1,893		1,893
36-53	319		319	341		341	339		339
54-71	3		3	4		4	4		4
9990-10007	1		1	94		94	7		7
Nutritional deficiencies	**185**	**89**	**274**	**183**	**93**	**276**	**257**	**100**	**357**
Iodine deficiency								**1**	**1**
36-53								1	1
Iron-deficiency anaemia	**171**	**79**	**250**	**168**	**77**	**245**	**240**	**93**	**333**
0-17	23	16	39	28	19	47	33	14	47
18-35	52	4	56	43	5	48	90	7	97
36-53	63	5	68	58	2	60	71	4	75
54-71	15	15	30	14	20	34	14	21	35
72-89	18	35	53	18	27	45	32	44	76
90-107		4	4	1	2	3		3	3
9990-10007				6	2	8			
Other nutritional disorders	**14**	**8**	**22**	**13**	**13**	**26**	**17**	**6**	**23**
0-17	2	3	5		4	4	5	1	6
18-35	6	3	9	8		8	5	1	6
36-53	1		1	2	2	4	5	1	6
54-71	1		1	1		1			
72-89	4	2	6	2	5	7	2	3	5
90-107					2	2			
Protein-energy malnutrition		2	2	2	3	5			
0-17				2		2			
36-53					1	1			
54-71		1	1						
72-89					2	2			
90-107		1	1						
Perinatal conditions	**862**	**1,104**	**1,966**	**1,095**	**1,381**	**2,476**	**1,135**	**1,310**	**2,445**

Communicable, maternal, perinatal and nutritional conditions	2017		2017 Total	2018		2018 Total	2019		2019 Total
	Female	Male		Female	Male		Female	Male	
Birth asphyxia and birth trauma	**71**	**73**	**144**	**56**	**61**	**117**	**44**	**53**	**97**
0-17	71	73	144	56	61	117	44	53	97
Low birth weight	**119**	**179**	**298**	**155**	**190**	**345**	**177**	**231**	**408**
0-17	119	179	298	155	190	345	177	231	408
Other perinatal conditions	**672**	**852**	**1,524**	**884**	**1,130**	**2,014**	**914**	**1,026**	**1,940**
0-17	672	852	1,524	884	1,130	2,014	914	1,026	1,940
Respiratory infections	**1,402**	**1,488**	**2,890**	**1,084**	**1,193**	**2,277**	**1,293**	**1,266**	**2,559**
Lower respiratory infections	**723**	**832**	**1,555**	**609**	**686**	**1,295**	**735**	**723**	**1,458**
0-17	352	505	857	282	396	678	319	371	690
18-35	72	69	141	44	35	79	42	50	92
36-53	60	47	107	46	30	76	88	45	133
54-71	98	79	177	89	75	164	124	91	215
72-89	135	121	256	138	127	265	156	147	303
90-107	6	11	17	3	7	10	5	16	21
9990-10007				7	16	23	1	3	4
Otitis media	**27**	**18**	**45**	**27**	**14**	**41**	**51**	**23**	**74**
0-17	7	7	14	5	3	8	7	8	15
18-35	15	8	23	10	3	13	24	10	34
36-53	5	3	8	10	6	16	15	3	18
54-71				2	1	3	4	2	6
72-89					1	1	1		1
Upper respiratory infections	**652**	**638**	**1,290**	**448**	**493**	**941**	**507**	**520**	**1,027**
0-17	458	501	959	294	371	665	361	408	769
18-35	114	60	174	68	54	122	81	58	139
36-53	35	28	63	23	19	42	22	18	40
54-71	22	29	51	18	16	34	17	16	33
72-89	22	17	39	16	17	33	25	19	44
90-107	1	3	4		1	1	1	1	2
9990-10007				29	15	44			
Total	**11,645**	**4,133**	**15,778**	**11,371**	**4,574**	**15,945**	**12,428**	**5,225**	**17,653**

Table 2-23: Sub-groups up to level 3 of global burden of diseases categories for non-communicable diseases by age and gender, 2017, 2018 and 2019[22]

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Cardiovascular diseases	895	1,830	2,725	891	1,777	2,668	937	1,745	2,682
Cerebrovascular disease	193	455	648	203	457	660	272	422	694
0-17		5	5	6	16	22	4	3	7
18-35	12	19	31	3	19	22	18	17	35
36-53	25	71	96	35	63	98	35	70	105
54-71	80	183	263	75	169	244	94	181	275
72-89	76	169	245	73	164	237	118	144	262
90-107		8	8	1	8	9	2	5	7
9990-10007				10	18	28	1	2	3
Hypertensive heart disease	259	252	511	222	206	428	175	175	350
0-17				1		1	3	2	5
18-35	5	7	12	12	10	22	11	4	15
36-53	42	29	71	31	24	55	29	32	61
54-71	96	85	181	81	64	145	65	66	131
72-89	113	124	237	76	94	170	65	69	134
90-107	2	7	9	2	6	8	2	2	4
9990-10007	1		1	19	8	27			
Inflammatory heart diseases	9	17	26	16	21	37	14	19	33
0-17	1		1	2	4	6			
18-35	1		1		2	2	3	3	6
36-53	4	6	10	1	3	4	5	6	11
54-71	2	6	8	6	5	11	6	7	13
72-89	1	5	6	5	7	12		3	3
9990-10007				2		2			
Ischemic heart disease	249	839	1,088	252	836	1,088	248	869	1,117
0-17				4	12	16	1	3	4
18-35	4	44	48	7	36	43	6	48	54
36-53	43	256	299	51	232	283	46	259	305
54-71	128	365	493	117	364	481	121	411	532
72-89	74	164	238	62	176	238	74	141	215
90-107		10	10	4	10	14		6	6
9990-10007				7	6	13		1	1
Not categorised / Multiple Sub-categories	9	14	23	5	5	10	5	6	11
0-17					1	1		1	1
18-35					1	1		1	1

[22] 9990 -10007 is data with unavailable age-groups

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
36-53	6	2	8	1	1	2	1	2	3
54-71	1	3	4	2		2	2	1	3
72-89	2	9	11	2		2	2	1	3
9990-10007					2	2			
Other cardiovascular diseases	**169**	**250**	**419**	**191**	**245**	**436**	**212**	**248**	**460**
0-17	12	20	32	18	31	49	15	14	29
18-35	37	41	78	42	33	75	37	42	79
36-53	49	52	101	46	39	85	50	54	104
54-71	33	57	90	27	64	91	53	68	121
72-89	35	69	104	38	69	107	55	60	115
90-107	3	10	13	6	1	7	2	8	10
9990-10007		1	1	14	8	22		2	2
Rheumatic heart disease	**7**	**3**	**10**	**2**	**7**	**9**	**11**	**6**	**17**
0-17					3	3			
18-35	1	2	3	1		1	2	2	4
36-53	1	1	2		2	2	4	2	6
54-71	3		3	1	2	3	4	1	5
72-89	2		2				1	1	2
Congenital anomalies	**120**	**121**	**241**	**129**	**135**	**264**	**141**	**146**	**287**
Anorectal atresia	**2**	**1**	**3**	**1**	**1**	**2**	**1**		**1**
0-17	1	1	2	1	1	2	1		1
18-35	1		1						
Cleft lip					**3**	**3**		**1**	**1**
0-17					3	3		1	1
Cleft palate	**2**	**3**	**5**	**5**	**7**	**12**	**3**	**3**	**6**
0-17		2	2	3	7	10	2	3	5
18-35	2		2	2		2	1		1
36-53		1	1						
Congenital heart anomalies	**16**	**17**	**33**	**26**	**9**	**35**	**20**	**21**	**41**
0-17	13	13	26	18	7	25	16	12	28
18-35	2	3	5	2	2	4	3	5	8
36-53	1		1	1		1	1	3	4
54-71		1	1	2		2		1	1
72-89				1		1			
9990-10007				2		2			
Down syndrome	**3**	**8**	**11**	**4**	**3**	**7**	**5**	**3**	**8**
0-17	3	7	10	4	3	7	4	2	6
18-35		1	1				1		1
36-53								1	1
Not categorised / Multiple Sub-categories							**1**		**1**
0-17							1		1

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Oesophageal atresia		**1**	**1**	**1**		**1**			
0-17		1	1						
9990-10007				1		1			
Other Congenital anomalies	**97**	**89**	**186**	**92**	**109**	**201**	**109**	**118**	**227**
0-17	41	71	112	46	90	136	51	103	154
18-35	37	12	49	24	12	36	32	4	36
36-53	13	4	17	14	2	16	20	6	26
54-71	5		5	2	2	4	4	3	7
72-89	1	2	3	2		2	1	2	3
90-107							1		1
9990-10007				4	3	7			
Spina bifida		**2**	**2**		**3**	**3**	**2**		**2**
0-17		2	2		1	1	2		2
9990-10007					2	2			
Diabetes mellitus	**178**	**174**	**352**	**178**	**188**	**366**	**208**	**183**	**391**
Not categorised / Multiple Sub-categories	**178**	**174**	**352**	**178**	**188**	**366**	**208**	**183**	**391**
0-17	10	27	37	34	25	59	33	27	60
18-35	28	29	57	17	32	49	34	39	73
36-53	56	36	92	46	31	77	57	33	90
54-71	63	52	115	49	61	110	57	59	116
72-89	20	27	47	27	33	60	27	23	50
90-107	1	3	4		2	2		2	2
9990-10007				5	4	9			
Digestive diseases	**1,380**	**1,585**	**2,965**	**975**	**1,259**	**2,234**	**1,068**	**1,362**	**2,430**
Appendicitis	**161**	**193**	**354**	**159**	**199**	**358**	**141**	**212**	**353**
0-17	38	48	86	43	56	99	26	43	69
18-35	93	104	197	73	89	162	82	111	193
36-53	22	36	58	25	38	63	25	44	69
54-71	7	4	11	9	7	16	8	11	19
72-89	1	1	2	1	2	3		1	1
90-107				1		1		2	2
9990-10007				7	7	14			
Cirrhosis of the liver	**8**	**12**	**20**	**4**	**15**	**19**	**7**	**11**	**18**
0-17				1		1			
18-35		5	5		2	2	1	1	2
36-53		3	3		3	3	3		3
54-71	5	3	8	1	2	3	1	3	4
72-89	3	1	4	2	5	7	2	7	9
90-107					1	1			
9990-10007					2	2			
Other digestive diseases	**1,181**	**1,349**	**2,530**	**791**	**1,023**	**1,814**	**903**	**1,120**	**2,023**
0-17	372	432	804	156	220	376	183	237	420

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
18-35	297	284	581	222	190	412	268	259	527
36-53	234	255	489	158	199	357	190	227	417
54-71	161	217	378	142	232	374	160	251	411
72-89	111	153	264	75	133	208	99	137	236
90-107	6	7	13	4	8	12	3	8	11
9990-10007		1	1	34	41	75		1	1
Peptic ulcer disease	**30**	**31**	**61**	**21**	**22**	**43**	**17**	**19**	**36**
0-17	4	1	5	1	5	6		6	6
18-35	5	15	20	6	8	14	1	5	6
36-53	5	7	12	6	3	9	6	3	9
54-71	7	2	9	3	3	6	6	3	9
72-89	9	6	15	2	3	5	4	2	6
90-107				1		1			
9990-10007				2		2			
Endocrine disorders	**390**	**368**	**758**	**436**	**366**	**802**	**493**	**409**	**902**
Not categorised / Multiple Sub-categories	**390**	**368**	**758**	**436**	**366**	**802**	**493**	**409**	**902**
0-17	82	158	240	83	139	222	122	176	298
18-35	83	69	152	89	49	138	93	74	167
36-53	57	19	76	64	26	90	71	33	104
54-71	69	39	108	91	54	145	91	47	138
72-89	94	76	170	92	81	173	109	75	184
90-107	3	5	8	4	4	8	7	4	11
9990-10007	2	2	4	13	13	26			
Genitourinary diseases	**1,439**	**795**	**2,234**	**1,258**	**714**	**1,972**	**1,565**	**767**	**2,332**
Benign prostatic hypertrophy		**16**	**16**		**38**	**38**	**1**	**29**	**30**
0-17					1	1			
18-35					1	1			
36-53		1	1		2	2		2	2
54-71		8	8		6	6	1	13	14
72-89		7	7		25	25		13	13
90-107					3	3		1	1
Nephritis and nephrosis	**134**	**171**	**305**	**136**	**158**	**294**	**227**	**209**	**436**
0-17	22	35	57	24	33	57	33	27	60
18-35	30	27	57	28	28	56	46	36	82
36-53	25	21	46	21	21	42	35	36	71
54-71	34	41	75	38	35	73	75	54	129
72-89	23	40	63	21	33	54	38	51	89
90-107		6	6	1	5	6		4	4
9990-10007		1	1	3	3	6		1	1
Other genitourinary system diseases	**1,305**	**608**	**1,913**	**1,122**	**518**	**1,640**	**1,337**	**529**	**1,866**
0-17	224	189	413	181	144	325	191	173	364

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
18-35	533	151	684	414	113	527	545	106	651
36-53	373	126	499	313	89	402	391	91	482
54-71	105	60	165	101	65	166	142	76	218
72-89	69	71	140	59	74	133	66	75	141
90-107	1	11	12	1	7	8	2	7	9
9990-10007				53	26	79		1	1
Malignant neoplasms	**126**	**128**	**254**	**183**	**154**	**337**	**188**	**152**	**340**
Bladder cancer	**2**	**11**	**13**	**3**	**11**	**14**	**5**	**6**	**11**
18-35		1	1				1		1
36-53		3	3		5	5	2	1	3
54-71		1	1	1	2	3		3	3
72-89	2	5	7	2	2	4	2		2
90-107		1	1					2	2
9990-10007					2	2			
Breast cancer	**12**	**1**	**13**	**53**	**2**	**55**	**59**	**2**	**61**
18-35	8	1	9	20	1	21	16	1	17
36-53	2		2	19		19	21	1	22
54-71	2		2	11	1	12	19		19
72-89							3		3
9990-10007				3		3			
Cervix uteri cancer	**14**		**14**	**7**		**7**	**12**		**12**
18-35	1		1				1		1
36-53				2		2	3		3
54-71	5		5	3		3	5		5
72-89	8		8	2		2	3		3
Colon and rectum cancers	**10**	**7**	**17**	**10**	**7**	**17**	**5**	**8**	**13**
0-17		1	1						
18-35	5		5	1	3	4		1	1
36-53	2		2		2	2	3	4	7
54-71	3	3	6	6	1	7		2	2
72-89		3	3	2	1	3	2	1	3
9990-10007				1		1			
Corpus uteri cancer	**4**		**4**	**8**		**8**	**6**		**6**
18-35	2		2						
36-53	1		1	1		1	2		2
54-71				5		5	2		2
72-89	1		1	2		2	1		1
90-107							1		1
Leukaemia	**7**	**9**	**16**	**10**	**6**	**16**	**16**	**13**	**29**
0-17	3	3	6	1	1	2	3	2	5
18-35	1		1				2	2	4
54-71	3	2	5	6	3	9	8	3	11

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
72-89		4	4	3	1	4	3	6	9
9990-10007					1	1			
Liver cancer	**1**	**16**	**17**	**3**	**9**	**12**	**2**	**23**	**25**
0-17								1	1
18-35		1	1	1		1			
36-53		5	5					2	2
54-71	1	9	10	1	7	8	1	17	18
72-89		1	1	1	2	3	1	3	4
Lymphomas, multiple myeloma	**6**	**8**	**14**	**1**	**12**	**13**	**5**	**9**	**14**
0-17		1	1						
18-35		1	1					1	1
36-53		2	2		3	3	3	1	4
54-71	6	4	10		5	5	1	2	3
72-89				1	4	5	1	5	6
Melanoma and other skin cancers	**3**	**1**	**4**		**3**	**3**	**1**	**2**	**3**
0-17					2	2			
54-71					1	1		2	2
72-89	3	1	4				1		1
Mouth and oropharynx cancers	**14**	**15**	**29**	**15**	**15**	**30**	**12**	**10**	**22**
0-17		3	3	1	4	5	5		5
18-35				1		1	1	4	5
36-53				1	6	7	2	1	3
54-71	1	4	5	6	3	9	4	1	5
72-89	13	8	21	5	2	7		4	4
9990-10007				1		1			
Oesophagus cancer	**1**		**1**	**1**	**1**	**2**	**1**	**5**	**6**
36-53					1	1		3	3
54-71	1		1					1	1
72-89				1		1	1	1	2
Other malignant neoplasms	**30**	**32**	**62**	**49**	**44**	**93**	**38**	**38**	**76**
0-17	5	3	8	6	9	15		8	8
18-35	7	8	15	6	3	9	6	7	13
36-53	9	8	17	18	6	24	15	6	21
54-71	6	7	13	14	6	20	10	9	19
72-89	3	6	9	4	14	18	7	7	14
90-107								1	1
9990-10007				1	6	7			
Ovary cancer	**13**		**13**	**11**		**11**	**12**	**1**	**13**
0-17								1	1
18-35				3		3	1		1

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
36-53				3		3	3		3
54-71	7		7	3		3	6		6
72-89	6		6	2		2	2		2
Pancreas cancer	**6**	**3**	**9**	**5**	**6**	**11**	**6**	**3**	**9**
0-17							1		1
36-53								1	1
54-71	3	3	6	2	3	5	3	1	4
72-89	3		3	2	2	4	2	1	3
90-107					1	1			
9990-10007				1		1			
Prostate cancer		**18**	**18**		**7**	**7**		**12**	**12**
54-71		12	12		2	2		6	6
72-89		6	6		5	5		6	6
Stomach cancer					**4**	**4**		**1**	**1**
36-53					1	1			
54-71					1	1			
72-89					1	1		1	1
9990-10007					1	1			
Trachea, bronchus, lung cancers	**3**	**7**	**10**	**7**	**27**	**34**	**8**	**19**	**27**
0-17					1	1	1		1
18-35								2	2
36-53	1	2	3	1	1	2	2	2	4
54-71		2	2	3	11	14	5	9	14
72-89	2	3	5	3	14	17		6	6
Musculoskeletal diseases	**465**	**488**	**953**	**444**	**456**	**900**	**501**	**535**	**1,036**
Back pain	**60**	**63**	**123**	**65**	**59**	**124**	**40**	**50**	**90**
0-17	3	1	4	4	3	7	1		1
18-35	14	8	22	9	8	17	10	20	30
36-53	20	23	43	17	23	40	11	8	19
54-71	15	22	37	22	16	38	11	19	30
72-89	8	9	17	9	6	15	7	3	10
90-107				1	2	3			
9990-10007				3	1	4			
Gout	**1**	**3**	**4**	**2**	**5**	**7**	**2**	**5**	**7**
0-17					2	2			
18-35								1	1
36-53		1	1					2	2
54-71							1		1
72-89	1	2	3	2	3	5	1	2	3
Osteoarthritis	**113**	**62**	**175**	**124**	**56**	**180**	**131**	**73**	**204**
0-17	1		1	4		4		2	2
18-35	7		7	5	2	7	3	3	6

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
36-53	10	6	16	20	3	23	16	9	25
54-71	85	36	121	74	34	108	91	32	123
72-89	10	20	30	20	15	35	21	25	46
90-107				1		1		2	2
9990-10007					2	2			
Other musculoskeletal disorders	**285**	**357**	**642**	**242**	**334**	**576**	**299**	**402**	**701**
0-17	14	45	59	25	41	66	24	29	53
18-35	75	117	192	49	105	154	63	149	212
36-53	114	115	229	103	85	188	107	90	197
54-71	56	61	117	43	69	112	84	106	190
72-89	25	18	43	9	14	23	21	25	46
90-107	1	1	2					3	3
9990-10007				13	20	33			
Rheumatoid arthritis	**6**	**3**	**9**	**11**	**2**	**13**	**29**	**5**	**34**
0-17				2		2			
18-35	1	1	2	6		6	7		7
36-53	3	1	4	2		2	4		4
54-71	1		1	1	1	2	16	5	21
72-89	1	1	2		1	1	2		2
Neuropsychiatric conditions	**375**	**407**	**782**	**482**	**424**	**906**	**509**	**502**	**1,011**
Alcohol use disorders		**3**	**3**		**4**	**4**		**4**	**4**
18-35		2	2		4	4		4	4
36-53		1	1						
Alzheimer and other dementias	**6**	**5**	**11**	**3**	**8**	**11**	**7**	**15**	**22**
18-35								1	1
36-53				1	2	3			
54-71		2	2		2	2		2	2
72-89	6	3	9	1	4	5	7	10	17
90-107								2	2
9990-10007				1		1			
Bipolar disorder	**26**	**29**	**55**	**30**	**24**	**54**	**41**	**30**	**71**
0-17				1	1	2	3		3
18-35	8	16	24	16	7	23	21	16	37
36-53	17	11	28	9	14	23	12	10	22
54-71		2	2	4	2	6	5	4	9
72-89	1		1						
Drug use disorders	**5**	**17**	**22**	**1**	**25**	**26**	**2**	**26**	**28**
0-17	2	2	4					2	2
18-35	2	13	15		21	21	2	15	17
36-53	1	2	3		4	4		9	9
72-89				1		1			

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Epilepsy	**52**	**77**	**129**	**79**	**72**	**151**	**92**	**112**	**204**
0-17	24	31	55	39	32	71	42	45	87
18-35	19	28	47	26	20	46	29	39	68
36-53	4	8	12	7	9	16	8	11	19
54-71	5	7	12	4	3	7	9	9	18
72-89		3	3	2	5	7	3	8	11
90-107							1		1
9990-10007				1	3	4			
Insomnia (primary)		**1**	**1**		**1**	**1**	**1**		**1**
18-35					1	1	1		1
36-53		1	1						
Mental Retardation	7	**2**	**9**	**10**	**4**	**14**	**2**	**3**	**5**
0-17				4	1	5		1	1
18-35	4	2	6	6	2	8	2		2
36-53	3		3		1	1		2	2
Migraine	**19**	**3**	**22**	**8**	**8**	**16**	**9**	**4**	**13**
0-17	1	2	3	1	4	5		1	1
18-35	12	1	13	3	2	5	6	2	8
36-53	6		6	2	2	4	2	1	3
54-71				2		2	1		1
Multiple sclerosis				**4**	**1**	**5**	**1**	**1**	**2**
0-17				1		1			
18-35				2	1	3			
36-53				1		1	1	1	2
Not categorised / Multiple Sub-categories	**4**	**1**	**5**	**1**		**1**	**4**	**3**	**7**
0-17				1		1			
18-35	1	1	2				4	1	5
54-71	2		2					2	2
72-89	1		1						
Obsessive-compulsive disorder	**1**	**1**	**2**	**1**	**1**	**2**		**3**	**3**
0-17								1	1
18-35	1	1	2	1		1			
36-53					1	1		1	1
54-71								1	1
Other neuropsychiatric disorders	**186**	**188**	**374**	**239**	**196**	**435**	**235**	**192**	**427**
0-17	29	21	50	36	35	71	45	37	82
18-35	47	50	97	55	40	95	51	37	88
36-53	45	38	83	60	42	102	53	40	93
54-71	39	49	88	57	53	110	67	47	114
72-89	26	28	54	22	16	38	18	30	48
90-107		2	2	2		2		1	1

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
9990-10007				7	10	17	1		1
Panic disorder	**2**	**2**	**4**	**2**	**2**	**4**	**3**		**3**
0-17				1	1	2			
18-35		1	1		1	1	3		3
36-53	2	1	3	1		1			
Parkinson disease	**6**	**7**	**13**	**4**	**8**	**12**	**5**	**9**	**14**
18-35		1	1						
36-53	2	1	3		2	2		1	1
54-71				2	1	3	4	2	6
72-89	4	5	9	2	5	7	1	6	7
Post-traumatic stress disorder		**5**	**5**				**3**		**3**
0-17		2	2				1		1
18-35		1	1				1		1
36-53		1	1				1		1
54-71		1	1						
Schizophrenia	**33**	**48**	**81**	**45**	**57**	**102**	**50**	**74**	**124**
0-17	1		1	4	2	6	2	5	7
18-35	19	36	55	26	36	62	20	43	63
36-53	9	9	18	7	14	21	20	20	40
54-71	2	3	5	6	2	8	7	6	13
72-89	2		2	1	2	3	1		1
9990-10007				1	1	2			
Unipolar depressive disorders	**28**	**18**	**46**	**55**	**13**	**68**	**54**	**26**	**80**
0-17	7	1	8	7		7	11	2	13
18-35	13	10	23	36	8	44	28	16	44
36-53	7	1	8	9	3	12	9	5	14
54-71	1	6	7	3	1	4	1	2	3
72-89					1	1	4	1	5
90-107							1		1
Not categorised / Multiple Sub-categories				**3**		**3**			
Not categorised / Multiple Sub-categories				**3**		**3**			
0-17				1		1			
18-35				1		1			
36-53				1		1			
Oral conditions	**43**	**39**	**82**	**94**	**65**	**159**	**73**	**64**	**137**
Dental caries	**2**	**1**	**3**	**6**	**5**	**11**	**2**	**1**	**3**
0-17	2		2		2	2		1	1
18-35		1	1	4	3	7	1		1
36-53				2		2	1		1
Other oral diseases	**38**	**37**	**75**	**86**	**59**	**145**	**65**	**60**	**125**
0-17	18	18	36	21	17	38	15	22	37
18-35	12	11	23	53	26	79	32	22	54

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
36-53	6	5	11	12	10	22	8	4	12
54-71	1	3	4		2	2	8	10	18
72-89	1		1		2	2	2	1	3
9990-10007					2	2		1	1
Periodontal disease	**3**	**1**	**4**	**2**	**1**	**3**	**6**	**3**	**9**
0-17	2		2	1		1	2	2	4
18-35		1	1				1		1
36-53	1		1				1		1
54-71				1	1	2	1	1	2
72-89							1		1
Other neoplasms	**197**	**86**	**283**	**232**	**85**	**317**	**236**	**94**	**330**
Not categorised / Multiple Sub-categories	**197**	**86**	**283**	**232**	**85**	**317**	**236**	**94**	**330**
0-17	11	15	26	20	12	32	15	12	27
18-35	82	11	93	66	15	81	68	23	91
36-53	69	12	81	90	9	99	117	11	128
54-71	31	26	57	27	20	47	21	37	58
72-89	4	20	24	7	16	23	15	8	23
90-107		2	2		1	1		3	3
9990-10007				22	12	34			
Respiratory diseases	**889**	**663**	**1,552**	**899**	**715**	**1,614**	**847**	**714**	**1,561**
Asthma	**277**	**165**	**442**	**217**	**148**	**365**	**185**	**161**	**346**
0-17	77	117	194	78	95	173	68	102	170
18-35	67	13	80	40	12	52	31	17	48
36-53	58	8	66	27	8	35	32	15	47
54-71	58	11	69	38	13	51	40	16	56
72-89	17	16	33	16	12	28	13	10	23
90-107				3	1	4	1	1	2
9990-10007				15	7	22			
Chronic obstructive pulmonary disease	**286**	**191**	**477**	**306**	**171**	**477**	**276**	**170**	**446**
0-17	6	7	13	9	13	22	6	7	13
18-35	13	4	17	3	3	6	9	6	15
36-53	19	11	30	20	7	27	16	8	24
54-71	100	78	178	103	39	142	94	53	147
72-89	143	83	226	161	98	259	150	87	237
90-107	4	8	12	7	10	17	1	9	10
9990-10007	1		1	3	1	4			
Other respiratory diseases	**326**	**307**	**633**	**376**	**396**	**772**	**386**	**383**	**769**
0-17	78	99	177	102	153	255	99	104	203
18-35	72	69	141	94	85	179	104	79	183
36-53	52	33	85	51	40	91	31	45	76
54-71	67	40	107	48	47	95	71	70	141

Non-communicable diseases	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
72-89	55	61	116	47	54	101	80	77	157
90-107	2	4	6	3	3	6		8	8
9990-10007		1	1	31	14	45	1		1
Sense organ diseases	**87**	**92**	**179**	**68**	**88**	**156**	**85**	**64**	**149**
Glaucoma	**12**	**26**	**38**	**18**	**15**	**33**	**21**	**4**	**25**
0-17				2		2	1		1
18-35	1		1				4		4
36-53		7	7		4	4	4		4
54-71	8	4	12	6	6	12	8	2	10
72-89	3	14	17	5	3	8	4	2	6
90-107		1	1						
9990-10007				5	2	7			
Hearing loss, adult onset					**3**	**3**	**3**	**1**	**4**
0-17					2	2			
18-35							1	1	2
36-53					1	1	2		2
Other sense organ disorders	**75**	**66**	**141**	**50**	**70**	**120**	**61**	**59**	**120**
0-17	30	23	53	19	22	41	15	23	38
18-35	14	16	30	12	14	26	13	13	26
36-53	18	10	28	7	12	19	22	11	33
54-71	9	10	19	7	13	20	8	7	15
72-89	4	6	10	4	7	11	3	5	8
90-107		1	1						
9990-10007				1	2	3			
Skin diseases	**260**	**413**	**673**	**251**	**380**	**631**	**254**	**475**	**729**
Not categorised / Multiple Sub-categories	**260**	**413**	**673**	**251**	**380**	**631**	**254**	**475**	**729**
0-17	64	74	138	68	77	145	59	116	175
18-35	112	143	255	96	143	239	125	167	292
36-53	44	76	120	34	58	92	33	76	109
54-71	23	73	96	19	58	77	17	57	74
72-89	17	47	64	21	26	47	19	58	77
90-107					2	2	1	1	2
9990-10007				13	16	29			
Total	**6,844**	**7,189**	**14,033**	**6,523**	**6,806**	**13,329**	**7,105**	**7,212**	**14,317**

Table 2-24: Sub-groups up to level 3 of global burden of diseases categories for Ill-defined diseases, Ill-defined injuries/accidents, Injuries, Not-categorized diseases and Not Stated (Not coded admissions) by age and gender, 2017, 2018 and 2019[23]

	2017 Female	Male	2017 Total	2018 Female	Male	2018 Total	2019 Female	Male	2019 Total
Ill-defined diseases	1,433	1,667	3,100	1,118	1,178	2,296	1,527	1,842	3,369
Ill-defined injuries/accidents	2	3	5		4	4	2	6	8
Injuries	83	216	299	69	155	224	78	169	247
Unintentional injuries	66	194	260	63	143	206	66	157	223
Drownings	2	5	7	3	5	8	4	13	17
0-17		2	2	2	1	3	2	5	7
18-35	1	2	3	1	1	2		3	3
36-53	1	1	2		2	2	2	3	5
54-71								1	1
72-89					1	1			
9990-10007								1	1
Falls	10	29	39	12	18	30	11	20	31
0-17	1	9	10	3	5	8	4		4
18-35	3	7	10	3	2	5	1	9	10
36-53	2	5	7	1	4	5		5	5
54-71	1	5	6	1		1		4	4
72-89	3	3	6	1	5	6	5	1	6
90-107				1		1	1		1
9990-10007				2	2	4		1	1
Fires		1	1				1		1
18-35		1	1				1		1
Not categorised / Multiple Sub-categories	4	22	26	4	9	13		3	3
Other unintentional injuries	17	45	62	27	39	66	31	43	74
0-17		3	3	7	7	14	3	7	10
18-35	6	23	29	6	11	17	7	18	25
36-53	5	12	17	3	9	12	8	6	14
54-71	3	5	8	4	5	9	7	4	11
72-89	3	2	5	3	4	7	6	8	14
90-107				1		1			
9990-10007				3	3	6			
Poisonings	6	2	8	3	3	6	2	2	4

[23] 9990 -10007 is data with unavailable age-groups

	2017 Female	Male	2017 Total	2018 Female	Male	2018 Total	2019 Female	Male	2019 Total
0-17	5	1	6	1	1	2	1	1	2
18-35		1	1	2	1	3	1	1	2
36-53	1		1						
72-89					1	1			
Road traffic accidents	27	90	117	14	69	83	17	76	93
0-17	4	15	19	3	2	5	2	10	12
18-35	15	52	67	8	45	53	7	43	50
36-53	6	8	14	2	16	18	6	9	15
54-71	2	15	17		5	5	2	12	14
72-89					1	1		1	1
90-107								1	1
9990-10007				1		1			
Intentional injuries	**17**	**22**	**39**	**6**	**12**	**18**	**11**	**12**	**23**
Not categorised / Multiple Sub-categories	4	20	24	4	11	15	2	7	9
Other intentional injuries								3	3
18-35								1	1
36-53								2	2
Self-inflicted injuries	13	2	15	2	1	3	9	2	11
0-17	4		4	2		2	5	1	6
18-35	7	2	9		1	1	3		3
36-53	2		2				1	1	2
Not categorised / Multiple Sub-categories							**1**		**1**
Self-inflicted injuries							1		1
18-35							1		1
Not categorised	2,057	4,150	6,207	2,669	4,819	7,488	3,628	5,399	9,027
Not Stated	74	98	172	83	51	134	9	7	16
Total	3,649	6,134	9,783	3,939	6,207	10,146	5,244	7,423	12,667


ANALYSIS OF
CAUSE OF DEATH

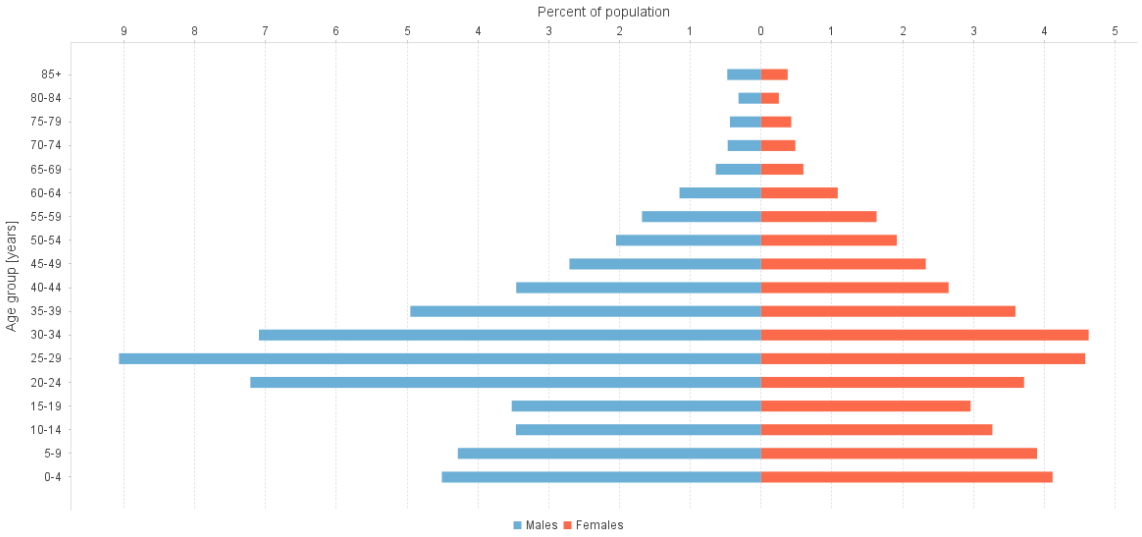
3 CHAPTER 3 ANALYSIS OF CAUSE OF DEATH DATA

This chapter is developed using the Analysis of Cause of Death Data (ANACONDA) tool developed by University of Melbourne [7, 8] to assess the quality of mortality data. The principles underlying the various data quality checks in ANACONDA [9] are based on years of demographic and epidemiological research into the characteristics of human mortality, how the risks of dying change with age, and how causes of death change as overall mortality levels decline. A second major resource used in ANACONDA is the Global Burden of Disease (GBD) Study.

3.1 DEMOGRAPHIC DATA

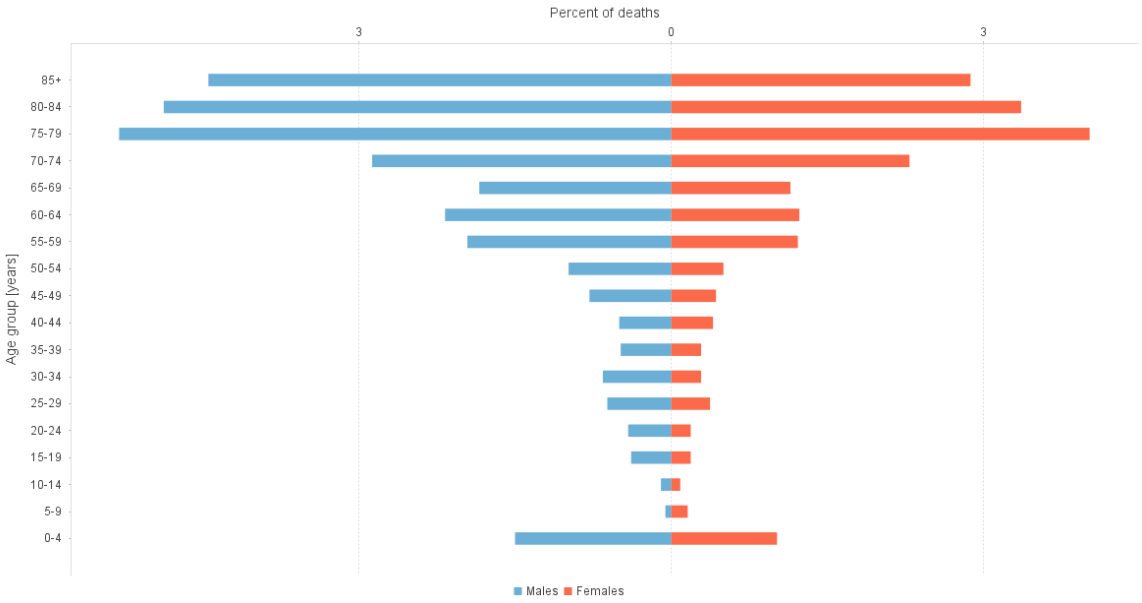
The population pyramid shows a high per cent at lower age groups, showing a growing population in the country. The population data source for 2017-19 is mid-year population estimated from Census 2014 [10] National Bureau of Statistics.

Figure 3-1: Population pyramid by per cent of population for 2017, 2018 and 2019



However, deaths are higher in the elder age bands.

Figure 3-2: Age-sex-distribution of deaths by per cent of deaths, 2017, 2018 and 2019



3.2 CRUDE DEATH RATE AND COMPLETENESS OF DEATH REPORTING

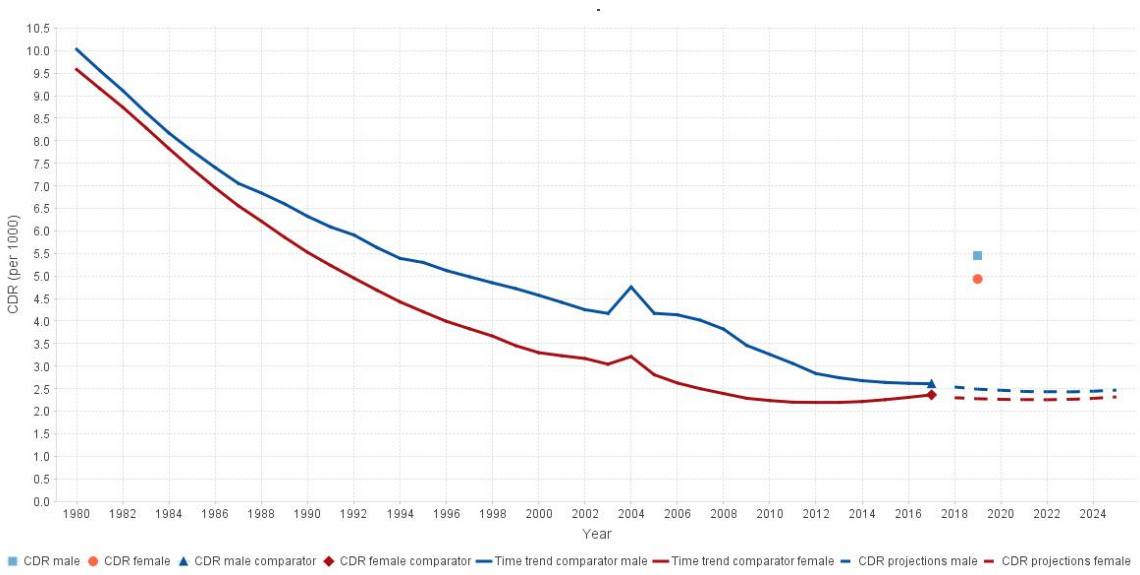
The GBD comparator years used are 2017 Institute for Health Metrics and Evaluation (IHME) comparator data. This is an estimation of Crude Death Rate done by IHME for Maldives. IHME comparator data is used to estimate completeness of current mortality data compared to globally reported data. The crude death rate calculated and reported shows that the current datasets shows a greater number of deaths than that has been estimated by the GBD datasets (IHME). This is bound to happen, given the time-lag it takes to complete the full data registration, coding and dissemination of data. This chapter analysis is based on the results from ANACONDA software [11].

Table 3-1: Crude Death Rates (per 1000) for 2019

Males	Females	Source	Reference Year
5.5	4.9	Maldives mortality data source: CRVS	2019
2.6	2.4	IHME comparator data: CDR by country	2017[24]

Per ANACONDA results, the crude death rate (CDR) for males is higher (5.5) compared for female CRD (4.9).

Figure 3-3: Time-trend in comparator data for 2017, 2018 and 2019



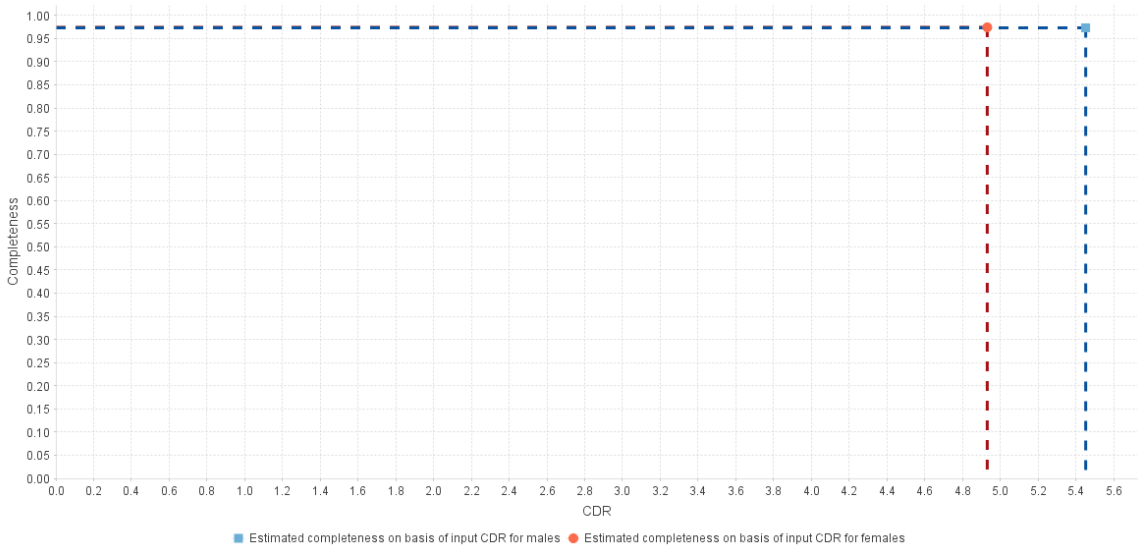
[24] Comparator data is available up to 2017

The completeness estimate obtained from the empirical method [12] is 97.3% for males and 97.4% for females for period of 2017, 2018 and 2019.

Table 3-2: Completeness of death reporting, 2019

Males	Females	Source	Reference Year
97.30%	97.40%	Maldives mortality data source: CRVS	2019

Figure 3-4: Completeness of death registration in Maldives 2017, 2018 and 2019

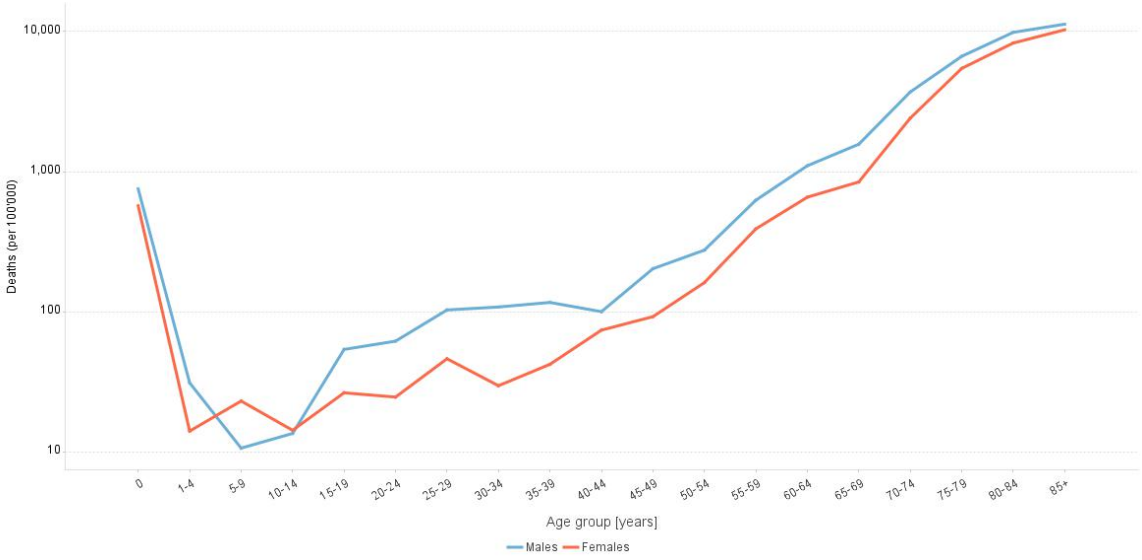


3.3 AGE SPECIFIC MORTALITY RATES (ASMR)

ASMR for Maldives is fluctuating rapidly, which might be due to small population and is highest for age-group 30-34 years.

Mortality across all age-groups is higher for males than females. The gap is highest across age bands 15-40 years, which is considered the youth population in the Maldives. It can also be seen that infant deaths are still high. Similarly, deaths for elderly age-groups 80+ show a closer sex ratio for deaths.

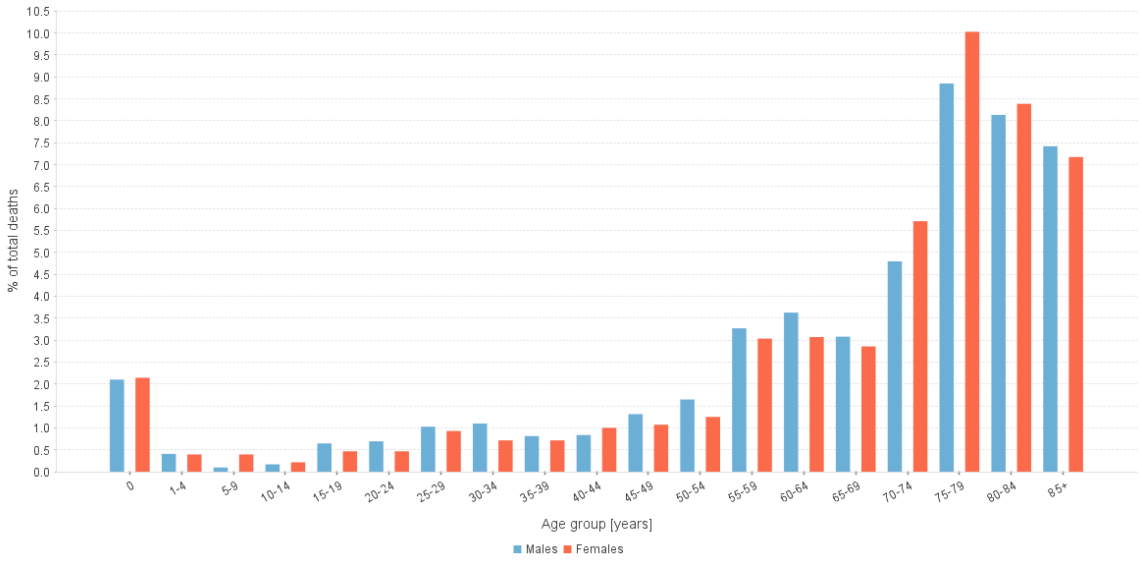
Figure 3-5: Figure 3-6: Age-specific death rates 2017-19



3.4 AGE-SEX DISTRIBUTION OF DEATHS

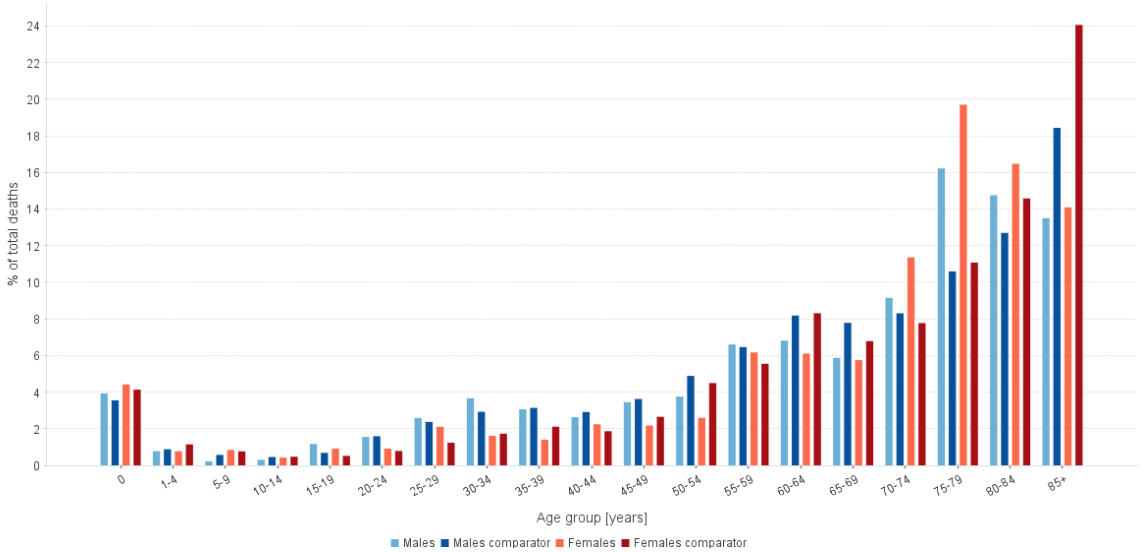
Age-sex is reported for all deaths. The year of birth and death is also known for all reported deaths. Percentage of male deaths is generally higher for all age groups below 70 years of age.

Figure 3-7: Distribution of deaths by age for Maldives 2017-19



However, when compared with other Southeast Asian countries we can see that Maldives has lower percent deaths for younger age groups than other regional countries.

Figure 3-8: Distribution of deaths by age for Maldives and Southeast Asia 2017-19



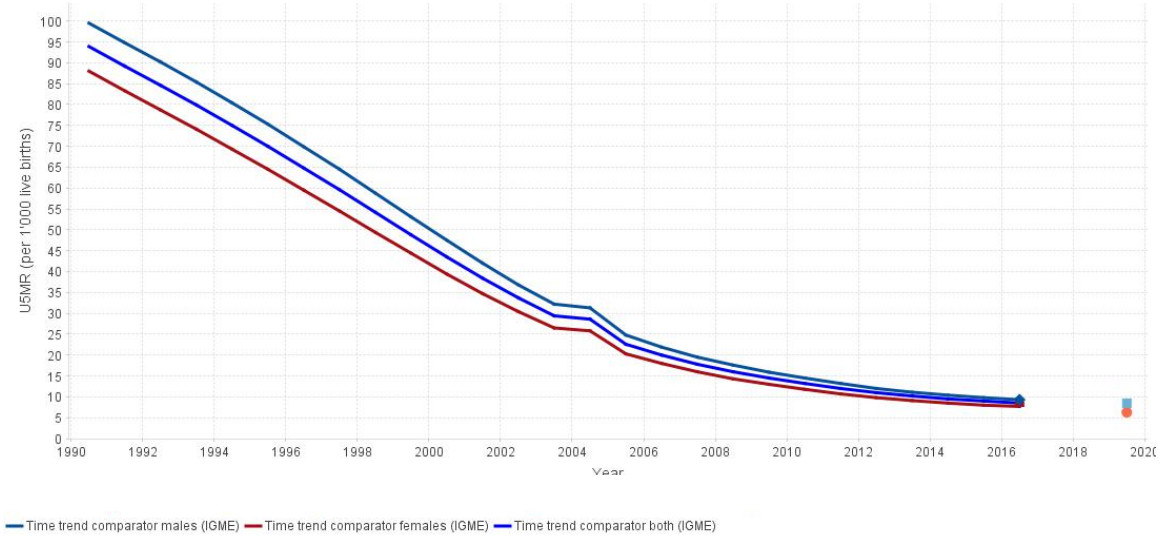
3.5 COMPLETENESS OF CHILD MORTALITY DATA

Table 3-3: Under-five mortality rate (probability of dying before age 5) - per 1000 live births

Under 5 Males	Under 5 Females	Under 5 Total	Source	Reference Year
8.5	6.3	7.5	Maldives mortality data source: CRVS	2019
9.3	7.7	8.5	IGME comparator data	2016

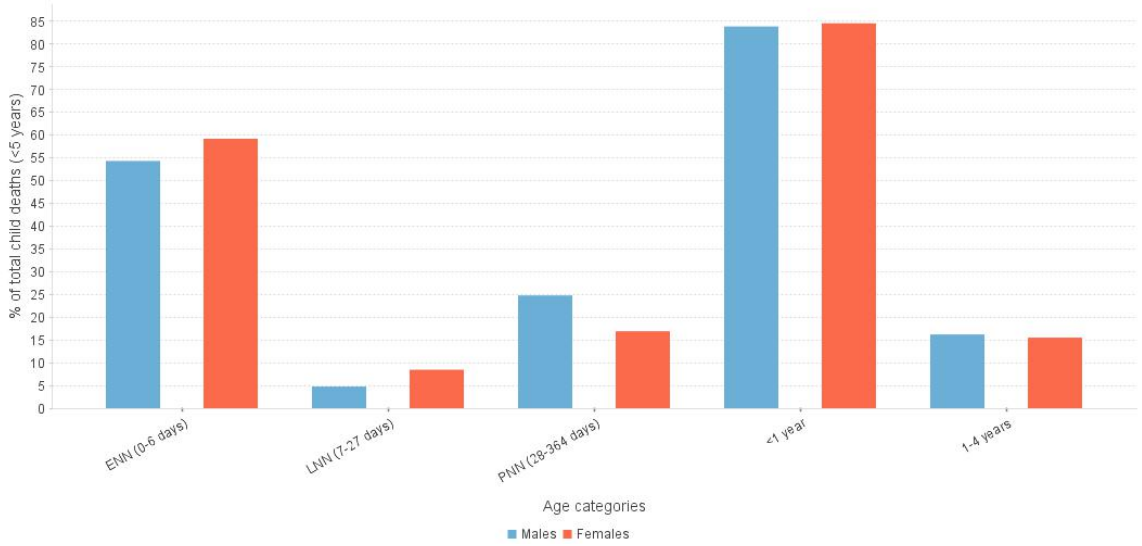
Under-five mortality rates have reduced over the years, although it can also be seen that under five mortality is higher for males than females. Deaths at these ages constitute an important fraction of all deaths and Maldives death data shows there are more deaths reported than what was shared globally.

Figure 3-9: Time-trend in estimated under-five mortality rate from comparator data and reported deaths for Maldives, 2017-19



Early neonatal deaths are highest in 2017, 2018 and 2019, owing to an overall higher percentage for under one-year[25] age group.

Figure 3-10: Age distribution of child deaths, 2017-19



[25] Less than one year includes ENN, LNN and PNN (ENN – Early Neonatal, LNN - Late Neonatal, PNN – Post Neonatal)

3.6 CLASSIFICATION OF DEATHS INTO BROAD CAUSE OF DEATH (COD) GROUPS

The percentage distribution of deaths is grouped into three very broad cause of death groups as used in the Global Burden of Disease study:

- *Group 1*: **Communicable diseases** including infectious & parasitic diseases and **maternal, neonatal and perinatal** causes, and **malnutrition** conditions
- *Group 2*: **Non-communicable diseases**, including mental health conditions
- *Group 3*: **External causes** (e.g., accidents, homicide, suicide, war deaths and natural disasters)

These broad disease and injury groups are compared and distributed by ICD code.

3.7 BROAD CAUSE OF DEATH GROUPS

What is a Garbage Code?

Errors in correctly identifying and coding the underlying cause of death can arise from many sources in a country's cause of death data system. This step identifies and classifies these various sources of error in a country's cause of death data. Collectively these errors are known as 'garbage codes' (referred to as 'garbage codes' in the GBD Study where they were first defined to indicate that they are of limited value for public health policy and planning which requires accurate information on the **underlying** cause of death.

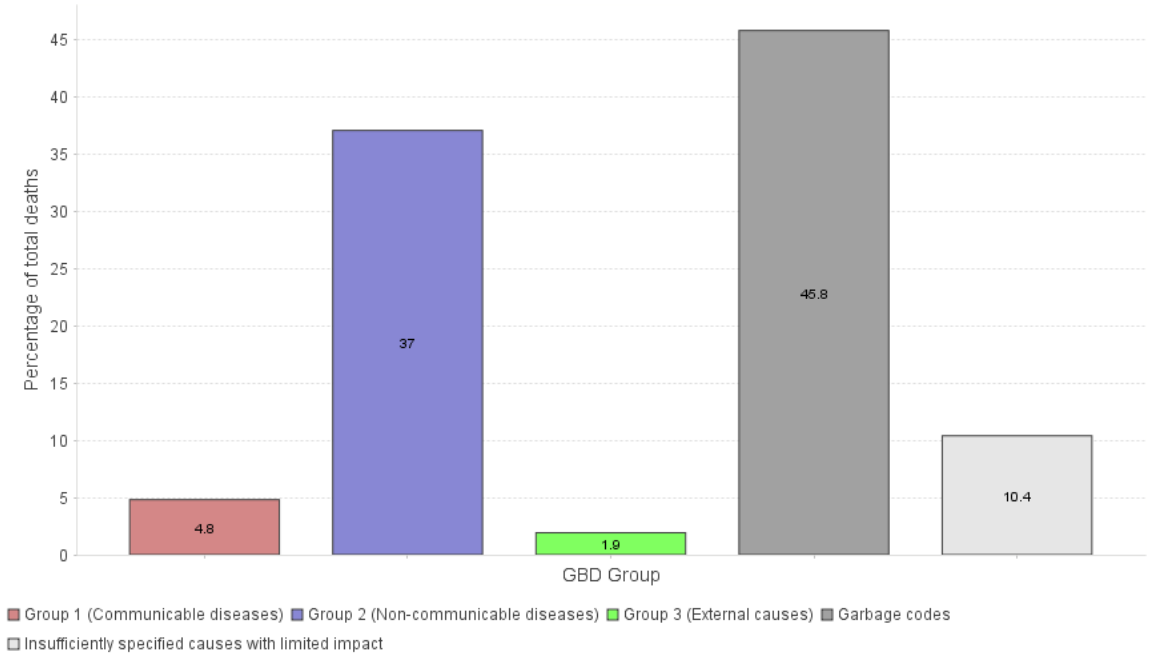
Source: ANACONDA software

Among garbage codes [13], insufficiently specified causes with limited impact is highest for 2017, 2018 and 2019.

Table 3-4: Ratio of Group 2 to Group 1, 2017-19

Ratio of Group 2 to Group 1	Source	Reference year
7.7	Maldives mortality data source: CRVS	2019
10	IHME estimates for Maldives	2017
2.8	IHME estimates for GBD region: Southeast Asia	2017

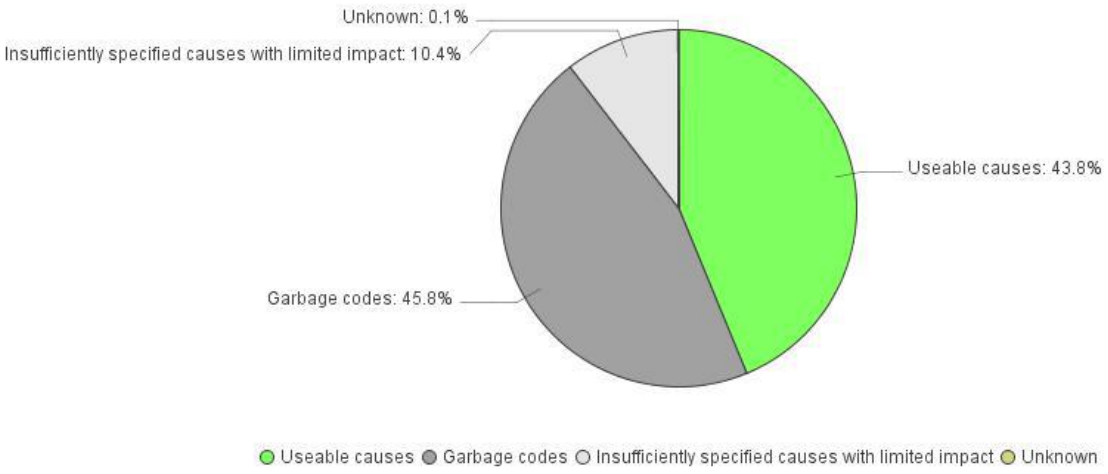
Figure 3-11: Percentage of deaths by three GBD broad cause groups and garbage codes, 2017-19



3.8 QUALITY OF CAUSE OF DEATH DATA

When these are distributed by usability of the causes coded deaths, the usable codes are less than 50%. This makes the Cause of Death (COD) of little use for health policy.

Figure 3-12: Distribution of deaths by usability, 2017-19

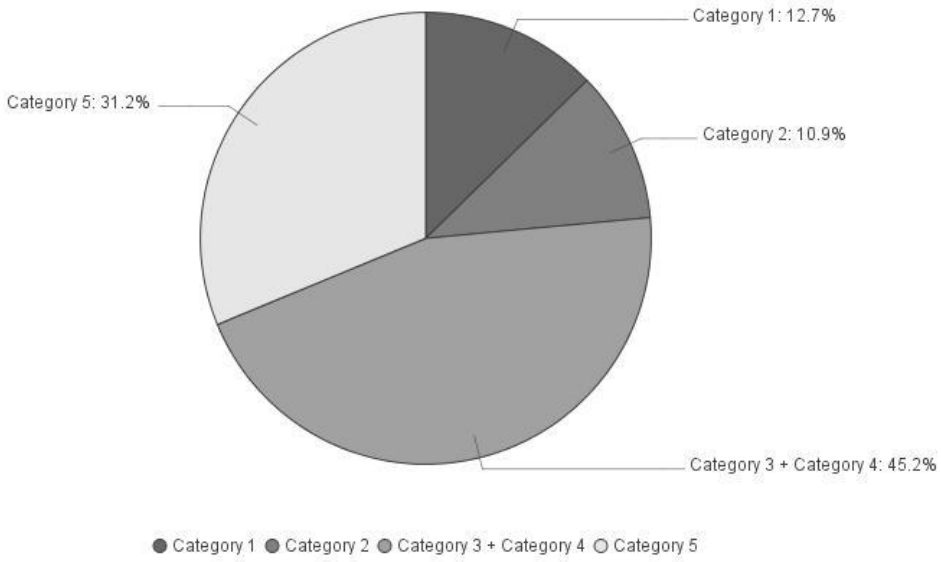


Since, garbage codes are high, it was important to look at the distribution of the garbage codes by category. There are five typologies of garbage codes [13],

- category 1: Symptoms, signs and ill-defined conditions" there are mostly drawn from the R codes (R00-R99) in ICD10;

- category 2: Impossible as underlying cause of death: these include conditions such as essential hypertension and atherosclerosis as well as causes which are the long-term sequalae of various diseases;
- category 3: Intermediate cause of death: these are diseases or injuries which have been precipitated by an underlying cause;
- category 4: Immediate causes of death, such as cardiac arrest or respiratory failure: these are immediate reasons or cause leader to death (i.e., the final step in a morbid process resulting to death), but not the underlying one;
- category 5: Insufficient specified causes within ICD chapters within a larger cause category of death category, such as ill-defined site or cancer or ill-defined injuries. Use of these codes is generally unhelpful to guide prevention efforts since health policies and programmes are usually cause-specific (e.g.: lung cancer prevention versus breast cancer prevention) and require specific cause of death detail to monitor their impact.

Figure 3-13: Distribution of garbage codes by category, 2017-19



For 2017, 2018 and 2019, intermediate and immediate cause of death is the highest (45.2%).

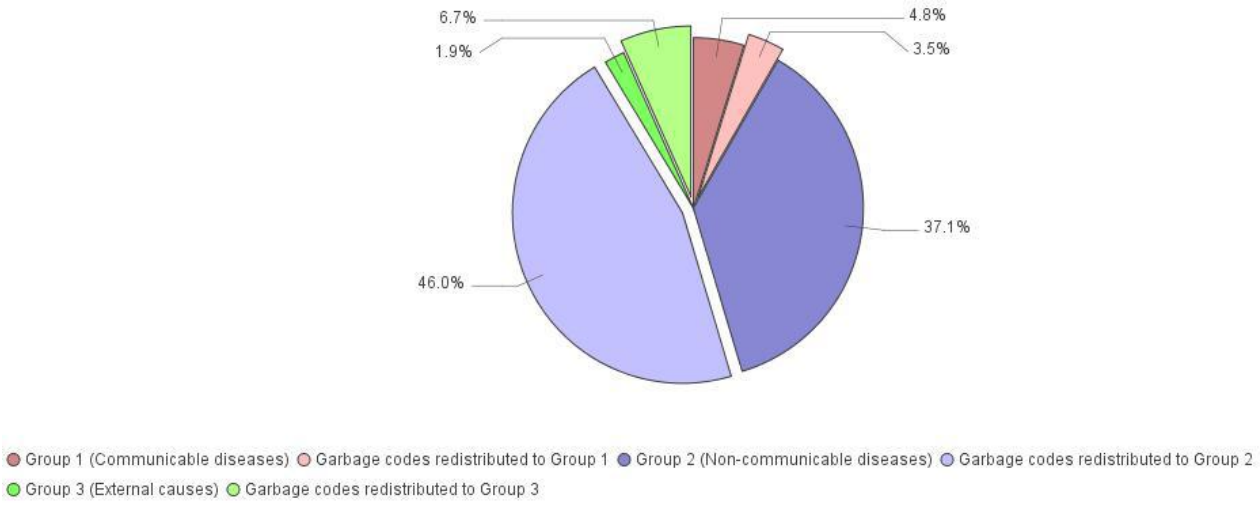
3.8.1 DISTRIBUTION OF GARBAGE CODES BY BROAD GBD GROUPS

Since, garbage codes are high, the probable distribution of garbage codes based on the input data by broad GBD groups after re-distribution of garbage codes shows that garbage codes redistributed to groups 2 (non-communicable diseases) are highest in all three time-periods. After redistribution of garbage codes, the ratio of NCD by CDs is 10.

Table 3-5: Ratio of Group 2 to Group 1 (after redistribution of garbage codes), 2017-19

% Group 1	% Group 2	Group 2: Group 1 ratio
8.3	83.1	10

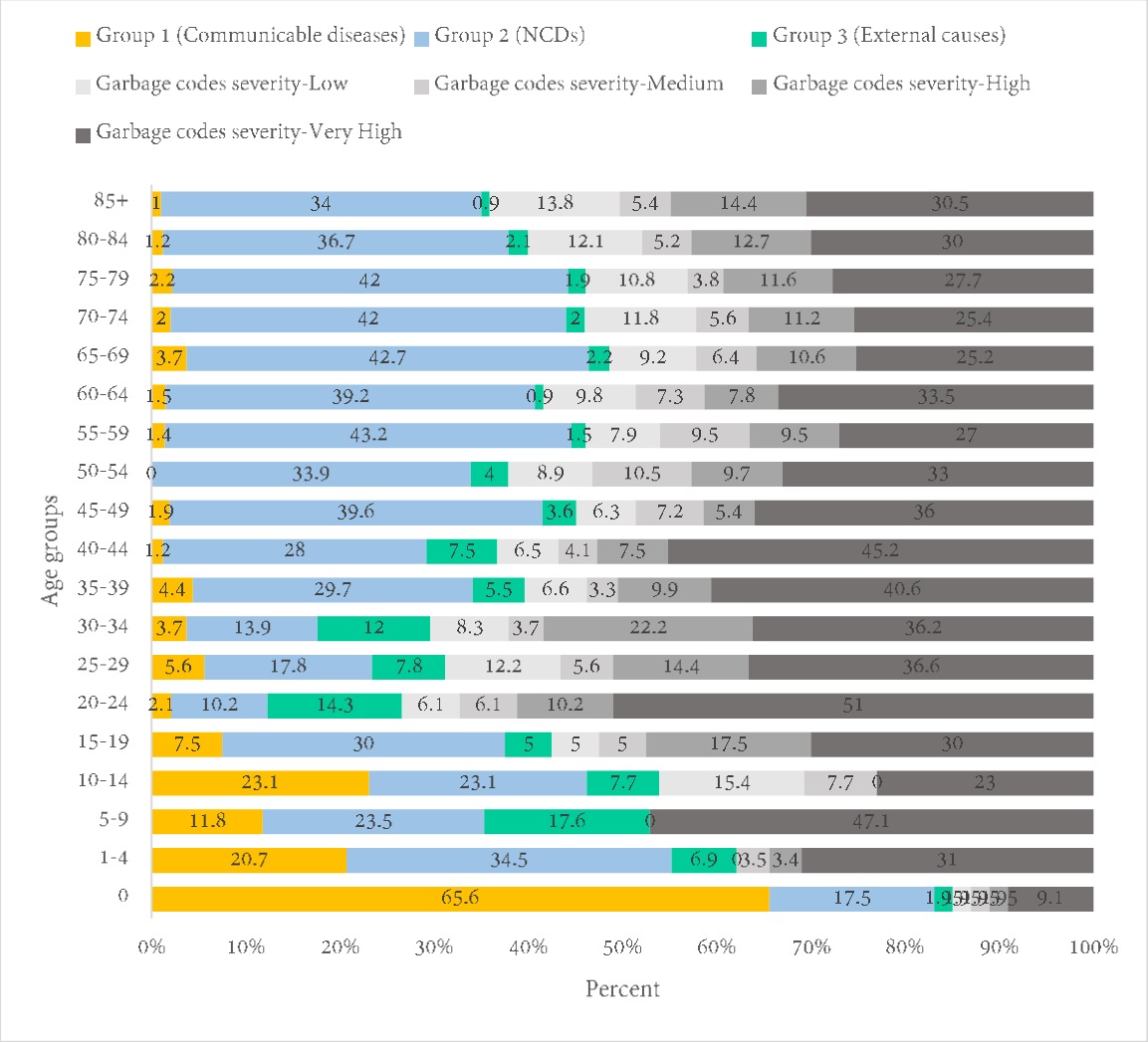
Figure 3-14: Probable distribution of deaths by broad GBD groups after redistribution of garbage codes, 2017-19



3.8.2 DISTRIBUTION OF MAJOR CAUSE OF DEATH CATAGORIES

When the age and COD is combined with broad cause of death, it clearly shows that garbage codes are high followed by NCDs for 2017, 2018 and 2019.

Figure 3-15: Age distribution of broad causes of death, 2017, 2018 and 2019



Since ICD 10 codes do not have a garbage category, we can divide the codes in the range or manner it is entered. However, most of these codes are diseases of circulatory systems and symptoms, signs and abdominal clinical findings which are not directly related to the cause of death.

3.9 LEADING CAUSES OF DEATH

When comparing leading cause of death rankings, the ranking differs when garbage codes have been redistributed to other causes of death.

The list shown here of the 20 leading causes is based on the VRS data 2017, 2018 and 2019. The red color indicates that the cause belongs to a group of causes that should not be used to specify the underlying cause of death (i.e. a cause classified to one of Level 1, 2 or 3 'Garbage" codes). The causes highlighted in orange, while not strictly a 'garbage' code, is insufficiently specified for some analytical/public health purposes.

Table 3-6: Leading ICD causes for males 2017, 2018 and 2019 with garbage codes

Rank Males	% of causes	ICD code	Name of category
1	8.5	I46.9	Cardiac arrest, unspecified
2	8.3	R99.-	Other ill-defined and unspecified causes of mortality
3	5.3	I21.9	Acute myocardial infarction, unspecified
4	4.1	R09.2	Respiratory arrest
5	3.6	A41.9	Septicaemia, unspecified
6	3.4	I64.-	Stroke, not specified as haemorrhage or infarction
7	3.1	J44.9	Chronic obstructive pulmonary disease, unspecified
8	2.9	I10.-	Essential (primary) hypertension
9	2.2	J18.9	Pneumonia, unspecified
10	2.2	I25.1	Atherosclerotic heart disease
11	2.1	I25.9	Chronic ischaemic heart disease, unspecified
12	1.6	J69.0	Pneumonitis due to food and vomit
13	1.4	C34.9	Bronchus or lung, unspecified
14	1.3	N18.9	Chronic renal failure, unspecified
15	1	W74.9	Unspecified drowning and submersion, unspecified place
16	0.9	C22.0	Liver cell carcinoma
17	0.9	I61.9	Intracerebral haemorrhage, unspecified
18	0.9	J44.1	Chronic obstructive pulmonary disease with acute exacerbation, unspecified
19	0.8	E14.9	Unspecified diabetes mellitus without complications
20	0.8	I63.9	Cerebral infarction, unspecified

Table 3-7: Leading ICD causes for females 2017, 2018 and 2019 with garbage codes

Rank Females	% of causes	ICD code	Name of category
1	7.2	I46.9	Cardiac arrest, unspecified
2	6.4	R99.-	Other ill-defined and unspecified causes of mortality
3	5.7	J44.9	Chronic obstructive pulmonary disease, unspecified
4	3.9	A41.9	Septicaemia, unspecified
5	3.9	R09.2	Respiratory arrest
6	3.6	I21.9	Acute myocardial infarction, unspecified
7	3.6	I10.-	Essential (primary) hypertension
8	2.7	J18.9	Pneumonia, unspecified
9	2.6	I64.-	Stroke, not specified as haemorrhage or infarction
10	2	I25.9	Chronic ischaemic heart disease, unspecified
11	1.8	J69.0	Pneumonitis due to food and vomit
12	1.8	J44.1	Chronic obstructive pulmonary disease with acute exacerbation, unspecified
13	1.6	N17.9	Acute renal failure, unspecified
14	1.5	I25.1	Atherosclerotic heart disease
15	1.5	N18.9	Chronic renal failure, unspecified
16	1.2	N39.0	Urinary tract infection, site not specified
17	1.1	I50.9	Heart failure, unspecified
18	1	J47.-	Bronchiectasis
19	0.8	C34.9	Bronchus or lung, unspecified
20	0.8	C56.-	Malignant neoplasm of ovary

Therefore, when GBD mortality tabulation is applied, we see that there is almost 60% of garbage codes for each year. Thus, when these codes are redistributed to the GBD categories, the ranking differs and is as below.

Table 3-8: Redistribution of garbage codes for males for all ages for 2017-19

Rank Males	Per cent of deaths	Name of category
1	56.8	Garbage Code
2	11.5	Ischemic heart disease
3	4.1	Chronic obstructive pulmonary disease
4	3.4	Stroke
5	2.8	Neonatal disorders
6	2.3	Chronic kidney disease
7	1.8	Tracheal, bronchus, and lung cancer
8	1.7	Drowning
9	1.2	Liver cancer
10	0.9	Interstitial lung disease and pulmonary sarcoidosis
11	0.8	Endocrine, metabolic, blood, and immune disorders
12	0.8	Foreign body
13	0.8	Urinary diseases
14	0.7	Tuberculosis
15	0.6	Congenital birth defects
16	0.6	Diabetes mellitus
17	0.5	Cirrhosis and other chronic liver diseases
18	0.5	Other malignant neoplasms
19	0.4	Lower respiratory infections
20	0.4	Leukemia
21	7.4	Others

Table 3-9: Redistribution of garbage codes for females for all ages for 2017-19

Rank Females	Per cent of deaths	Name of category
1	55.8	Garbage Code
2	8.5	Ischemic heart disease
3	8.3	Chronic obstructive pulmonary disease
4	3.3	Neonatal disorders
5	2.7	Chronic kidney disease
6	2.4	Stroke
7	1.3	Urinary diseases
8	1.1	Tracheal, bronchus, and lung cancer
9	1	Congenital birth defects
10	1	Endocrine, metabolic, blood, and immune disorders
11	0.9	Asthma
12	0.8	Ovarian cancer
13	0.7	Diabetes mellitus
14	0.6	Hemoglobinopathies and hemolytic anemias
15	0.6	Tuberculosis
16	0.6	Drowning
17	0.6	Foreign body
18	0.6	Breast cancer
19	0.5	Maternal disorders
20	0.5	Cervical cancer
21	8.4	Others

A detail table for redistribution of garbage codes for males and females for all age below 70 years is also attached with annex.

3.10 VITAL STATISTICS PERFORMANCE INDEX - VSPI(Q)

The Vital Statistics Performance Index for Quality (VSPI(Q)) shows that the score over the years has gone to "medium" (51.5% summary score).

All the areas of the VSPI(Q) has shown above 95 except quality of cause of death reporting (64.6) and level of cause-specific detail availability of data (83.5), making these the priority action areas for improving data quality. This time period (2017-19) showed the highest VSPI(Q) is reported in the Maldives (51.5) [14] when compared with 2010-2012 (48.3). Maldives has also shown progressively highest VSPI(Q) compared to all the WHO SEARO countries [15] throughout the last decade .

Table 3-10: VSPI Quality Component Score for combined years: 2017, 2018 and 2019

Component	Score
Quality of age and sex reporting	100
Quality of cause of death reporting	64.6
Biologically plausible COD	100
Level of cause-specific detail available	83.5
Completeness of death reporting	95.4
Classification	MEDIUM
Summary score	51.50%

Therefore, it is important to work on the priority areas such as quality of cause of death reporting and level of cause of specific details to improve quality of Vital Statistics.

3.11 ANNEXES

Table 3-11: Total deaths distributed into ICD chapters for 2017-19

ICD Chapter	Description	ICD code range	Total deaths	% of total deaths	Total garbage code	% of garbage codes	Total garbage level 1/2/3	Total garbage level 4
1	Chapter I: Certain infectious and parasitic diseases	A00-B99	183	4.9	142	6.7	142	0
2	Chapter II: Neoplasms	C00-D48	316	8.4	74	3.5	74	0
3	Chapter III: Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	D50-D89	29	0.8	15	0.7	15	0
4	Chapter IV: Endocrine, nutritional and metabolic diseases	E00-E90	152	4.1	91	4.3	33	58
5	Chapter V: Mental and behavioural disorders	F00-F99	16	0.4	11	0.5	11	0
6	Chapter VI: Diseases of the nervous system	G00-G99	57	1.5	37	1.8	35	2
7	Chapter VII: Diseases of the eye and adnexa	H00-H59	0	0	0	0	0	0
8	Chapter VIII: Diseases of the ear and mastoid process	H60-H95	1	0	1	0	1	0
9	Chapter IX: Diseases of the circulatory system	I00-I99	1,278	34.1	723	34.2	552	171
10	Chapter X: Diseases of the respiratory system	J00-J99	608	16.2	330	15.6	195	135
11	Chapter XI: Diseases of the digestive system	K00-K93	60	1.6	20	0.9	20	0

ICD Chapter	Description	ICD code range	Total deaths	% of total deaths	Total garbage code	% of garbage codes	Total garbage level 1/2/3	Total garbage level 4
12	Chapter XII: Diseases of the skin and subcutaneous tissue	L00-L99	9	0.2	1	0	1	0
13	Chapter XIII: Diseases of the musculoskeletal system and connective tissue	M00-M99	6	0.2	4	0.2	4	0
14	Chapter XIV: Diseases of the genitourinary system	N00-N99	180	4.8	72	3.4	72	0
15	Chapter XV: Pregnancy, childbirth and the puerperium	O00-O99	10	0.3	3	0.1	3	0
16	Chapter XVI: Certain conditions originating in the perinatal period	P00-P96	116	3.1	0	0	0	0
17	Chapter XVII: Congenital malformations, deformations and chromosomal abnormalities	Q00-Q99	30	0.8	3	0.1	3	0
18	Chapter XVIII: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	R00-R99	490	13.1	486	23	486	0
19	Chapter XIX: Injury, poisoning and certain other consequences of external causes	S00-T98	65	1.7	65	3.1	65	0
20	Chapter XX: External causes of morbidity and mortality	V01-Y98	140	3.7	35	1.7	23	12
21	Chapter XXI: Factors influencing health status and contact with health services	Z00-Z99	0	0	0	0	0	0
22	Chapter XXII: Codes for special purposes	U00-U85	0	0	0	0	0	0

Table 3-12: Redistribution of garbage codes for males below 70 years of age for 2017-19

Rank Males	Per cent of deaths	Name of category
1	55.6	Garbage Code
2	11	Ischemic heart disease
3	6.1	Neonatal disorders
4	3.1	Stroke
5	2.9	Drowning
6	2	Liver cancer
7	2	Tracheal, bronchus, and lung cancer
8	1.9	Chronic obstructive pulmonary disease
9	1.3	Congenital birth defects
10	1.2	Chronic kidney disease
11	1.2	Interstitial lung disease and pulmonary sarcoidosis
12	0.8	Endocrine, metabolic, blood, and immune disorders
13	0.7	Foreign body
14	0.6	Diabetes mellitus
15	0.5	Cirrhosis and other chronic liver diseases
16	0.5	Interpersonal violence
17	0.5	Self-harm
18	0.5	Other malignant neoplasms
19	0.4	Leukemia
20	0.4	Tuberculosis
21	6.9	Others

Table 3-13: Redistribution of garbage codes for females for below 70 years of age for 2017-19s

Rank Females	Per cent of deaths	Name of category
1	51.8	Garbage Code
2	8.6	Neonatal disorders
3	7.1	Ischemic heart disease
4	3.1	Chronic kidney disease
5	2.6	Stroke
6	2.4	Congenital birth defects
7	2.2	Chronic obstructive pulmonary disease
8	1.3	Hemoglobinopathies and hemolytic anemias
9	1.3	Drowning
10	1.3	Maternal disorders
11	1.3	Breast cancer
12	1.3	Tracheal, bronchus, and lung cancer
13	1.1	Endocrine, metabolic, blood, and immune disorders
14	1.1	Asthma
15	0.9	Liver cancer
16	0.9	Urinary diseases and male infertility
17	0.7	Diarrheal diseases
18	0.7	Colon and rectum cancer
19	0.7	Ovarian cancer
20	0.7	Tuberculosis
21	8.9	Others


MORTALITY

4 CHAPTER 4 MORTALITY

According to CDC [16], a "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.

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, information derived from Causes of Death statistics are used for establishing and monitoring public health policies. 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.

4.1 TOTAL DEATHS

In this chapter, we used ***all death registration data for Maldives***[26] for 2017, 2018 and 2019. As mentioned, by law [17] birth and death certification has been mandatory since 1992 and since then a system of Medical Certification of Cause of Death (MCCOD) has been operating [18]. Thus, the death data as of October 2020 from VRS and information compiled from health information section of MoH is taken for this analysis. The CRVS data contains all the information on the death certificates completed in the Maldives, including socio-demographic information, address, nationality, parents' details, birth and death dates and causes of death certified by a doctor in accordance with the WHO international form of MCCOD [19]. The Ministry of Health uses the information in the death certificates to determine the Final Underlying Cause of Death (FUCOD), which is then coded using International Statistical Classification of Diseases and Related Health Problems - 10th revision (ICD-10) [2].

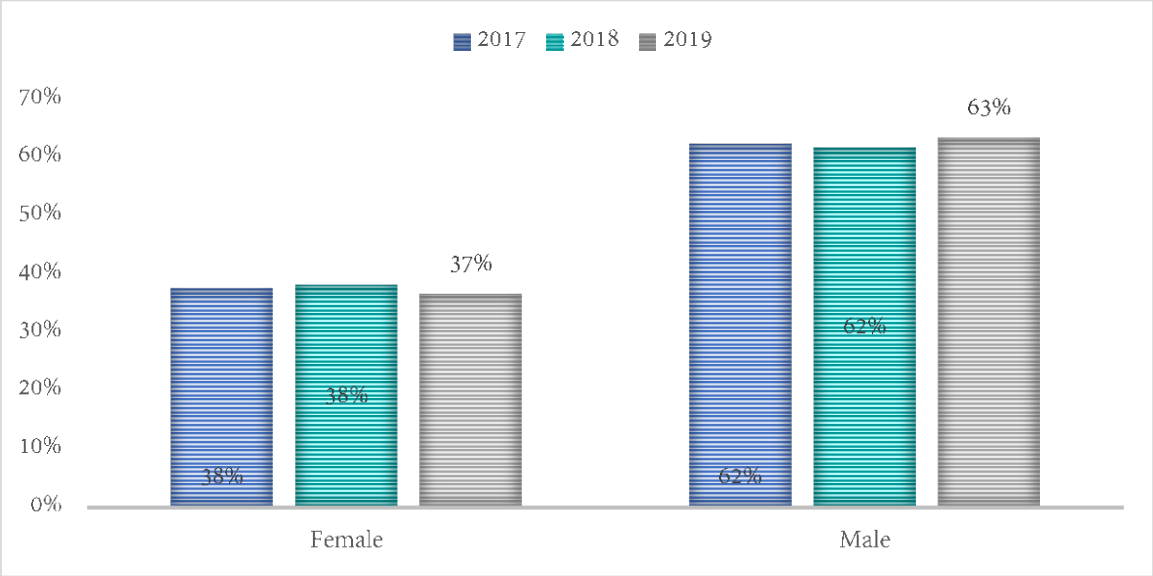
Table 4-1: Total deaths by gender in Maldives, 2017, 2018 and 2019, in numbers

Gender	2017	2018	2019
Female	470	482	386
Male	780	779	668
Not Stated		3	1
Total	**1,250**	**1,264**	**1,055** [27]

[26] All deaths occurred in Maldives: Maldivians and foreigners

[27] Tentative deaths for 2019- subject to change

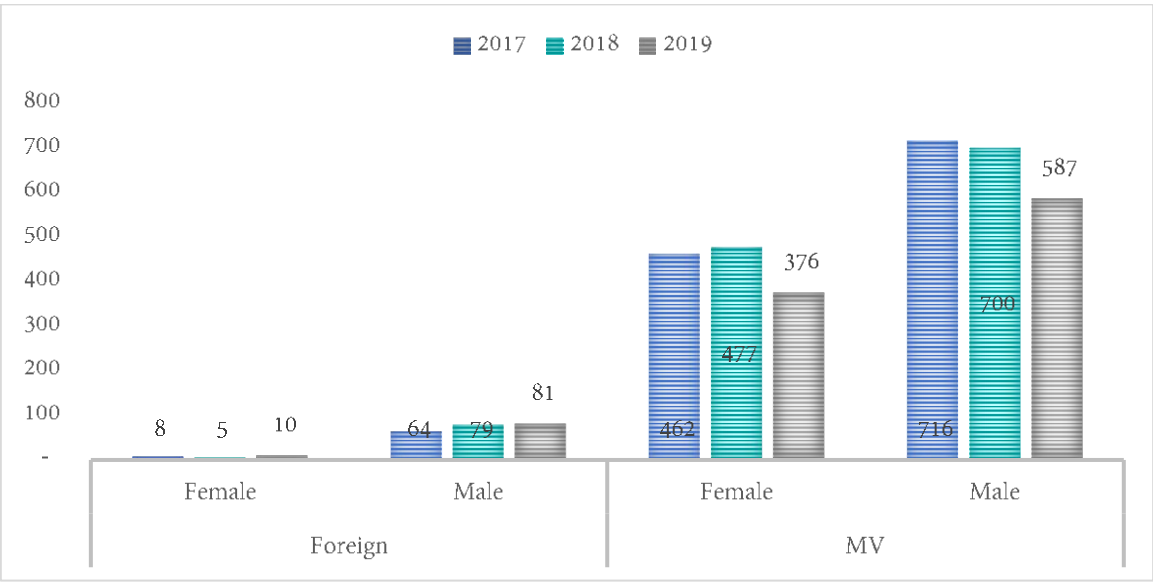
Figure 4-1: Total deaths in Maldives, 2017, 2018 and 2019, in percent[28]



4.1.1 DEATHS BY NATIONALITY AND GENDER

The total deaths in Maldives were 1,250 in 2017, 1,261 in 2018 and 1,054 in 2019 with more male deaths in three years.

Figure 4-2: Deaths by nationality and gender for 2017, 2018 and 2019, in numbers

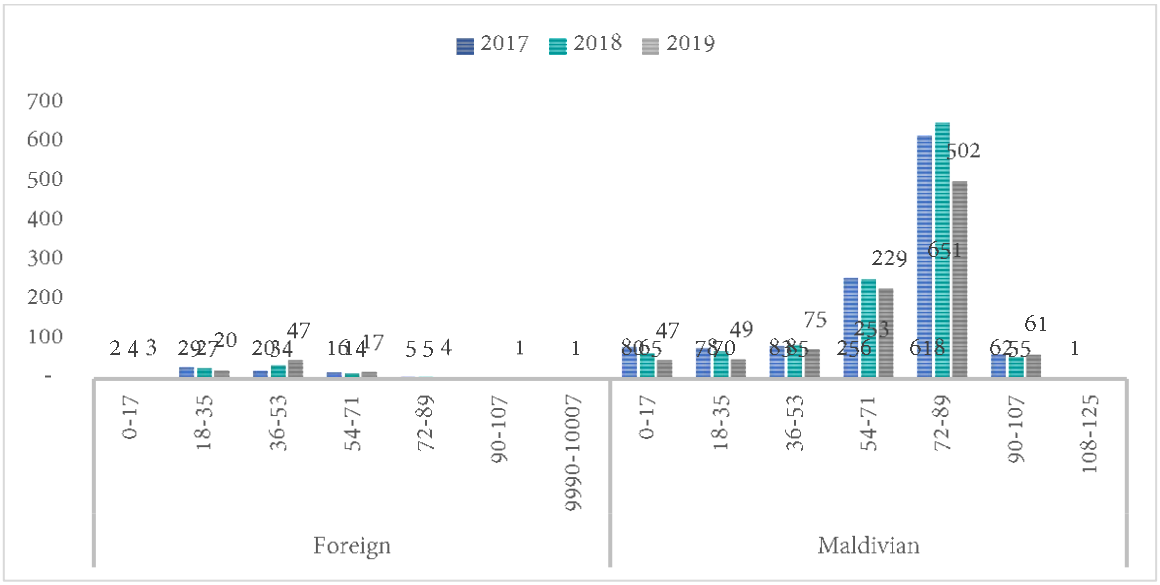


[28] Note: Unknown gender is excluded from the graph

4.1.2 DEATHS BY AGE

When presented by age brackets, it can be seen that 72-89 years for Maldivians has the highest number of deaths. For foreigners, the highest number of deaths are seen for age brackets 36-53 years.

Figure 4-3: Deaths by age for 2017, 2018 and 2019, in numbers[29]



4.1.3 DEATHS BY GEOGRAPHIC LOCATION

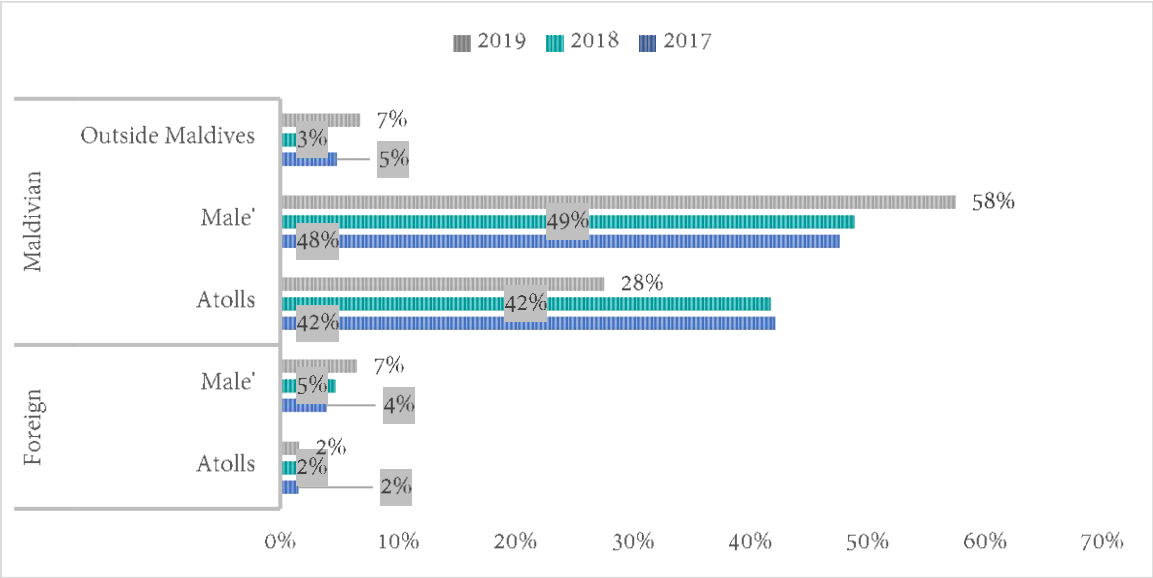
Deaths in Male' region (Male', Hulhumale and Villimale) for Maldivians account for 52% in 2017, 53% in 2018 and 64% in 2019. This might be due to presence of tertiary health care facilities in Male' region and severe cases being referred.

Table 4-2: Deaths by geographic location for 2017, 2018 and 2019

Origin	2017	2018	2019
Foreign	**72**	**84**	**91**
Atolls	20	23	17
Male'	52	61	74
Maldivians	**1,178**	**1,177**	**963**
Atolls	553	541	312
Male'	625	636	651
Total	**1,250**	**1,261**	**1,054**

[29] 9990 -1007 are unknown age categories

Figure 4-4: Deaths by geographic location and origin for 2017, 2018 and 2019, in percent



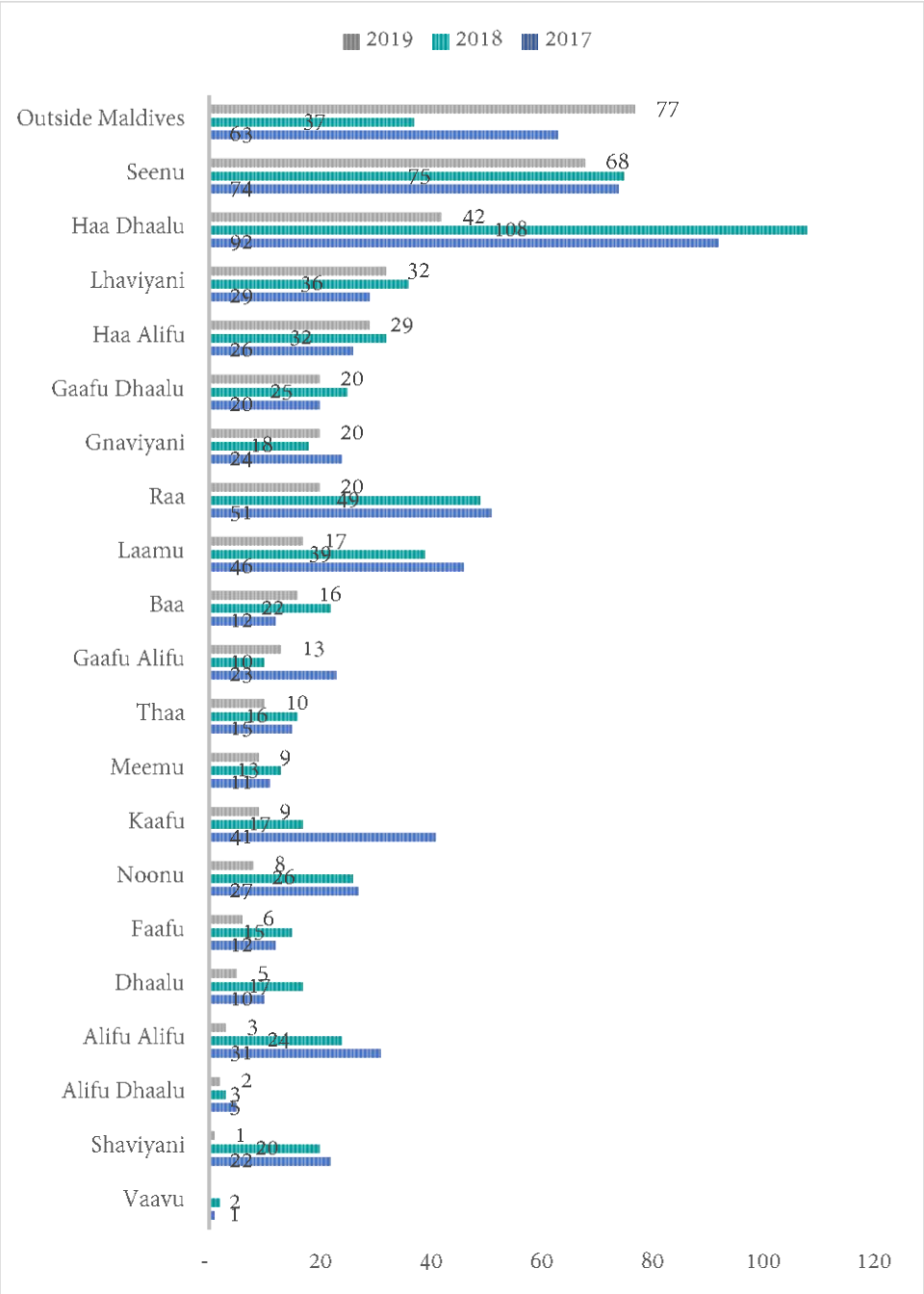
Apart from Male' and outside Maldives, Haa Dhaal and Seenu atoll had the highest number of Maldivian deaths in all three 2017, 2018 and 2019.

Table 4-3: Maldivian Deaths by atolls for 2017, 2018 and 2019

Atolls	2017	2018	2019
Vaavu	1	2	
Alifu Dhaalu	5	3	2
Dhaalu	10	17	5
Faafu	12	15	6
Meemu	11	13	9
Thaa	15	16	10
Shaviyani	22	20	1
Gaafu Alifu	23	10	13
Baa	12	22	16
Alifu Alifu	31	24	3
Noonu	27	26	8
Gnaviyani	24	18	20
Gaafu Dhaalu	20	25	20
Kaafu	41	17	9
Haa Alifu	26	32	29
Lhaviyani	29	36	32
Laamu	46	39	17
Raa	51	49	20

Atolls	2017	2018	2019
Outside Maldives	63	37	77
Seenu	74	75	68
Haa Dhaalu	92	108	42
Male'	678	697	725
Total	**1,313**	**1,301**	**1,132**

Figure 4.1-4-5: Maldivian Deaths by atolls for 2017, 2018 and 2019



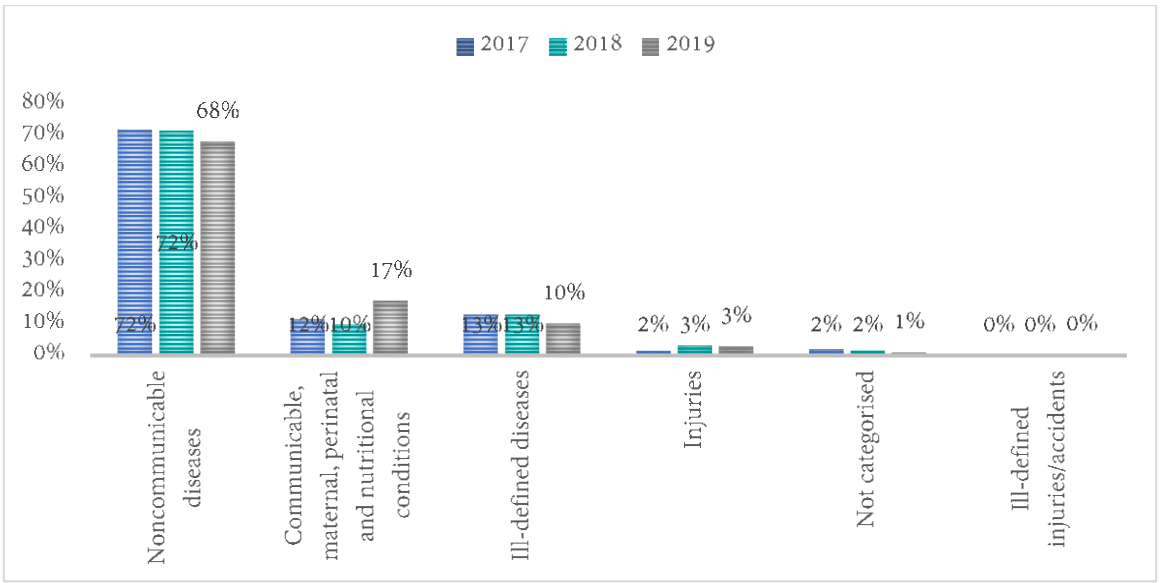
4.1.4 DEATHS BY MAJOR DISEASE CATEGORIES

Maldives faces double burden from effect of NCDs and CDs. Current data shows that NCD deaths are highest in the Maldives with 72% in 2017-18 and 68% in 2019. This is followed by ill-defined diseases and communicable, maternal, perinatal and nutritional conditions.

Table 4-4: Major Global of Burden Disease (GBD) categories by origin, 2017, 2018 and 2019

Major Global of Burden Disease (GBD) categories	2017	2018	2019
Foreign	**72**	**85**	**92**
Noncommunicable diseases	29	33	46
Ill-defined diseases	12	24	29
Communicable, maternal, perinatal and nutritional conditions	7	6	11
Injuries	21	14	5
Not categorised	1	8	1
Ill-defined injuries/accidents	2		
Maldivians	**1,241**	**1,216**	**1,040**
Noncommunicable diseases	891	871	708
Communicable, maternal, perinatal and nutritional conditions	144	122	181
Ill-defined diseases	162	159	106
Injuries	19	40	31
Not categorised	25	20	10
Ill-defined injuries/accidents		4	4
Total	**1,313**	**1,301**	**1,132**

Figure 4-6: Maldivian deaths by major disease categories for 2017, 2018 and 2019, in percentage



4.2 TYPE OF DEATHS

4.2.1 NEONATAL DEATHS

Table 4-5: Neonatal deaths 2015-2019

Year	Female	Male	Total
2015	12	28	40
2016	30	16	46
2017	19	34	53
2018	16	18	34
2019	13	12	25

DEFINITION

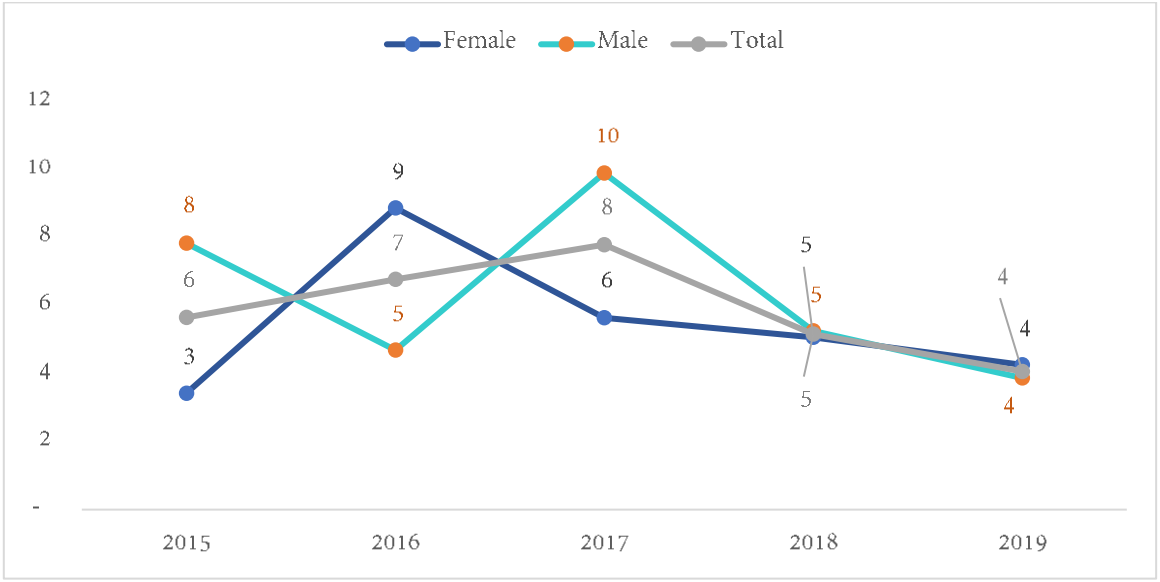
NEONATAL MORTALITY RATE [NMR] is defined by WHO as "Probability that a child born in a specific year or period will die during the first 28 completed days of life if subject to age-specific mortality rates of that period, expressed per 1000 live births."

Neonatal deaths [20], (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.

Equation 4.2-1: Neonatal Mortality Rate

$$NMR = \frac{No.\,of\ infant\ deahts\ (< 28\ days)}{\text{Number of Live Births}}\ x\ 1{,}000$$

Figure 4-7: Neonatal Mortality Rate by gender for 2015-2019



4.2.2 POST NEAONATAL DEATHS

Table 4-6: Post neonatal deaths, 2015-2019

Year	Female	Male	Total
2015	17	10	27
2016	8	9	17
2017	3	10	13
2018	5	9	14
2019	5	9	14

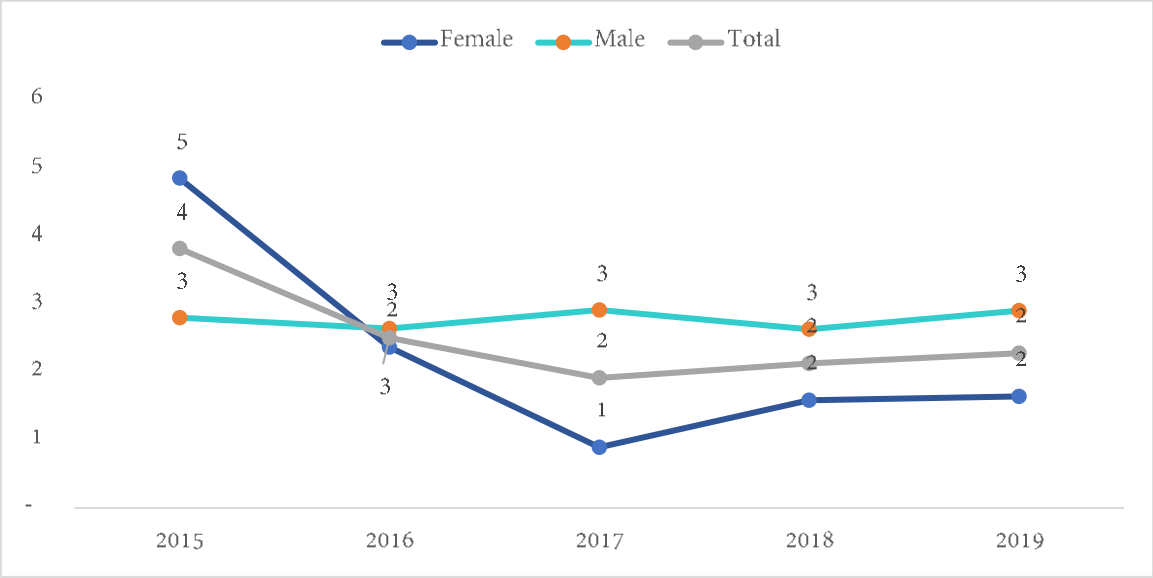
DEFINITION

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.

Equation 4.2-2: Post Neonatal Mortality Rate

$$PNM = \frac{No.\ of\ infant\ deaths\ (28 - 364\ days)}{\text{Number of Live Births}} x\ 1{,}000$$

Figure 4-8: Postnatal Mortality Rate by gender for 2015-2019



4.2.3 INFANT DEATHS

Table 4-7: Infant deaths, 2014-2018

Year	Female	Male	Total
2015	29	38	67
2016	38	25	63
2017	22	44	66
2018	21	27	48
2019	18	21	39

DEFINITION

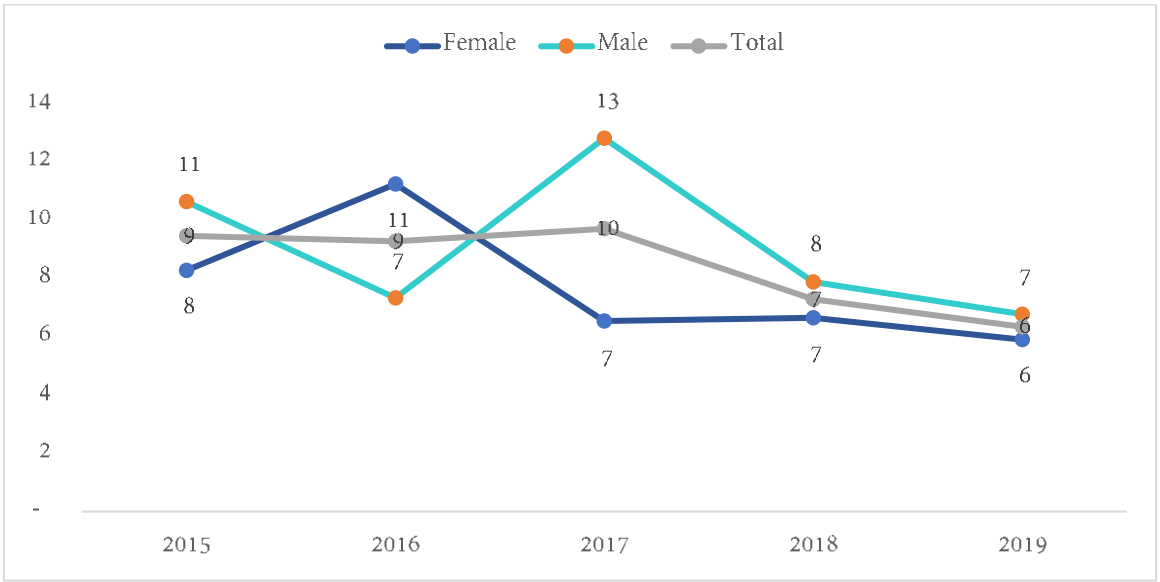
INFANT MORTALITY RATE [IMR] is defined by WHO as "probability of dying between birth and exactly one year of age expressed per 1000 live births".

In 2017 globally, 4.1 million (75% of all under-five deaths) occurred within the first year of life. Global infant mortality rate [21] has decreased from an estimated rate of 65 deaths per 1000 live births in 1990 to 29 deaths per 1000 live births in 2017. Annual infant deaths have declined from 8.8 million in 1990 to 4.1 million in 2017. Maldives IMR is lower than the global average figures.

Equation 4.2-3: Infant Mortality Rate

$$IMR = \frac{No.of\ infant\ deaths\ (0-365\ days)}{\text{Number of Live Births}} x\ 1{,}000$$

Figure 4-9: Infant Mortality Rate by gender for 2015-2019



4.2.4 UNDER 5 DEATHS

Table 4-8: Under 5 deaths 2014-2018

Year	Female	Male	Total
2015	34	48	82
2016	43	30	73
2017	25	50	75
2018	26	31	57
2019	20	29	49

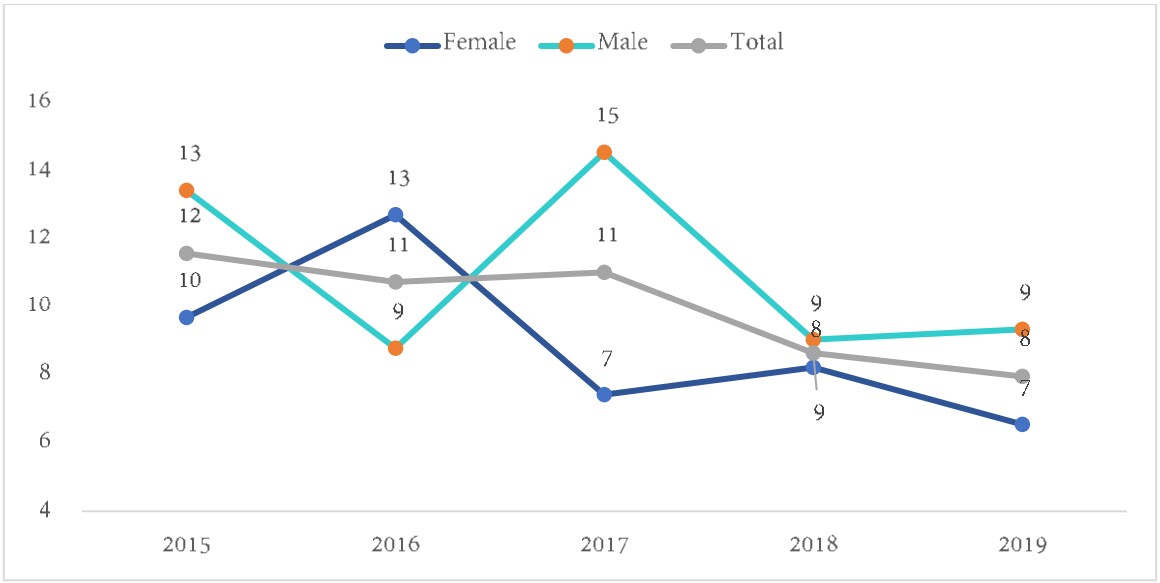
UNDER 5 MORTALITY RATE [U5MR] is defined by WHO as "probability of dying between birth and exactly five years of age expressed per 1,000 live births".

Globally, under-five mortality rate [22] has decreased by 59%, from an estimated rate of 93 deaths per 1000 live births in 1990 to 39 deaths per 1000 live births in 2018. This is equivalent to 1 in 11 children dying before reaching age 5 in 1990, compared to 1 in 26 in 2018. Maldives U5MR is lower than the global average figures.

Equation 4.2-4: Under 5 Mortality Rate

$$U5MR = \frac{No.\,of\ deaths\ (0\ days - 5\ years)}{\text{NUMBER OF LIVE BIRTHS}}\,x\ 1{,}000$$

Figure 4-10: Under Five Mortality Rate by gender for 2015-2019



4.2.5 MATERNAL DEATHS

Due to the small population of Maldives, even one single death can have a large impact on the MMR figures [23]. 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 changed from 41 deaths/100,000 live births in 2014 to 44 deaths/100,000 live births in 2016, significant fluctuations for the MMR can be observed for the past 5 years.

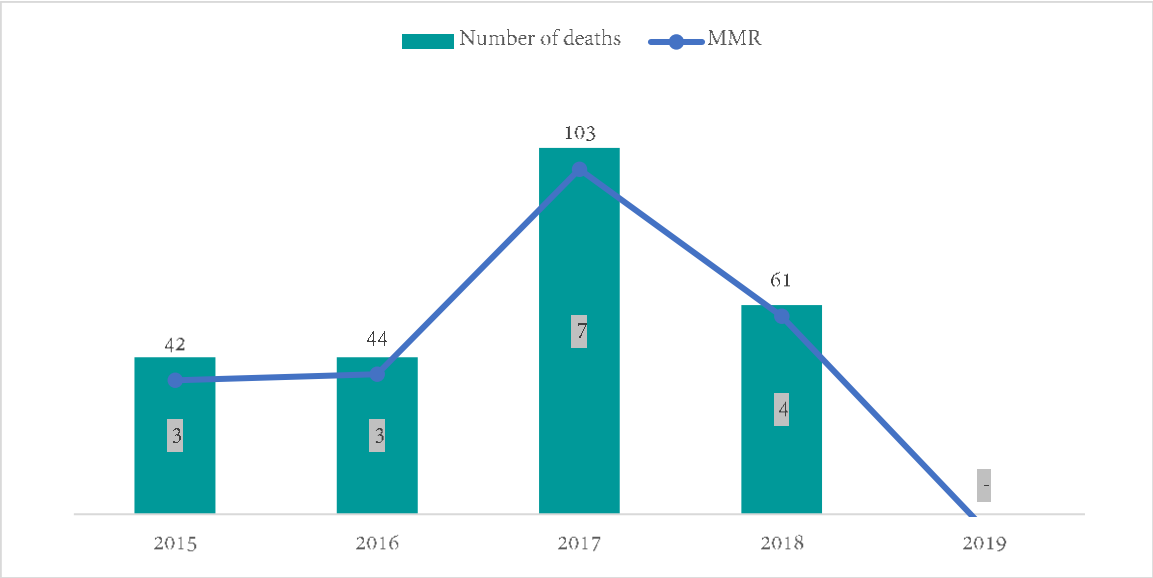
In 2017, 7 maternal deaths were reported in Maldives. However, this decreased from 103 deaths/100,000 live births in 2017 to 61 deaths/100,000 live births in 2018 and nil to 2019.

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".

Equation 4.2-5: Maternal Mortality Ratio

$$MMR = \frac{Number\ of\ Maternal\ Deaths}{\text{Number of Live Births}} x\ 100{,}000$$

Figure 4-11: Maternal Mortality Ratio (MMR) for 2015-2019



4.3 MORTALITY ACROSS LIFE STAGES

People have different health needs at different life stages. Burden of disease analysis is useful to measure the impact of different diseases or injuries on a population. It combines the burden of living with ill health (non-fatal burden) with the burden of dying prematurely (fatal burden). This chapter presents the leading causes of death at each life stage.

4.3.1 LEADING ICD 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.

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 [24].

Rankings of leading causes of deaths are an important source of policy relevant information to prevent premature mortality in countries as well as for monitoring the impact of interventions.

Causes of death are documented on death certificates by medical doctors in Maldives, and coded by the trained coders at Ministry of Health using the World Health Organization International Statistical Classification of Diseases and Related Health Problems (ICD) [2].

The ICD allows diseases that cause death to be grouped in a way that is meaningful for monitoring population health. For the purpose of this publication Global Burden of Disease Categories are used when reporting the categories as well.

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.

The more frequent categories of garbage codes appear in the list of leading causes, and the higher that they are ranked, the more the input data will distort the true picture of leading causes of death in the country. Therefore, for the purpose of this exercise, codes which fall into "not categorized" or "multiple categories" **are not considered** when ranking the death burden across life stages.

For all ages combined, the leading cause of death was cardiovascular diseases with almost 40% in 2017, where for males it accounted for 41% of deaths and for females accounted for 37% of deaths.

Table 4-9: Top leading causes for deaths in for all ages, 2017

Year	Gender	1st	2nd	3rd	4th	5th
2017	Female	Other cardiovascular diseases 14%	Ischemic heart disease 10%	Chronic obstructive pulmonary disease 7%	Hypertensive heart disease 6%	Cerebrovascular disease 6%
	Male	Other cardiovascular diseases 14%	Ischemic heart disease 12%	Cerebrovascular disease 8%	Hypertensive heart disease 5%	Other respiratory diseases 5%
	All Persons	Other cardiovascular diseases 14%	Ischemic heart disease 11%	Cerebrovascular disease 7%	Hypertensive heart disease 6%	Other respiratory diseases 5%

For 2018, all ages combined, the leading cause of death was cardiovascular diseases with 33% (almost a 7% reduction from 2017), where for males it accounted for 35% of deaths and for females accounted for 31% of deaths.

Table 4-10: Top leading causes for deaths in for all ages, 2018

Year	Gender	1st	2nd	3rd	4th	5th
2018	Female	Other cardiovascular diseases 14%	Chronic obstructive pulmonary disease 9%	Ischemic heart disease 8%	Other respiratory diseases 7%	Cerebrovascular disease 6%
	Male	Other cardiovascular diseases 12%	Ischemic heart disease 12%	Cerebrovascular disease 7%	Other respiratory diseases 5%	Chronic obstructive pulmonary disease 5%
	All Persons	Other cardiovascular diseases 13%	Ischemic heart disease 10%	Cerebrovascular disease 7%	Chronic obstructive pulmonary disease 7%	Other respiratory diseases 6%

For 2019, all ages combined, the leading cause of death was cardiovascular diseases, where for males it accounted for 12% of deaths and for females the leading cause was COPD (respiratory infections) accounted for 9% of deaths.

Figure 4-12: Top leading causes for deaths in for all ages, 2019

Year	Gender	1st	2nd	3rd	4th	5th
2019	Female	Chronic obstructive pulmonary disease 9%	Other cardiovascular diseases 8%	Ischemic heart disease 8%	Lower respiratory infections 7%	Other respiratory diseases 7%
	Male	Ischemic heart disease 12%	Other cardiovascular diseases 11%	Lower respiratory infections 8%	Cerebrovascular disease 8%	Other respiratory diseases 7%
	All Persons	Ischemic heart disease 10%	Other cardiovascular diseases 10%	Lower respiratory infections 8%	Cerebrovascular disease 7%	Other respiratory diseases 7%

Respiratory infections

Communicable, maternal, perinatal and nutritional conditions

Cardiovascular Respiratory

Non-communicable diseases

4.3.2 INFANTS, CHILDREN AND YOUNG PEOPLE (AGED 0–14)

For infants, perinatal conditions accounted for highest burden of death. However, deaths in age groups 5-14 years are lowest compared to other age groups, there is no clear rank in the condition of death.

Table 4-11: Top leading causes for infants, children and young people (aged 0-14 years), 2017, 2018 and 2019

2017	0-4	Low birth weight 24%	Perinatal conditions 23%	Birth asphyxia and birth trauma 19%	Cardiovascular diseases 8%	Congenital anomalies 7%
	5-9	Neuropsychiatric disorders 38%	Cardiovascular diseases 25%	Infectious diseases 13%		
	10-14	Inflammatory heart diseases 20%	Diarrhoeal diseases 20%	Road traffic accidents 20%		
2018	0-4	Low birth weight 23%	Birth asphyxia and birth trauma 22%	Perinatal conditions 13%	Congenital anomalies 7%	Congenital heart anomalies 5%
	5-9	Unintentional injuries 33%	Congenital anomalies 17%	Cardiovascular diseases 17%	Drownings 17%	Digestive diseases 17%
	10-14	[30]Not categorized / Multiple Sub-categories 100%				
2019	0-4	Low birth weight 25%	Perinatal conditions 16%	Birth asphyxia and birth trauma 16%	Congenital anomalies 8%	Ischemic heart disease 6%
	5-9	Neuropsychiatric disorders 100%				
	10-14	Dengue 25%	Respiratory diseases 25%			

Perinatal | Infectious and parasitic — **Communicable, maternal, perinatal and nutritional conditions**

Unintentional injuries — **Injuries**

Not categorized / Multiple Sub-categories

Digestive | Cardiovascular | Respiratory | Neuropsychiatric condition | Congenital anomalies — **Non-communicable diseases**

4.3.3 REPRODUCTIVE AGE ADULTS (AGED 15–49)

[30] Not categorized / Multiple Sub-categories are removed from the top five causes for all age groups except 2018, 10-14 years

Cardiovascular disease including Ischemic heart diseases continued to be the leading causes of death for reproductive age groups.

Table 4-12: Top leading causes for death for reproductive aged adults (15-49 years), 2017, 2018 and 2019

2017	15-24	Cardiovascular diseases 27%	Cerebrovascular disease 7%	Respiratory diseases 7%	Malignant neoplasms 3%	Asthma 3%
	24-35	Cardiovascular diseases 11%	Drownings 11%	Ischemic heart disease 8%	Cerebrovascular disease 6%	Maternal conditions 5%
	35-49	cardiovascular diseases 13%	Ischemic heart disease 11%	Drownings 6%	Infectious diseases 6%	Neuropsychiatric disorders 6%
2018	15-24	cardiovascular diseases 14%	Neuropsychiatric disorders 10%	Drownings 7%	Nephritis and nephrosis 7%	Road traffic accidents 7%
	24-35	Cardiovascular diseases 13%	Ischemic heart disease 7%	Road traffic accidents 4%	Neuropsychiatric disorders 4%	Drownings 4%
	35-49	Ischemic heart disease 14%	Cardiovascular diseases 12%	Malignant neoplasms 5%	Cerebrovascular disease 5%	Respiratory diseases 3%
2019	15-24	Drownings 10%	Cardiovascular diseases 7%	Infectious diseases 7%	Lower respiratory infections 7%	Diarrhoeal diseases 3%
	24-35	Cardiovascular diseases 14%	Lower respiratory infections 12%	Neuropsychiatric disorders 8%	Cerebrovascular disease 6%	Respiratory diseases 4%
	35-49	Ischemic heart disease 15%	Cardiovascular diseases 11%	Chronic obstructive pulmonary disease 5%	Nephritis and nephrosis 5%	Lower respiratory infections 5%

Maternal | Respiratory infections | Infectious and parasitic

Communicable, maternal, perinatal and nutritional conditions

Genitourinary | Cardiovascular | Respiratory

Neuropsychiatric condition | Malignant neoplasms

Non-communicable diseases

Unintentional injuries

Injuries

4.3.4 OLDER PEOPLE (AGED 50 AND OVER)

The burden from ischemic heart disease was highest among older people aged 50 and above for all three 2017, 2018 and 2019. COPD was the second leading cause of burden, followed by other respiratory diseases.

Table 4-13: Top leading causes for death for older people (aged 50 and over), 2017, 2018 and 2019

2017	50-64	Ischemic heart disease 16%	Cardiovascular diseases 14%	Malignant neoplasms 12%	Cerebrovascular disease 7%	Infectious diseases 4%
	65+	Cardiovascular diseases 15%	Ischemic heart disease 12%	Cerebrovascular disease 9%	Hypertensive heart disease 8%	Chronic obstructive pulmonary disease 6%
2018	50-64	Cardiovascular diseases 14%	Ischemic heart disease 13%	Respiratory diseases 7%	Cerebrovascular disease 5%	Malignant neoplasms 4%
	65+	Cardiovascular diseases 13%	Ischemic heart disease 10%	Chronic obstructive pulmonary disease 9%	Cerebrovascular disease 8%	Respiratory diseases 6%
2019	50-64	Cardiovascular diseases 12%	Ischemic heart disease 12%	Respiratory diseases 9%	Infectious diseases 8%	Cerebrovascular disease 6%
	65+	Ischemic heart disease 10%	Cardiovascular diseases 10%	Cerebrovascular disease 9%	Chronic obstructive pulmonary disease 9%	Lower respiratory infections 9%

Respiratory infections | Infectious and parasitic
Communicable, maternal, perinatal and nutritional conditions

Cardiovascular | Respiratory | Malignant neoplasms
Non-communicable diseases

Therefore, this chapter focuses on non-communicable diseases and communicable, maternal, perinatal and nutritional conditions in detail for **all deaths in Maldives.**

Highest number of deaths from **non-communicable diseases** are from the following categories;

a) Cardiovascular diseases
b) Respiratory diseases
c) Malignant neoplasms
d) Genitourinary diseases
e) Diabetes mellitus

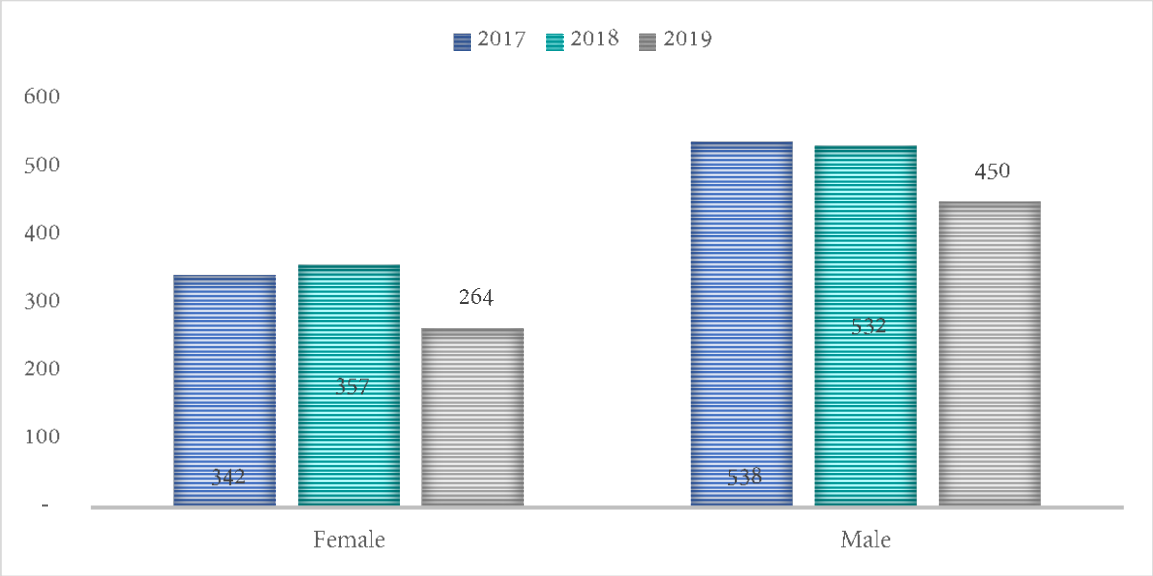
Highest number of deaths from **communicable, maternal, perinatal and nutritional** conditions are;

a) Infectious and parasitic diseases
b) Respiratory infections
c) Perinatal conditions
d) Maternal conditions
e) Nutritional deficiencies

4.4 NON-COMMUNICABLE DISEASES

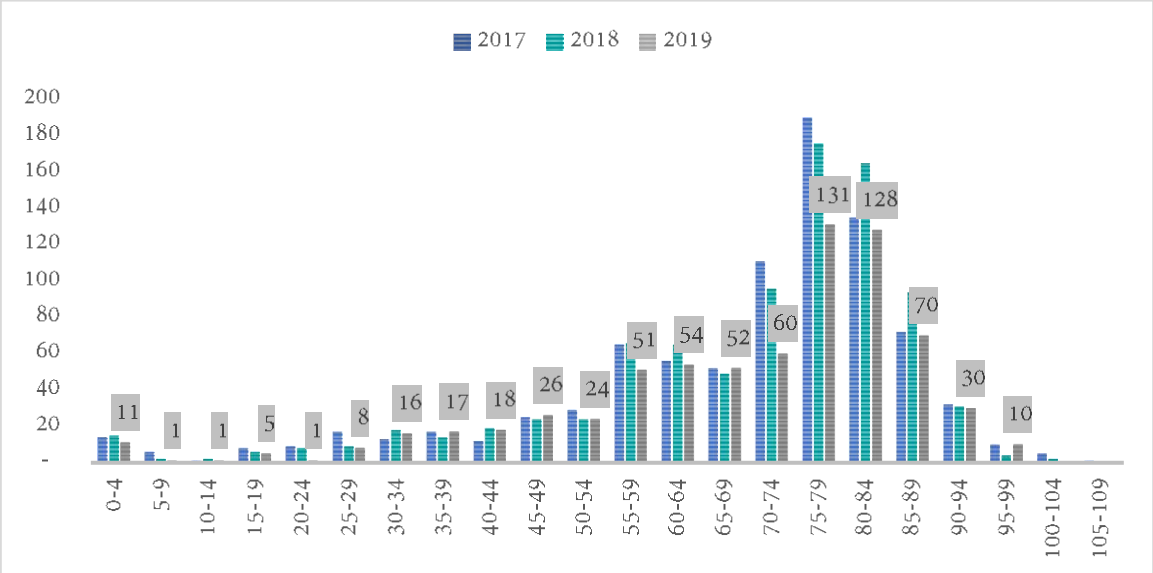
The first disease category for deaths was non-communicable diseases (NCDs) with 880 in 2017, 889 in 2018 and 714 in 2019. Non-communicable diseases by gender showed an increase for males compared to females in all three years.

Figure 4-13: NCD deaths by gender for 2017, 2018 and 2019, in numbers



Non-communicable diseases by age were highest for older age groups and lowest for age 10-14 years. Important to note NCD deaths higher in 0-4-year age groups compared to 5-14 age groups - possibly due to congenital anomalies.

Figure 4-14: NCD deaths by age for 2017, 2018 and 2019, in numbers[31]



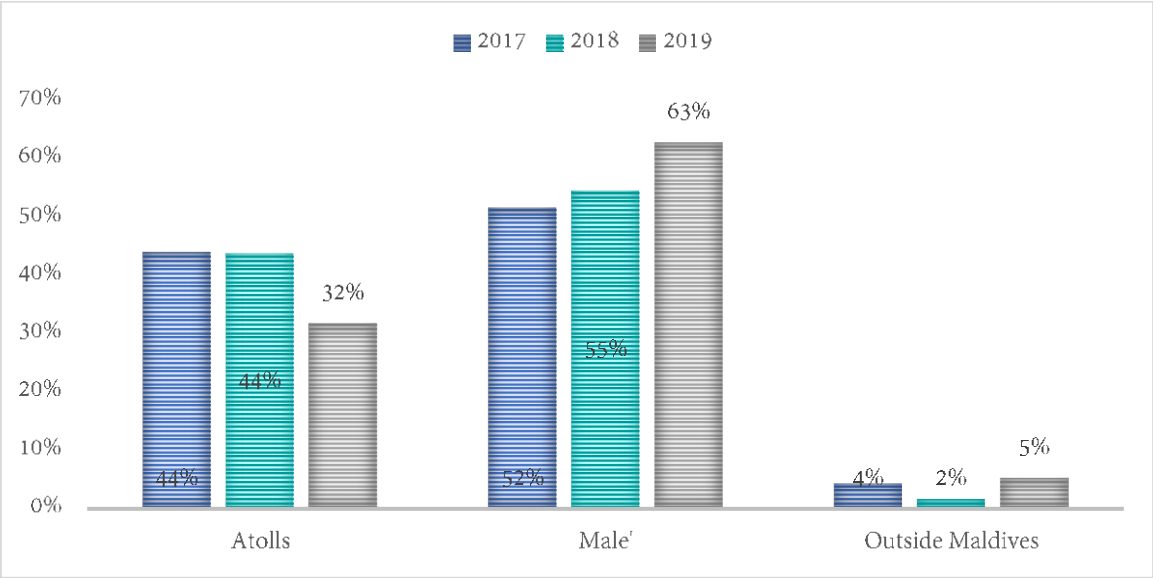
[31] Unknow age groups are omitted from the figure

NCDs by geographic location showed an increase for Male' from 2017 to 2019.

Table 4-14: NCD deaths by geographic location in number for 2017, 2018 and 2019

Location	2017	2018	2019
Atolls	405	396	240
Male'	475	493	474
Outside Maldives	40	15	40
Total	**920**	**904**	**754**

Figure 4-15: NCD deaths by geographic location for 2017, 2018 and 2019, in percentage

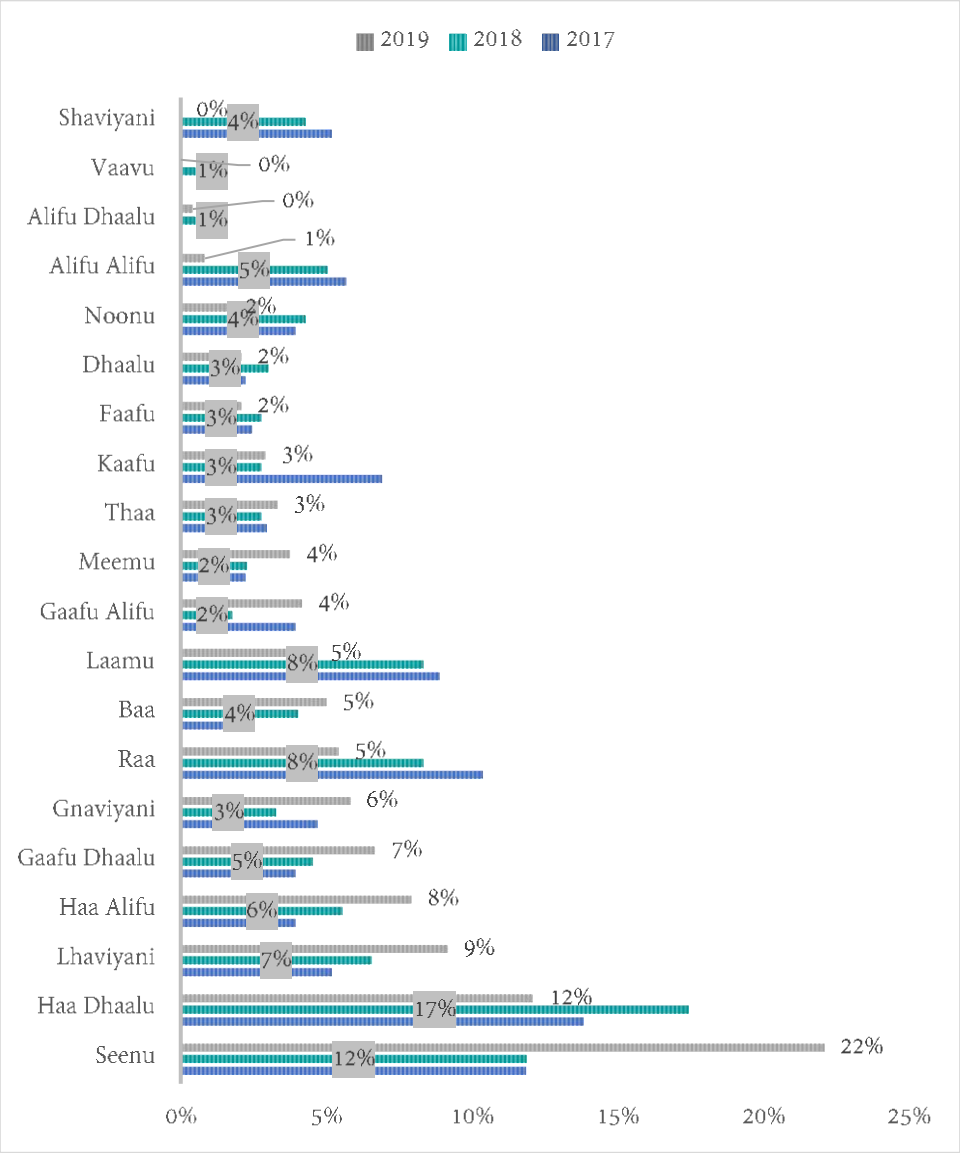


However, when Male' is taken out of the picture, Haa Dhaal and Seenu showed the highest per cent in 2018.

Table 4-15: NCD deaths by atolls for 2017, 2018 and 2019

Atolls	2017	2018	2019
Vaavu		2	
Alifu Dhaalu		2	1
Dhaalu	9	12	5
Faafu	10	11	5
Meemu	9	9	9
Thaa	12	11	8
Gaafu Alifu	16	7	10
Baa	7	16	12
Noonu	16	17	4
Shaviyani	21	17	
Alifu Alifu	23	20	2
Kaafu	28	11	7
Gnaviyani	19	13	14
Gaafu Dhaalu	16	18	16
Haa Alifu	16	22	19
Lhaviyani	21	26	22
Laamu	36	33	11
Raa	42	33	13
Outside Maldives	40	15	40
Seenu	48	47	53
Haa Dhaalu	56	69	29
Male'	475	493	474
Total	**920**	**904**	**754**

Figure 4-16: NCD deaths by atolls for 2017, 2018 and 2019

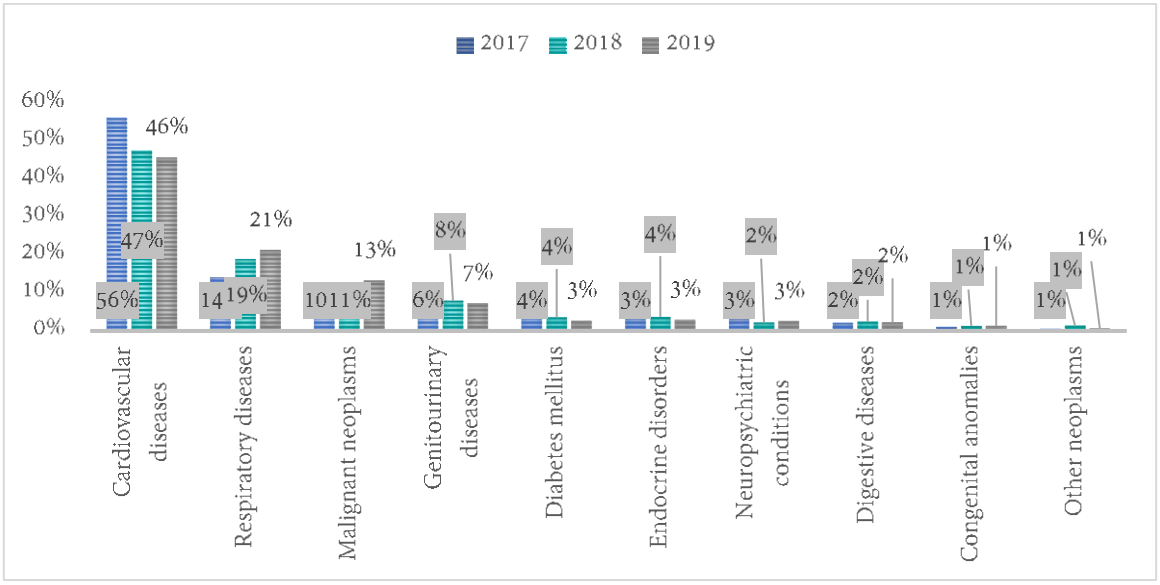


NCDs have more disaggregation compared to communicable, maternal, perinatal and nutritional conditions sub-group. However, the diseases that ranks top stayed the same over the years.

Table 4-16: NCD deaths sub-disease groups for 2017, 2018 and 2019, in numbers

NCD deaths	2017	2018	2019
Cardiovascular diseases	513	425	343
Respiratory diseases	129	169	160
Malignant neoplasms	89	98	100
Genitourinary diseases	54	71	55
Endocrine disorders	31	33	22
Diabetes mellitus	35	32	20
Neuropsychiatric conditions	30	20	19
Digestive diseases	20	22	17
Congenital anomalies	10	12	10
Other neoplasms	5	13	5
Musculoskeletal diseases	1	3	2
Skin diseases	3	5	1
Not categorised / Multiple Sub-categories		1	
Total	**920**	**904**	**754**

Figure 4-17: Top 10 NCD deaths sub-disease groups for 2017, 2018 and 2019, in percentage

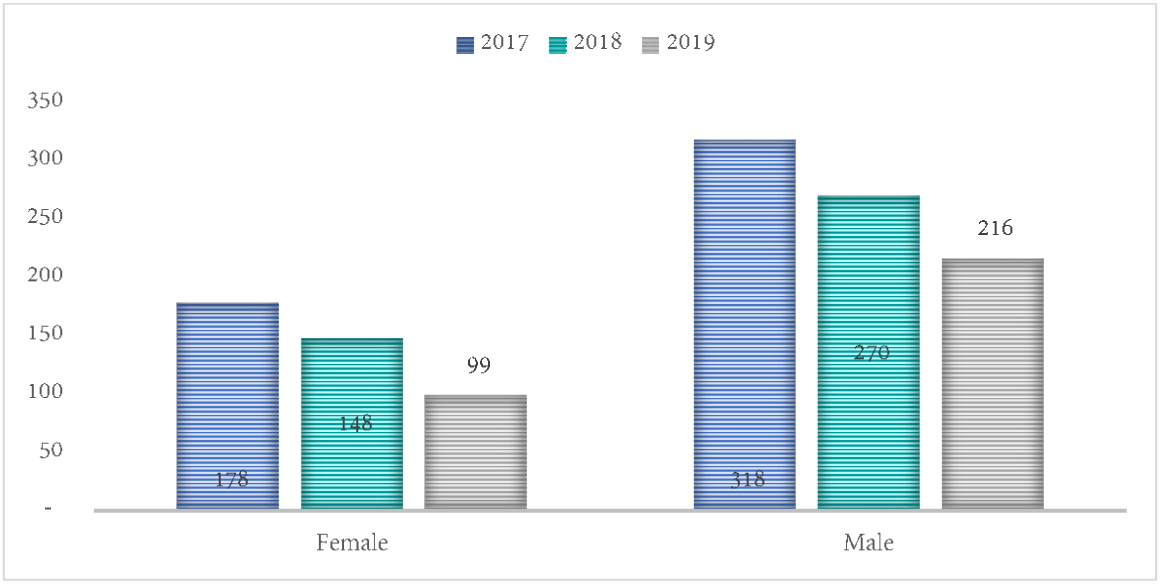


Hence, this section will focus in detail on the top 5 non-communicable diseases in 2017, 2018 and 2019, namely: Cardiovascular diseases, Respiratory diseases, Malignant neoplasm, Genitourinary diseases and Diabetes mellitus.

4.4.1 CARDIOVASCULAR DISEASES

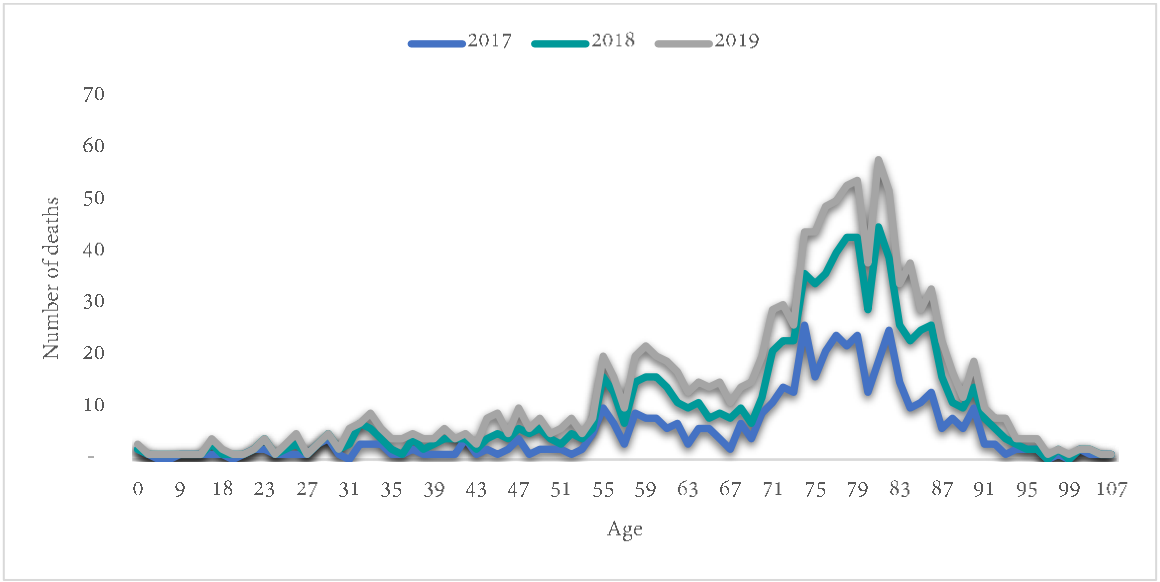
There was a total of 496 in 2017, 418 in 2018 and 315 in 2019 deaths due to cardiovascular diseases.

Figure 4-18: Total cardiovascular diseases by gender, 2017, 2018 and 2019 in numbers



Cardiovascular diseases increased with age and is more common for males in all years, peaking at ages 76-86 years in all three years.

Figure 4-19: Cardiovascular diseases deaths by age for 2017, 2018 and 2019, in numbers



For both genders, it can be seen that other cardiovascular diseases and ischemic heart diseases are the main causes of deaths for cardiovascular diseases sub-groups in 2017, 2018 and 2019.

Figure 4-20: Cardiovascular diseases deaths sub-groups by gender for 2017, 2018 and 2019, in numbers

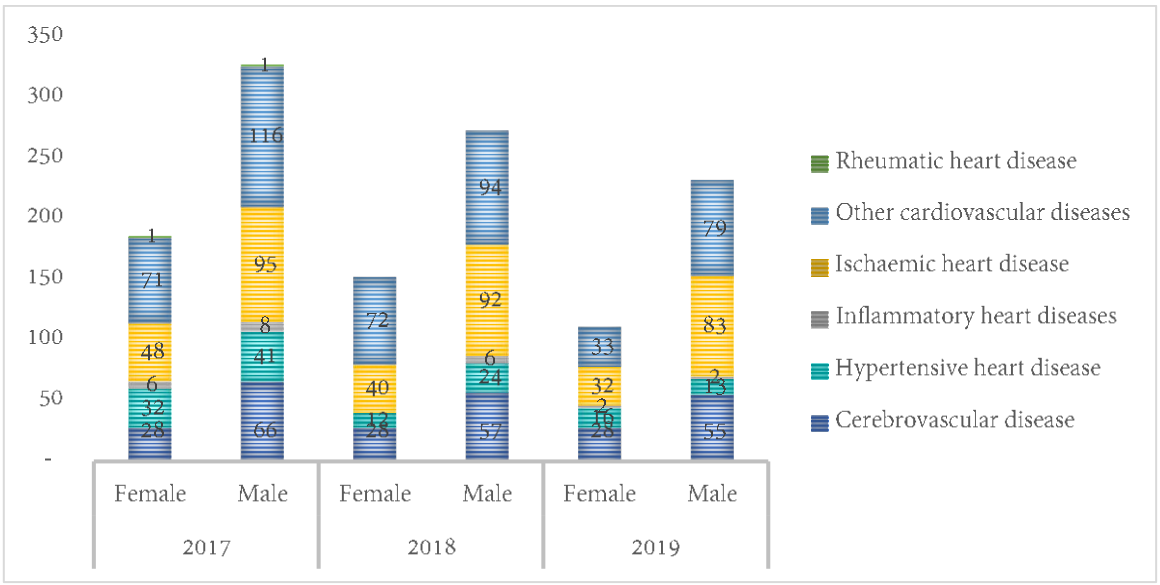
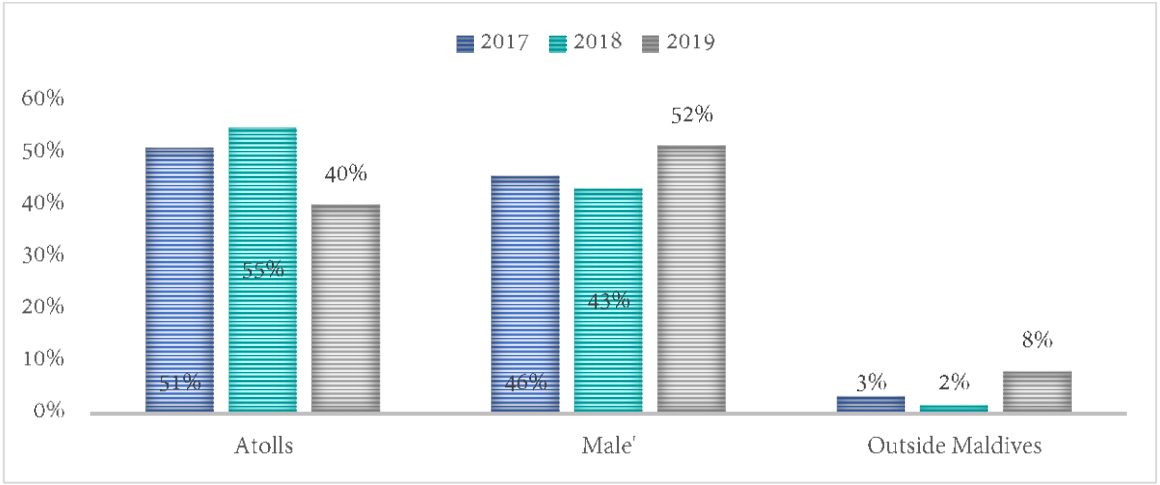


Table 4-17: Cardiovascular diseases deaths by Male' and Atolls, 2017, 2018 and 2019

Location	2017	2018	2019
Atolls	262	234	138
Male'	234	184	177
Outside Maldives	17	7	28
Total	**513**	**425**	**343**

Cardiovascular deaths increased from 46% to 52% in Male 'from 2017 to 2019.

Figure 4-21: Cardiovascular diseases deaths by Male' and Atolls, 2017, 2018 and 2019, in percentage



Similar to total NCD death trend, cardiovascular deaths were highest in Haa Dhaal, Seenu and Laamu atoll in 2018.

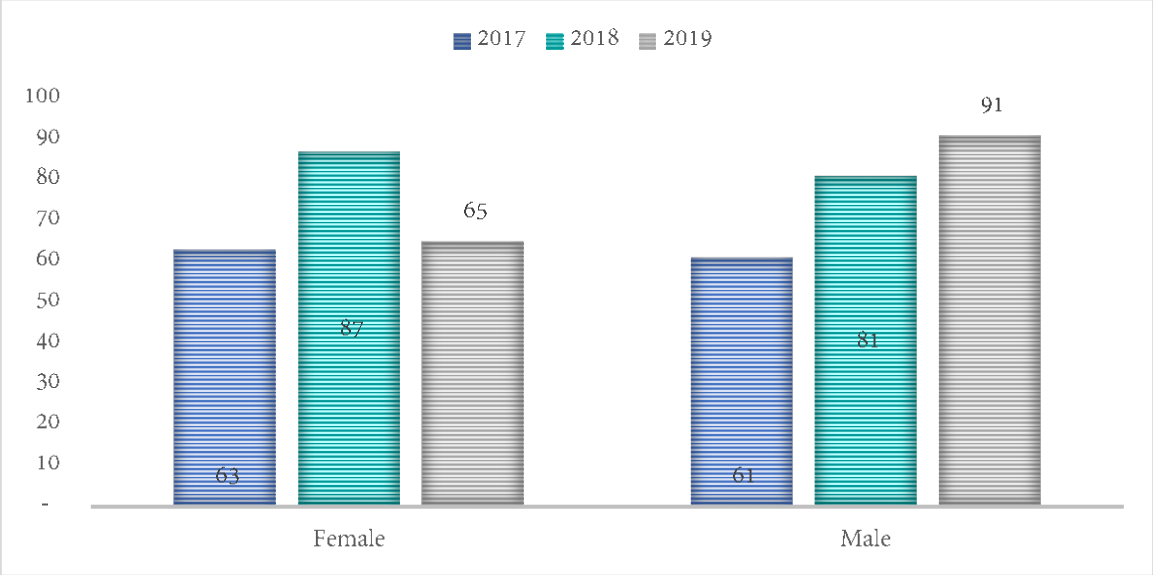
Table 4-18: Cardiovascular diseases deaths by Atolls, 2017, 2018 and 2019

Atolls	2017	2018	2019
Male'	234	184	177
Seenu	31	24	31
Outside Maldives	17	7	28
Lhaviyani	15	16	15
Haa Dhaalu	35	41	15
Gaafu Dhaalu	12	8	10
Raa	29	15	9
Haa Alifu	10	17	9
Laamu	27	23	9
Gnaviyani	13	6	7
Thaa	6	7	5
Gaafu Alifu	11	2	5
Meemu	4	5	4
Dhaalu	5	8	4
Baa	4	13	4
Faafu	7	8	3
Noonu	10	11	3
Kaafu	17	7	3
Alifu Alifu	12	11	1
Alifu Dhaalu		1	1
Shaviyani	14	11	
Total	**513**	**425**	**343**

4.4.2 RESPIRATORY DISEASES

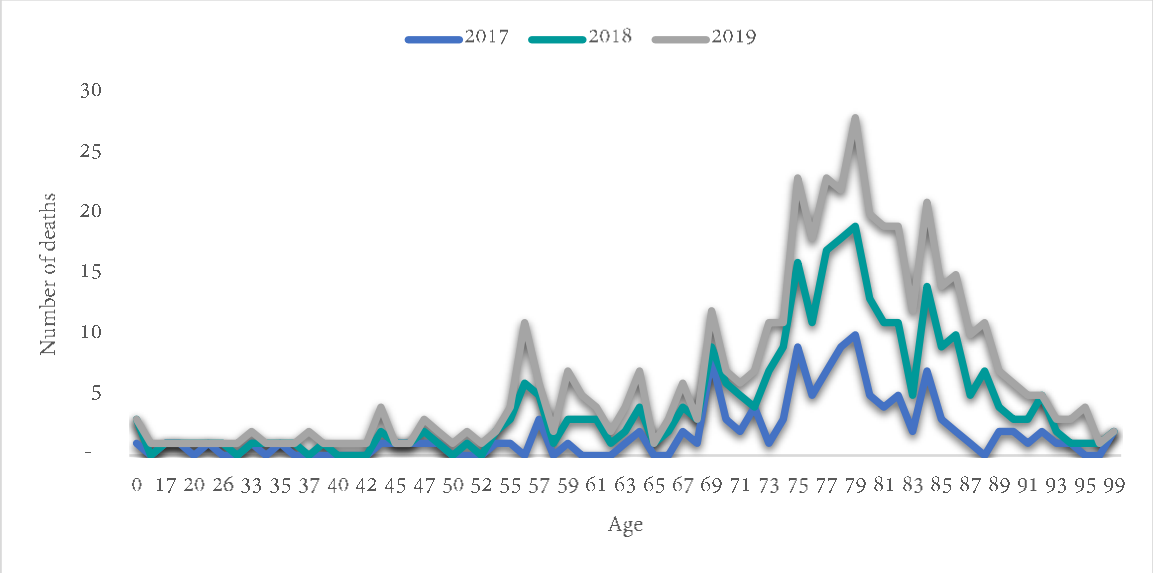
There was a total of 124 deaths in 2017, 168 deaths in 2018 and 156 deaths in 2019 due to respiratory diseases.

Figure 4-22: Total respiratory disease deaths by gender, 2017, 2018 and 2019 in numbers



Respiratory diseases increased with age and is more common for males in 2017, 2018 and 2019, peaking at ages 75-86 years in all three years.

Figure 4-23: Respiratory diseases deaths by age for 2017, 2018 and 2019, in numbers



For both genders, it can be seen that chronic obstructive pulmonary disease and other respiratory diseases are the main causes of deaths for respiratory diseases sub-groups in 2017, 2018 and 2019.

Figure 4-24: Respiratory diseases deaths sub-groups by gender for 2017, 2018 and 2019, in numbers

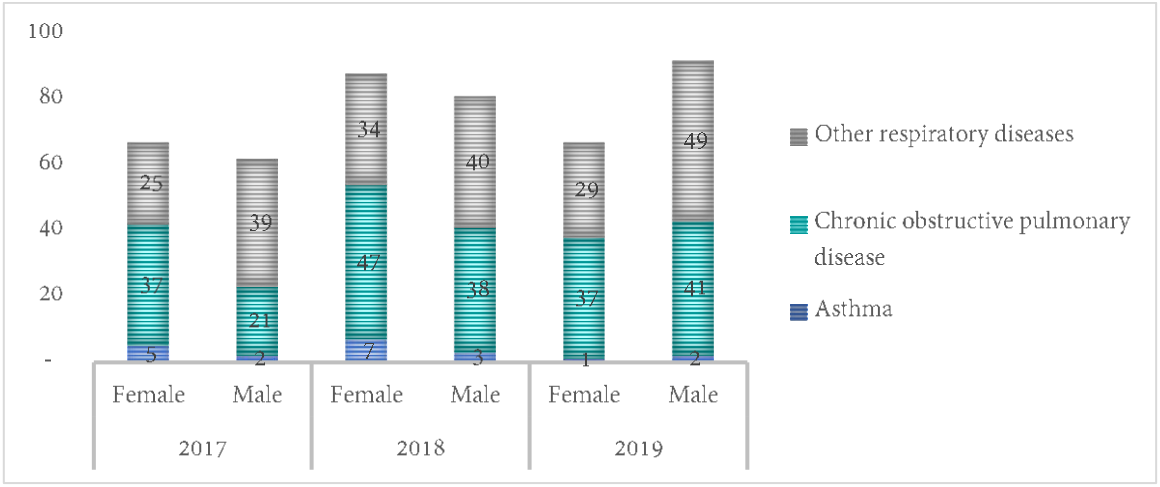
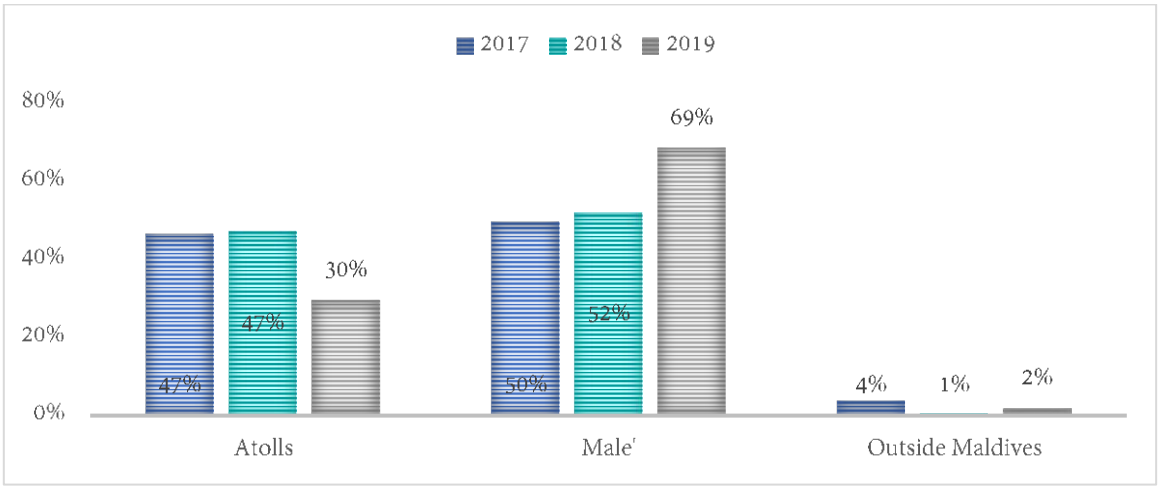


Table 4-19: Respiratory diseases deaths by Male' and Atolls, 2017, 2018 and 2019

Location	2017	2018	2019
Atolls	60	80	47
Male'	64	88	109
Outside Maldives	5	1	3
Total	**129**	**169**	**159**

Respiratory disease related deaths increased from 50% to 69% in Male' from 2017 to 2019. Correspondingly, deaths in atolls decreased from 47% to 30% for the same time period.

Figure 4-25: Respiratory diseases deaths by Male' and Atolls, 2017, 2018 and 2019, in percentage



Similar to total NCD death trend, respiratory deaths were highest in Haa Dhaal and Seenu atoll, excluding Male' in 2018.

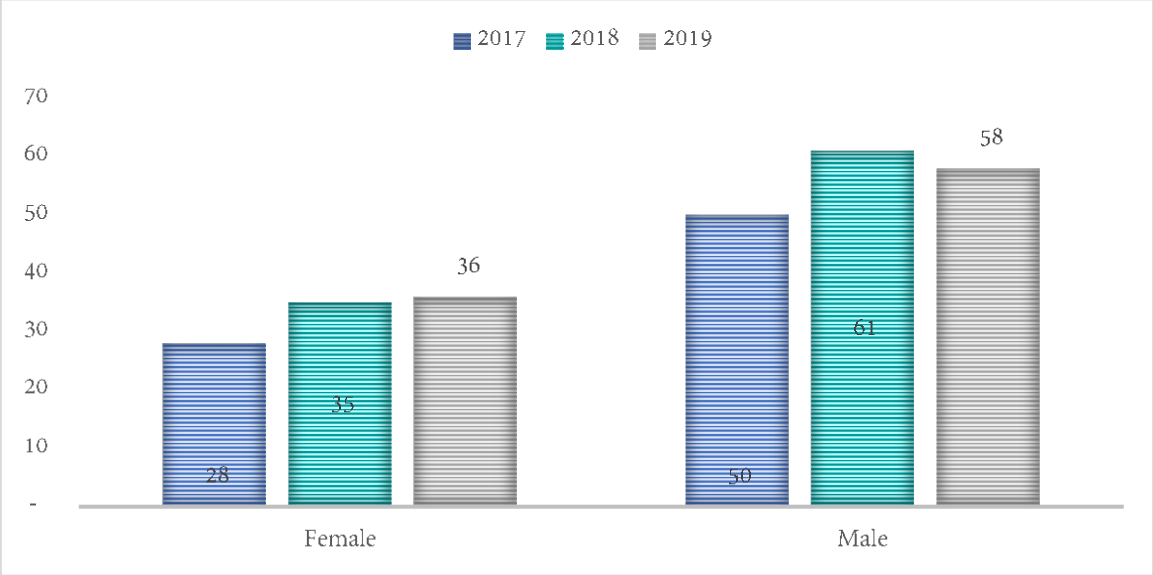
Table 4-20: Respiratory diseases deaths by Atolls, 2017, 2018 and 2019

Atolls	2017	2018	2019
Male'	64	88	109
Haa Dhaalu	7	14	9
Seenu	10	12	8
Raa	8	6	2
Lhaviyani	4	6	3
Alifu Alifu	4	5	1
Laamu	3	5	
Gaafu Alifu	2	4	2
Gnaviyani	2	4	3
Meemu	1	4	1
Haa Alifu	1	3	7
Shaviyani	2	3	
Thaa	2	3	1
Baa	1	2	4
Gaafu Dhaalu	3	2	2
Noonu	3	2	
Kaafu	5	2	2
Vaavu		1	
Outside Maldives	5	1	3
Alif Dhaalu		1	
Dhaalu	1	1	1
Faafu	1		1
Total	**129**	**169**	**159**

4.4.3 MALIGNANT NEOPLASM

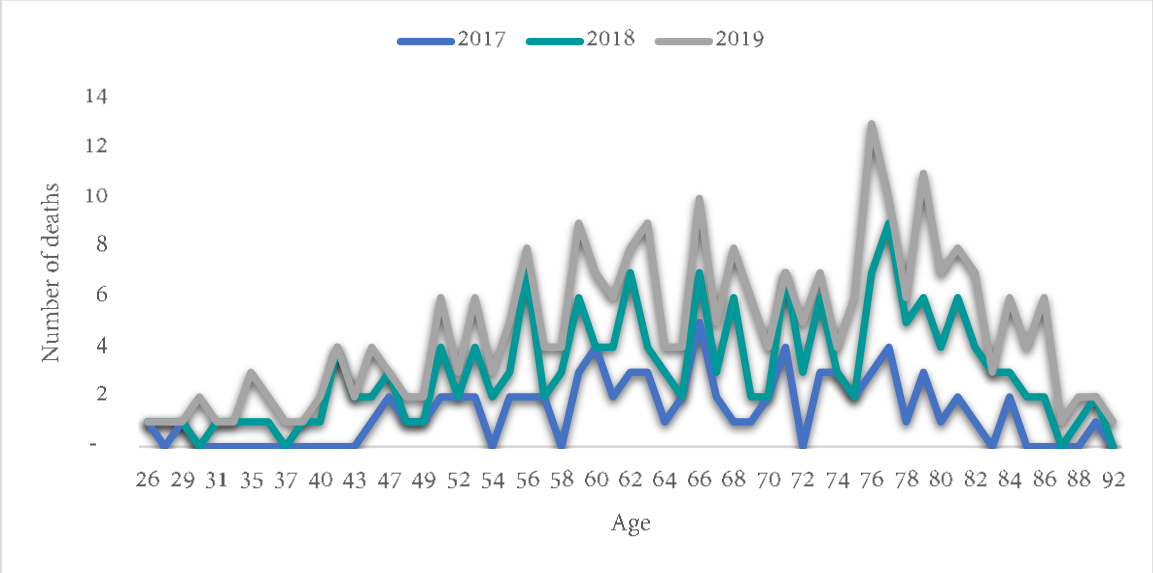
There was a total of 78 deaths in 2017, 96 deaths in 2018 and 94 deaths in 2019 due to malignant neoplasms.

Figure 4-26: Total cancer deaths by gender, 2017, 2018 and 2019 in numbers



Unlike, other non-communicable diseases, malignant neoplasms or cancer is seen across all age groups. However, there are more male cancer deaths than female cancer deaths for all three years.

Figure 4-27: Malignant neoplasms deaths by age for 2017, 2018 and 2019, in numbers

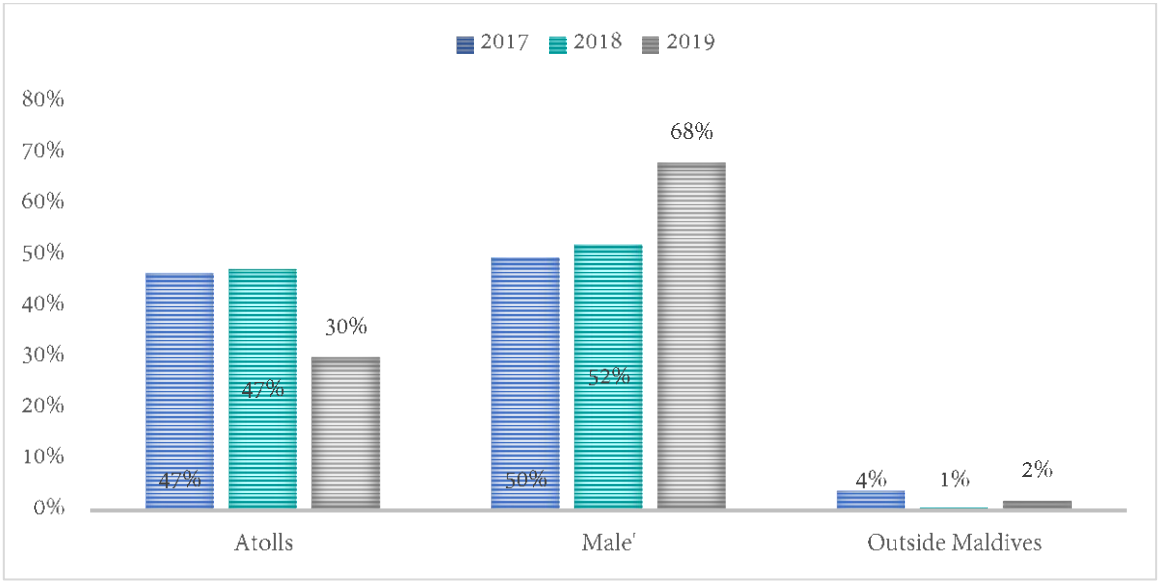


Malignant neoplasms related deaths increased from 50% to 68% in Male' from 2017 to 2019. This might be due to severe cases of malignant neoplasm in atolls being referred to greater Male' region.

Table 4-21: Malignant neoplasms deaths by Male' and Atolls, 2017, 2018 and 2019

Location	2017	2018	2019
Atolls	26	16	16
Male'	52	80	78
Outside Maldives	11	2	6
Total	**89**	**98**	**100**

Figure 4-28: Malignant neoplasms deaths by Male' and Atolls, 2017, 2018 and 2019, in percentage



Similar to total NCD death trend, in the atolls malignant neoplasms deaths were highest in Seenu atoll in 2018.

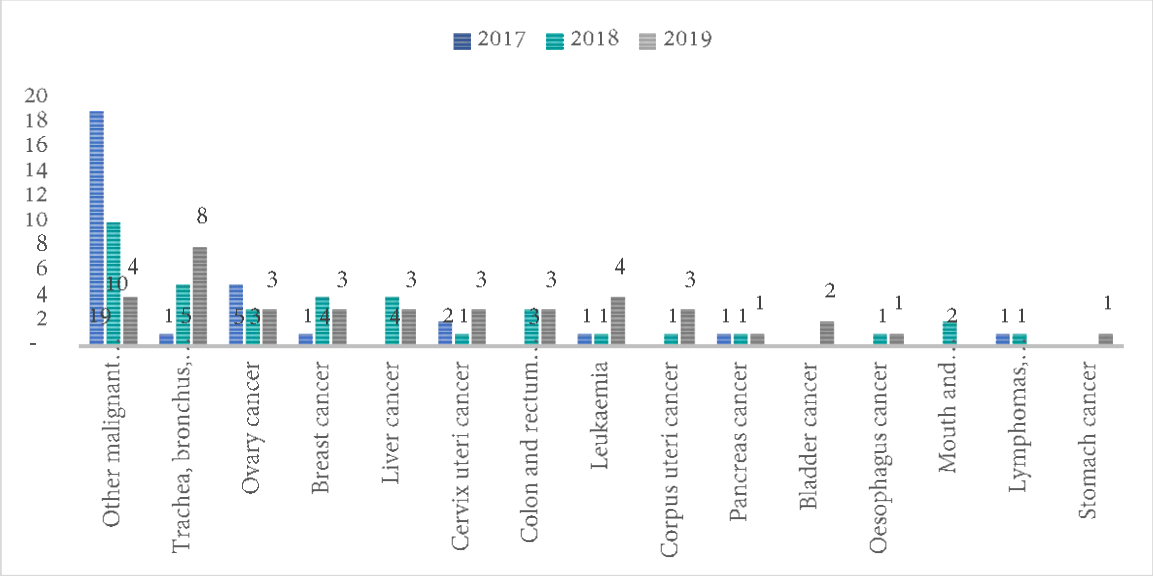
Table 4-22: Malignant neoplasms deaths by Atolls, 2017, 2018 and 2019

Atolls	2017	2018	2019
Male'	52	80	78
Seenu	4	6	4
Outside Maldives	11	2	6
Gaafu Dhaalu		2	2
Raa	3	2	1
Haa Dhaalu	4	2	3
Shaviyani	1	2	
Dhaalu	1	1	
Lhaviyani		1	2
Noonu	1		
Meemu	2		1

Atolls	2017	2018	2019
Gnaviyani	1		
Thaa	2		
Gaafu Alifu			1
Baa			2
Kaafu	1		
Alifu Alifu	2		
Laamu	4		
Total	**89**	**98**	**100**

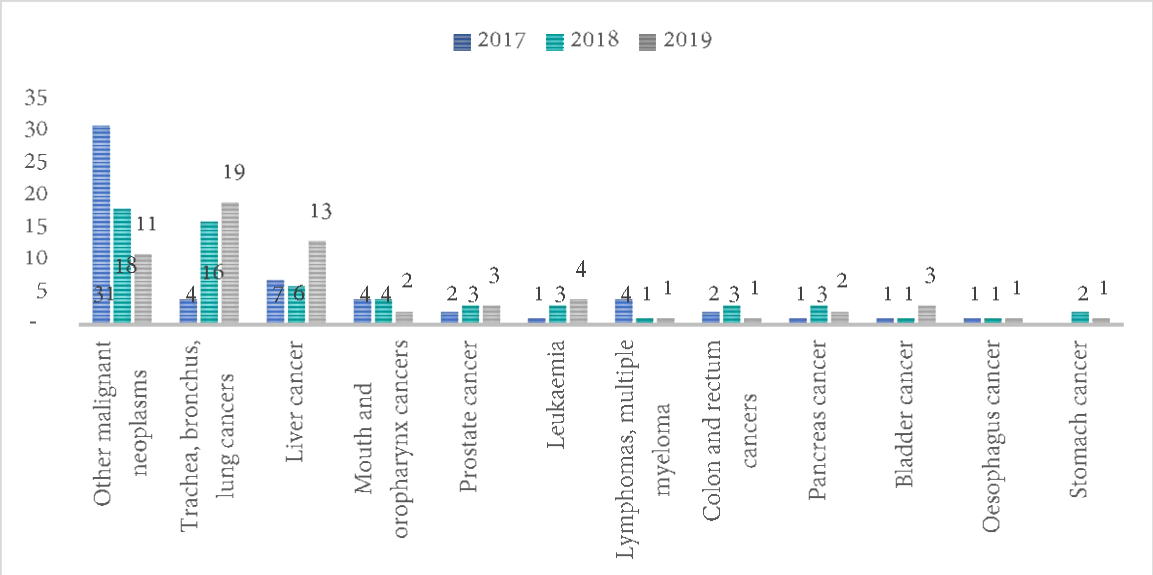
Other malignant neoplasm is the highest in 2017, 2018 and 2019 for both genders. However, specific cancers are affected by gender as it is related to anatomy of the human. For females, the top cancers include cancers to respiratory system (trachea, bronchus, lung cancers), ovary and breast cancers.

Figure 4-29: Malignant neoplasms deaths sub-groups for females in 2017, 2018 and 2019, in numbers



For males, the top cancers include those of the respiratory system (trachea, bronchus, lung cancers), liver cancers and mouth and oropharynx cancers.

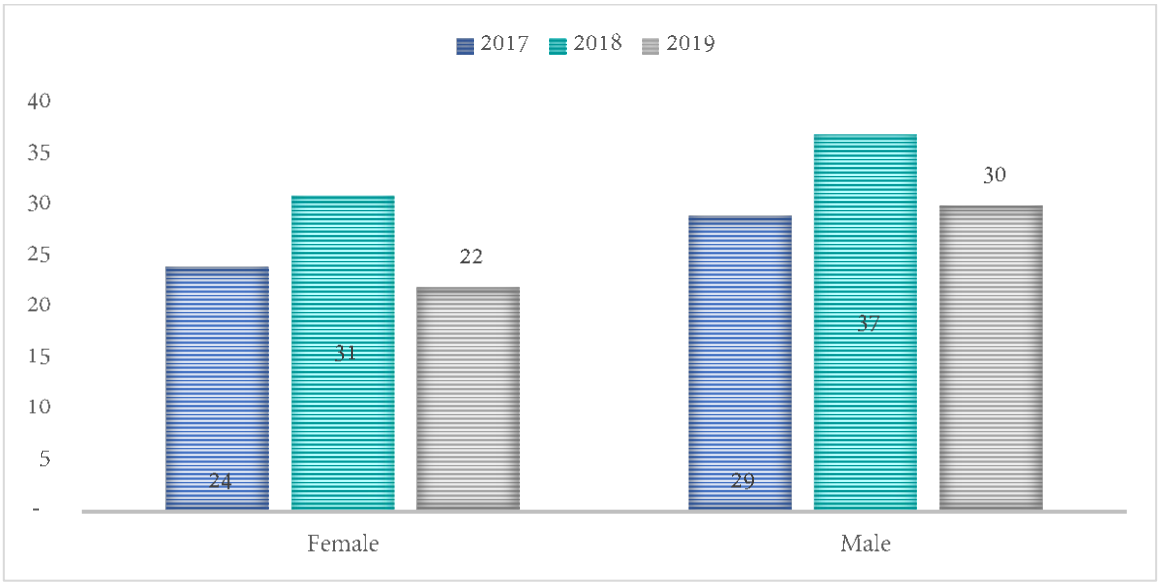
Figure 4-30: Figure 4-31: Malignant neoplasms deaths sub-groups for males in 2017, 2018 and 2019, in numbers



4.4.4 GENITOURINARY DISEASES

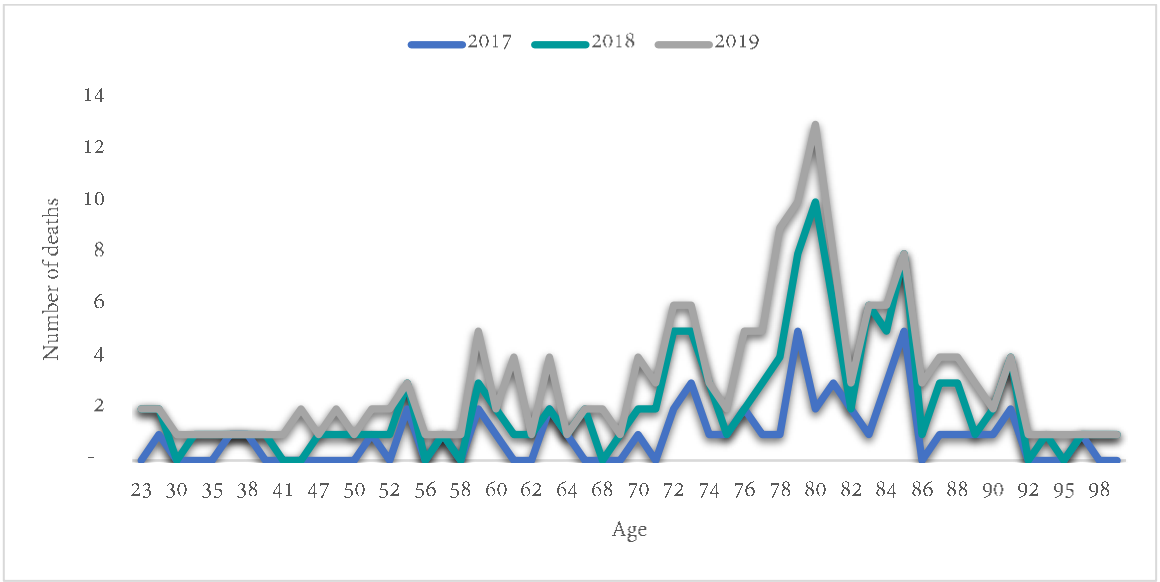
There was a total of 53 deaths in 2017, 68 deaths in 2018 and 52 death in 2019 due to genitourinary diseases.

Figure 4-32: Total genitourinary disease deaths by gender, 2017, 2018 and 2019 in numbers



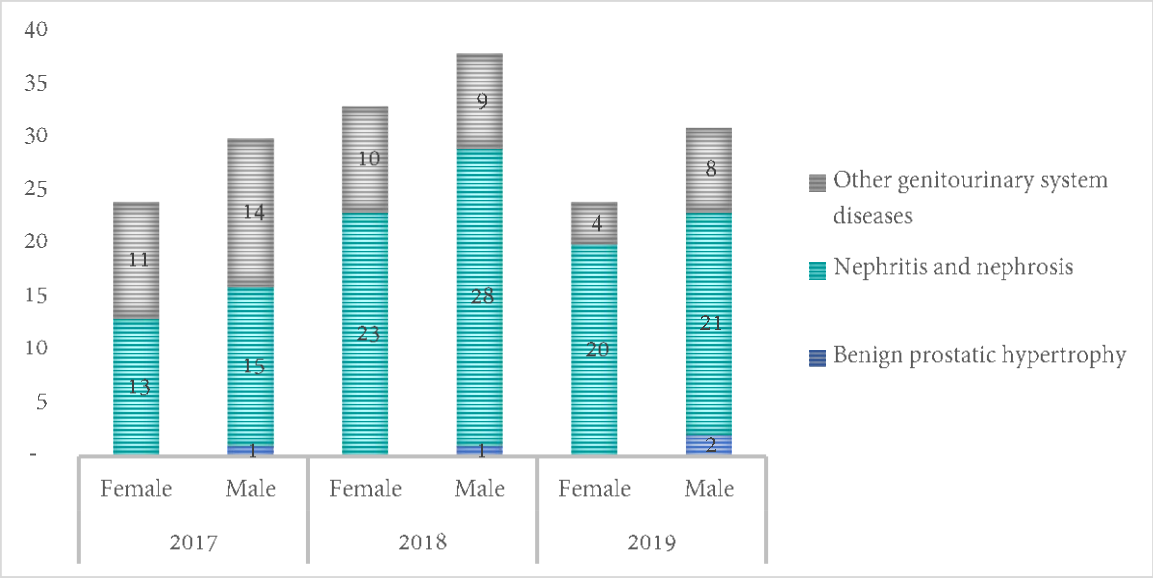
Genitourinary diseases increased with age and is more common for males in 2017, 2018 and 2019, peaking at 79-80 years in all three years.

Figure 4-33: Genitourinary diseases deaths by age for 2017, 2018 and 2019, in numbers



For both genders, it can be seen that nephritis and nephrosis are the main causes of deaths for genitourinary diseases sub-groups in 2017, 2018 and 2019.

Figure 4-34: Genitourinary diseases deaths sub-groups by gender for 2017, 2018 and 2019, in numbers

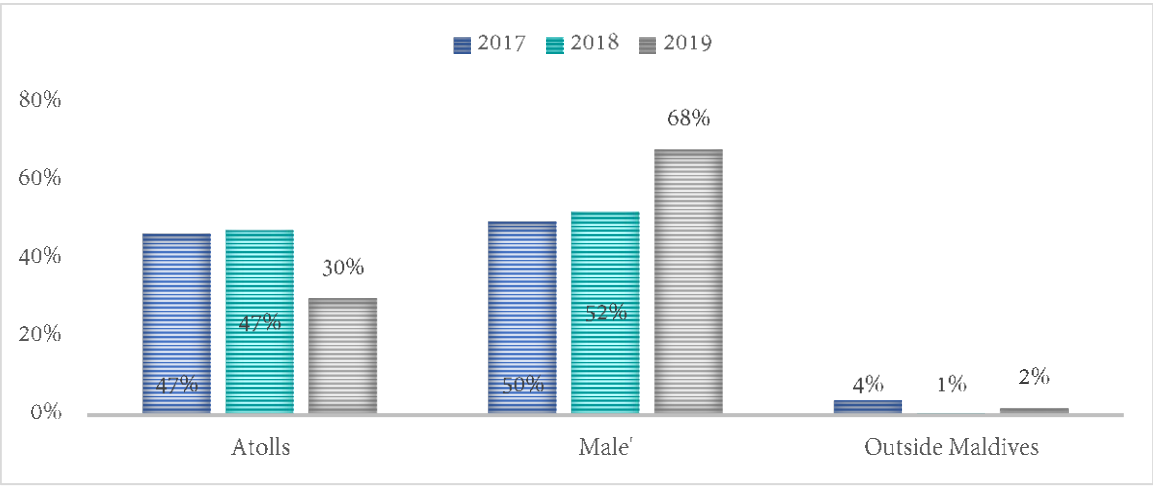


Genitourinary disease related deaths increased from 50% to 68% in Male' from 2017 to 2019.

Table 4-23: Genitourinary diseases deaths by Male' and Atolls, 2017, 2018 and 2019

Location	2017	2018	2019
Atolls	25	27	9
Male'	28	41	43
Outside Maldives	1	3	3
Total	**54**	**71**	**55**

Figure 4-35: Genitourinary diseases deaths by Male' and Atolls, 2017, 2018 and 2019, in percentage



Excluding, greater Mae' region, genitourinary deaths were highest in Haa Dhaal atoll and Raa in 2018.

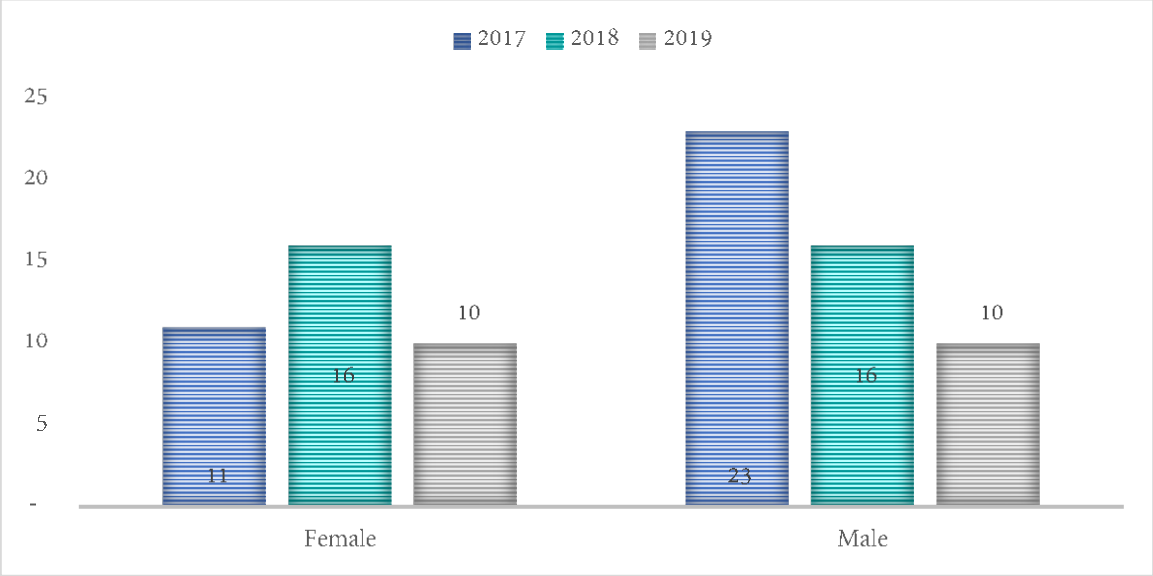
Table 4-24: Genitourinary diseases deaths by Atolls, 2017, 2018 and 2019

Location	2017	2018	2019
Male'	28	41	43
Haa Dhaalu	5	7	
Raa	2	4	
Outside Maldives	1	3	3
Gaafu Dhaalu		3	1
Laamu		3	1
Faafu		2	
Noonu	1	2	
Alifu Alifu	1	1	
Lhaviyani	1	1	1
Shaviyani	2	1	
Thaa	2	1	1
Gaafu Alifu	2	1	1
Kaafu	2	1	
Seenu			2
Meemu			1
Dhaalu	1		
Gnaviyani	1		
Baa	1		1
Haa Alifu	4		
Total	54	71	55

4.4.5 DIABETES MELLITUS

There was a total of 34 deaths in 2017, 32 deaths in 2018 and 20 deaths in 2019 due to diabetes mellitus.

Figure 4-36: Total diabetes mellitus deaths by gender, 2017, 2018 and 2019 in numbers



Diabetes mellitus increased with age and is more common for males in 2017, 2018 and 2019.

Figure 4-37: Diabetes mellitus deaths by age for 2017, 2018 and 2019, in numbers

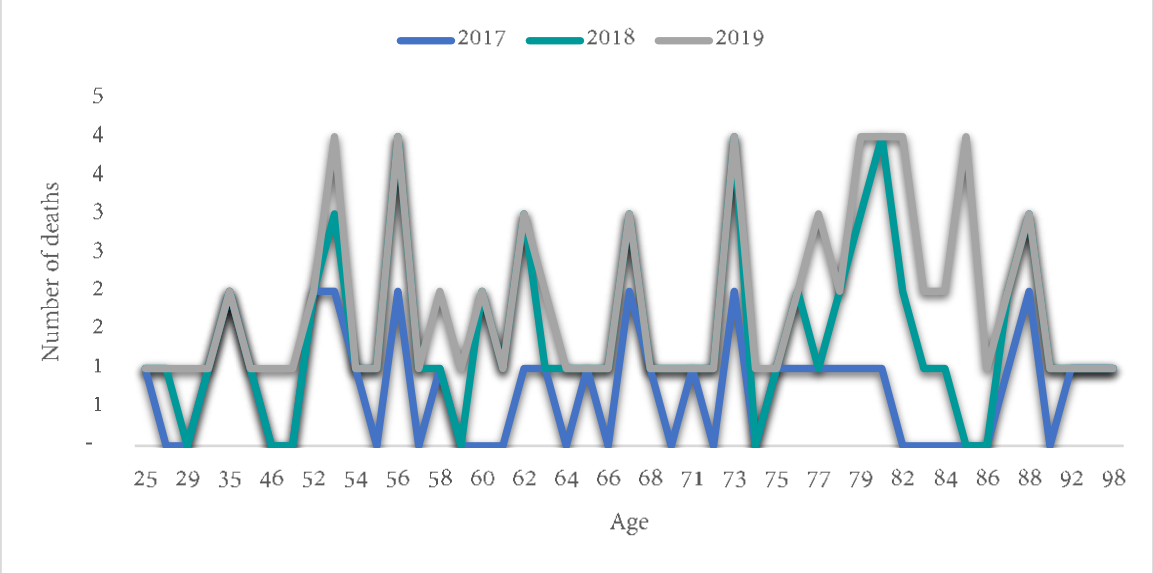
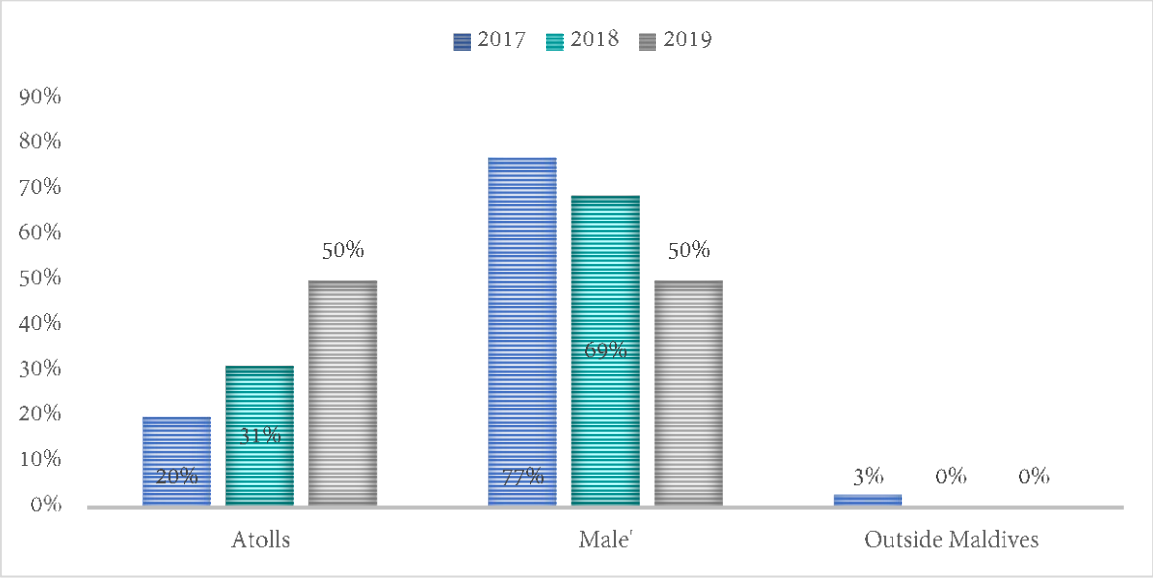


Table 4-25: Diabetes mellitus deaths by Male' and Atolls, 2017, 2018 and 2019

Location	2017	2018	2019
Atolls	7	10	10
Male'	27	22	10
Outside Maldives	1		
Total	**35**	**32**	**20**

Diabetes mellitus related deaths increased from 20% to 50% in atolls from 2017 to 2019.

Figure 4-38: Diabetes mellitus deaths by Male' and Atolls, 2017, 2018 and 2019, in percentage



Excluding greater Male' region, similar to other NCD death diseases trend, diabetes mellitus deaths were highest in Seenu atoll and Gaaf Dhaal in 2018.

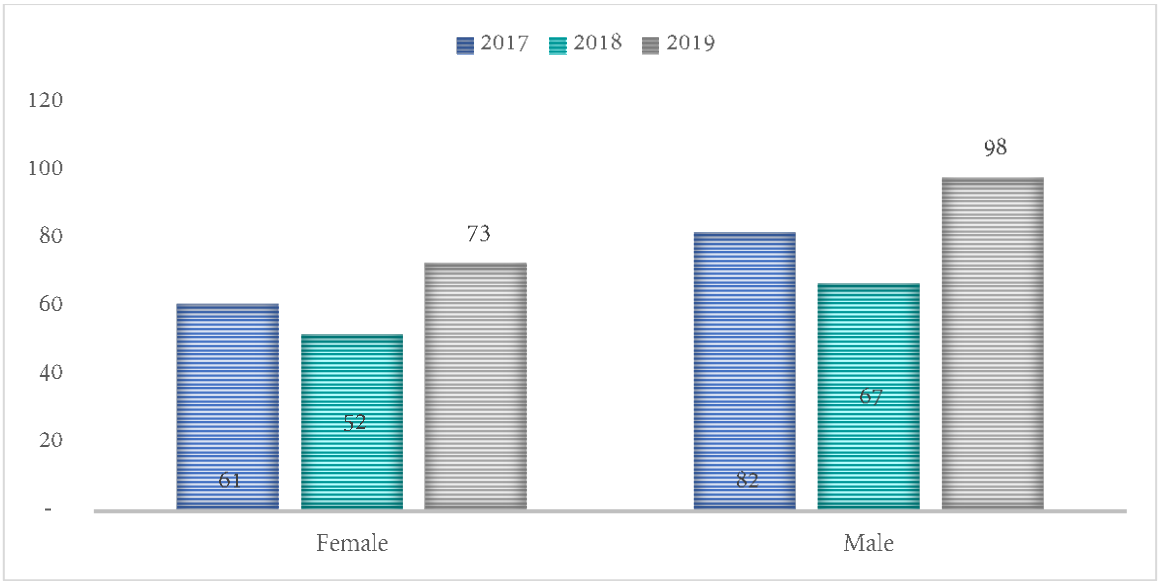
Table 4-26: Diabetes mellitus deaths by Atolls, 2017, 2018 and 2019

Atolls	2017	2018	2019
Male'	27	22	10
Seenu		3	2
Gaafu Dhaalu	1	2	1
Noonu		1	1
Lhaviyani	1	1	
Faafu	1	1	
Haa Alifu		1	2
Haa Dhaalu	2	1	
Outside Maldives	1		
Raa			1
Gnaviyani			2
Meemu			1
Dhaalu	1		
Kaafu	1		
Total	**35**	**32**	**20**

4.5 COMMUNICABLE, MATERNAL, PERINATAL AND NUTRITIONAL CONDITIONS

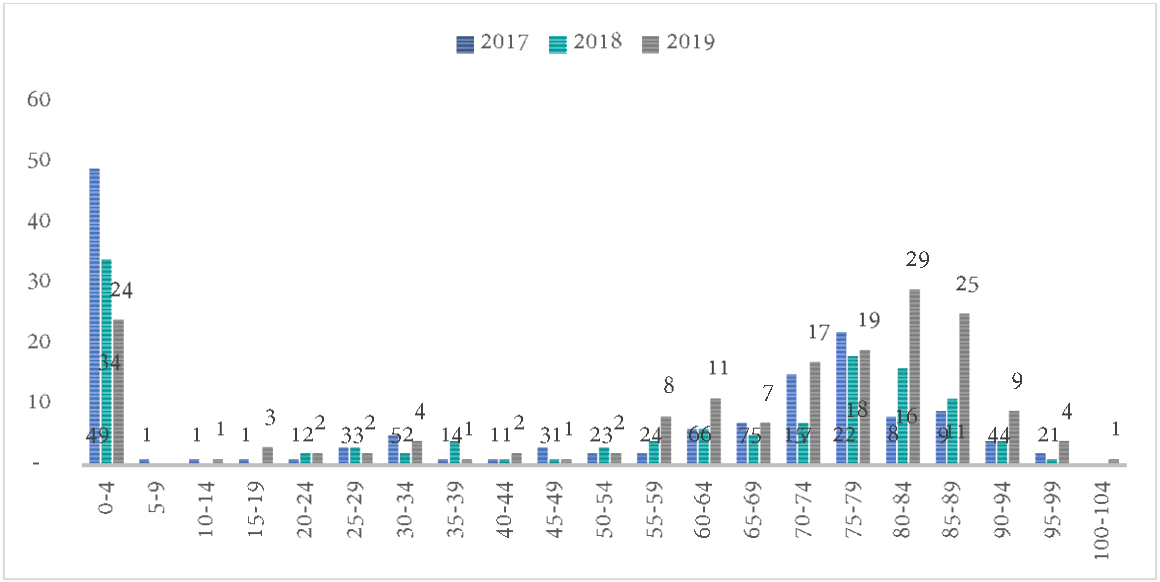
Communicable, maternal, perinatal and nutritional conditions is the third major death category with 143 deaths in 2017, 119 deaths in 2018 and 171 in 2019 deaths. There were more male deaths in both years.

Figure 4-39: Communicable, maternal, perinatal and nutritional condition deaths by gender for 2017, 2018 and 2019, in numbers



Communicable, maternal, perinatal and nutritional conditions by age was highest for children below 5 years of age.

Figure 4-40: Communicable, maternal, perinatal and nutritional deaths by age groups for 2017, 2018 and 2019 in numbers

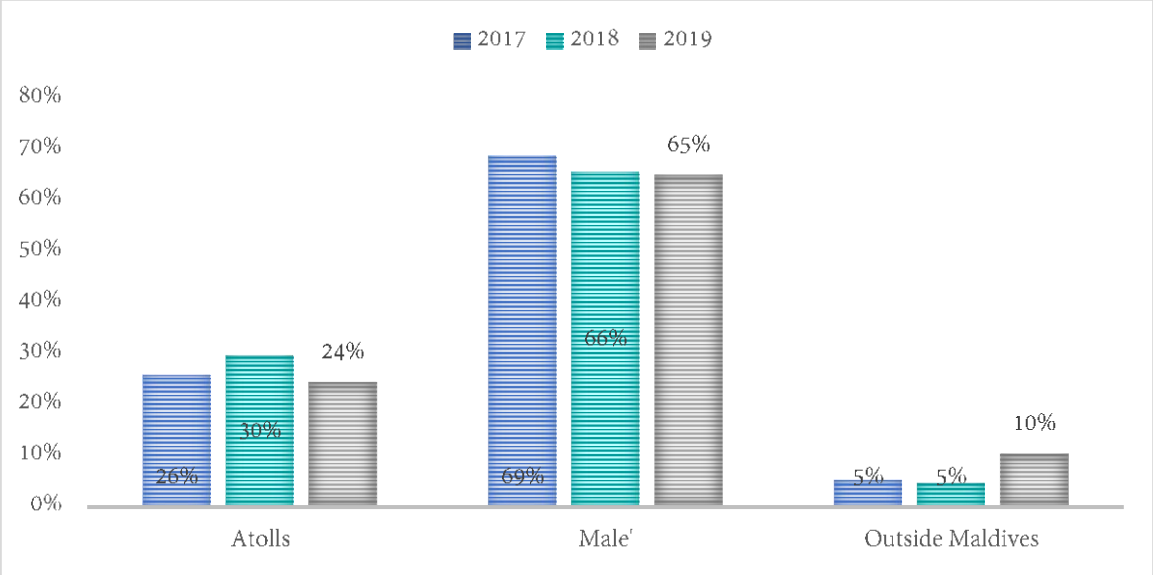


Communicable, maternal, perinatal and nutritional conditions by geographic location showed a increase in numbers from 2017 to 2019.

Table 4-27: Communicable, maternal, perinatal and nutritional deaths by geographic location for 2017, 2018 and 2019

Location	2017	2018	2019
Atolls	39	38	47
Male'	104	84	125
Outside Maldives	8	6	20
Total	**151**	**128**	**192**

Figure 4-41: Communicable, maternal, perinatal and nutritional deaths by geographic location for 2017, 2018 and 2019, in percentage



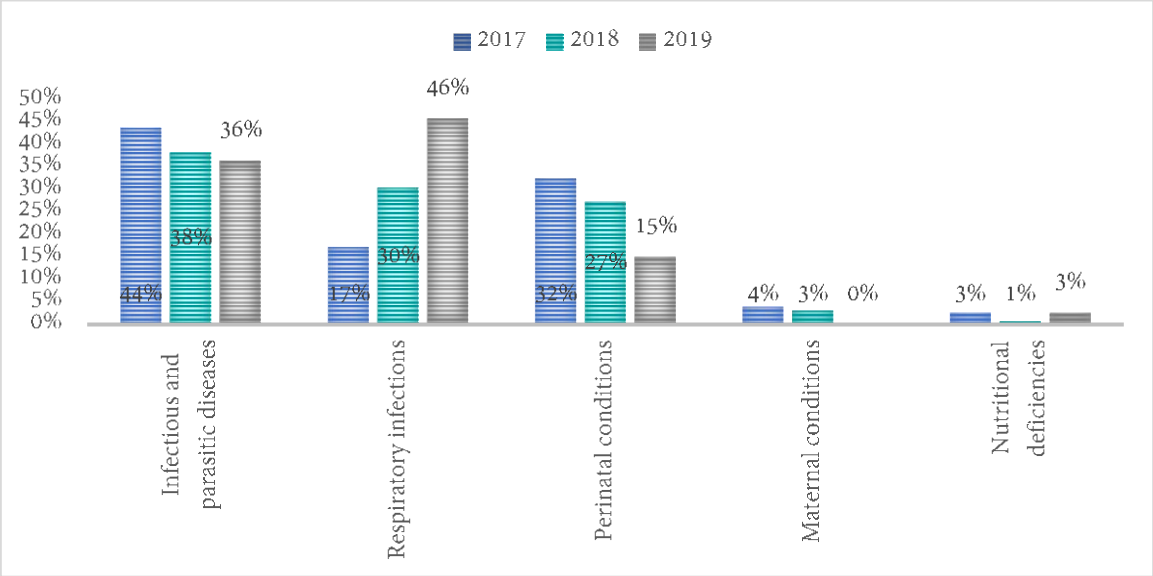
However, when Male' is taken out of the picture, Haa Dhaal showed the highest per cent of deaths followed by Seenu and Alif Dhaal atoll in 2018.

Table 4-28: Communicable, maternal, perinatal and nutritional deaths by atolls for 2017, 2018 and 2019

Atolls	2017	2018	2019
Male'	104	84	125
Haa Dhaalu	8	9	7
Outside Maldives	8	6	20
Raa	6	6	7
Seenu	4	5	7
Laamu	1	3	2
Gaafu Dhaalu	1	2	2
Noonu	4	2	1
Gnaviyani	2	2	3
Meemu	1	2	
Lhaviyani	4	2	5
Alifu Alifu	2	2	
Alifu Dhaalu		1	
Thaa		1	1
Dhaalu		1	
Gaafu Alifu	2		1
Baa	1		3
Shaviyani			1
Faafu	1		
Haa Alifu	2		6
Kaafu			1
Total	**151**	**128**	**192**

Communicable, maternal, perinatal and nutritional conditions have less disaggregation compared to NCD sub-group. However, the diseases that ranks top stayed the same over the years.

Figure 4-42: Communicable, maternal, perinatal and nutritional deaths major sub-disease groups for 2017, 2018 and 2019, in percentage



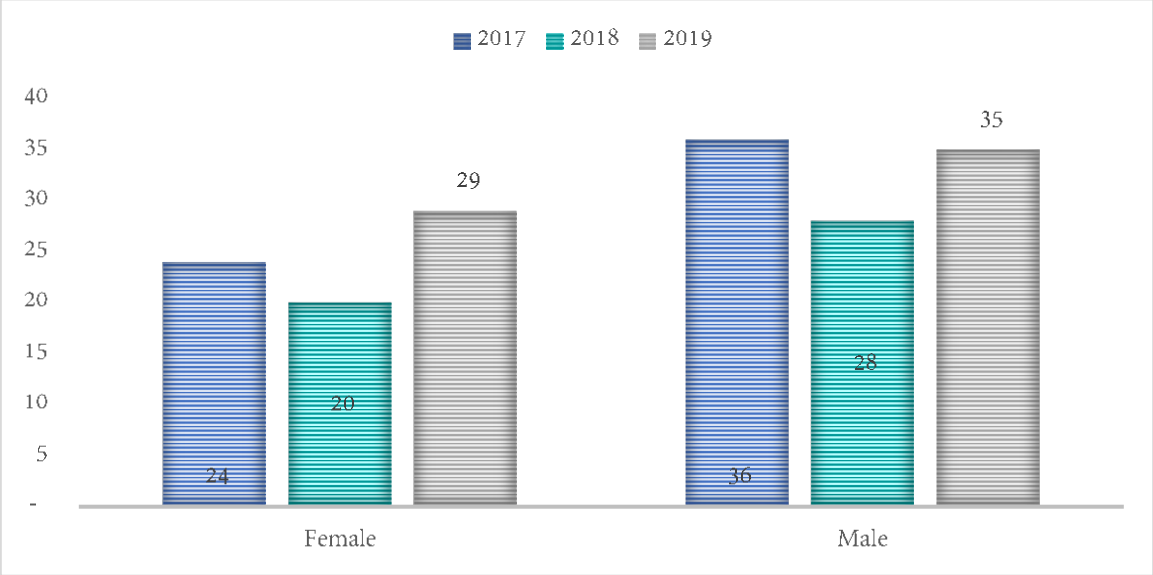
Therefore, this section will focus in detail on the top communicable, maternal, perinatal and nutritional conditions for Maldivians in 2017, 2018 and 2019 as follows;

1. Infectious and parasitic diseases
2. Respiratory infections
3. Other communicable diseases; Perinatal conditions, Maternal conditions and Nutritional deficiencies

4.5.1 INFECTIOUS AND PARASITIC DISEASES

There was a total of 60 deaths in 2017, 48 deaths in 2018 and 64 deaths in 2019 due to infectious and parasitic diseases.

Figure 4-43: Total infectious and parasitic diseases deaths by gender, 2017, 2018 and 2019 in numbers



Infectious and parasitic diseases increased with age and is more common for males in 2017, 2018 and 2019, peaking at 74-81 years in both years.

Figure 4-44: Infectious and parasitic diseases deaths by age for 2017, 2018 and 2019, in numbers

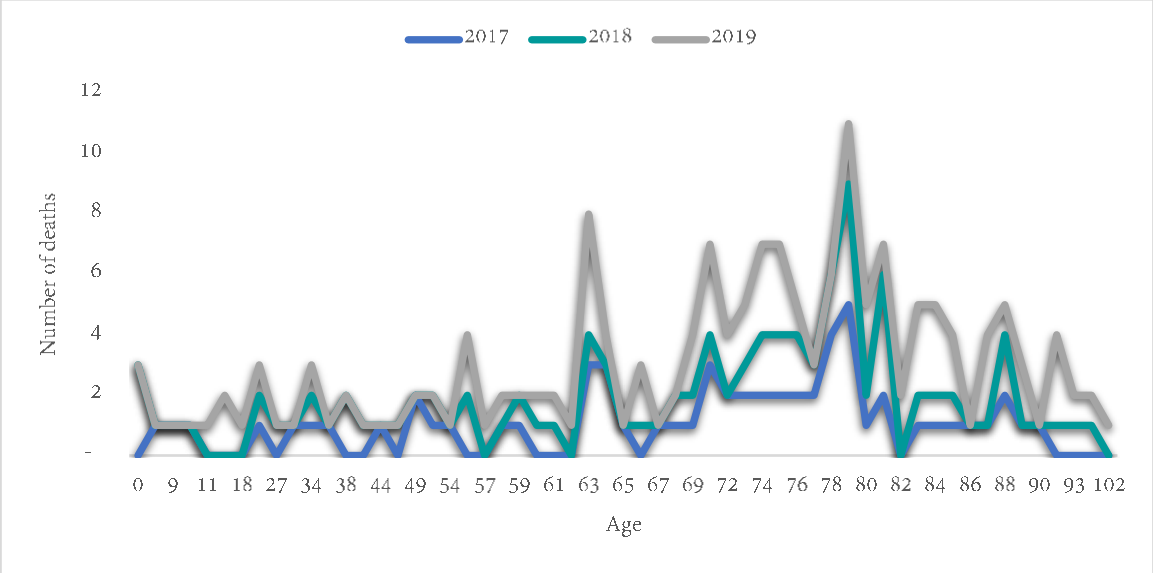
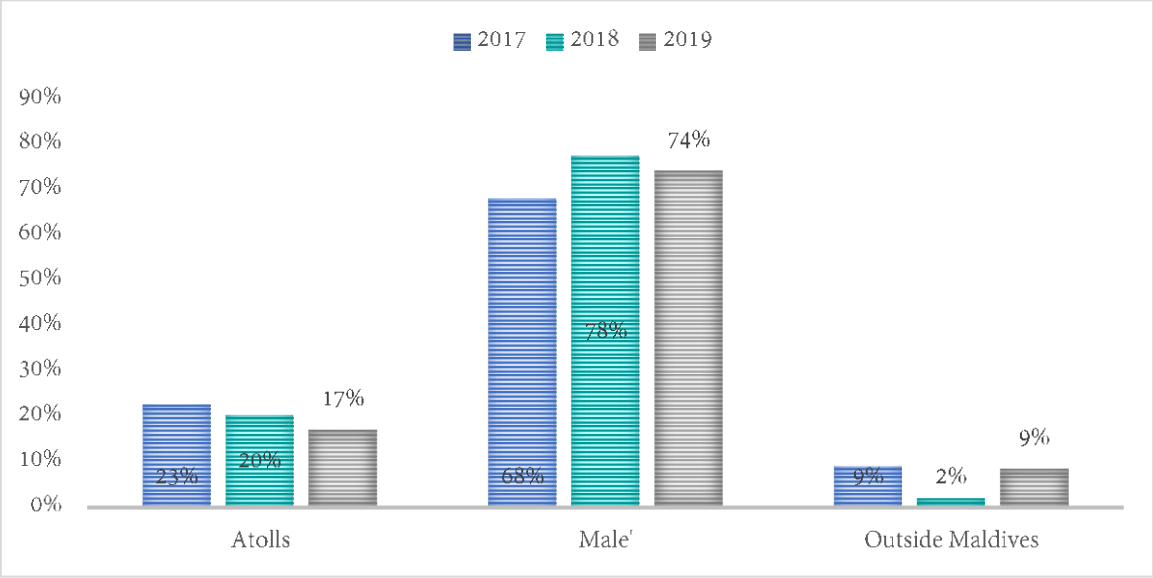


Table 4-29: Infectious and parasitic diseases deaths by Male' and Atolls, 2017, 2018 and 2019

Location	2017	2018	2019
Atolls	15	10	12
Male'	45	38	52
Outside Maldives	6	1	6
Total	**66**	**49**	**70**

Infectious and parasitic diseases related deaths increased from 68% to 74% in Male' from 2017 to 2019.

Figure 4-45: Infectious and parasitic diseases deaths by Male' and Atolls, 2017, 2018 and 2019, in percentage



Excluding greater Male' region, similar to other communicable, maternal, perinatal and nutritional death diseases trend, infectious and parasitic diseases deaths were highest in Haa Dhaal atoll in 2018.

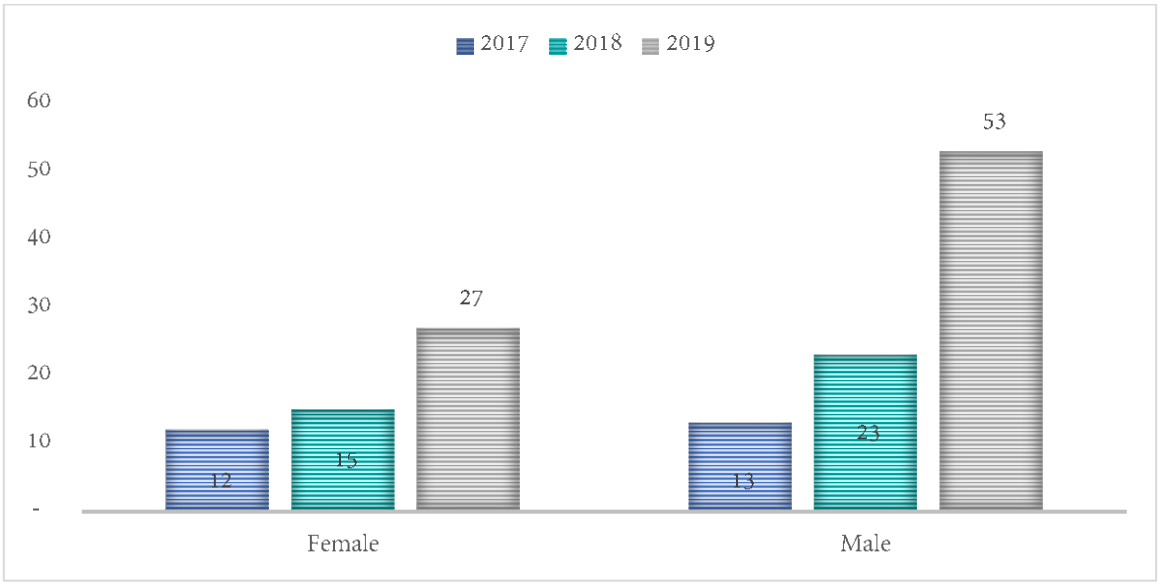
Table 4-30: Infectious and parasitic diseases deaths by Atolls, 2017, 2018 and 2019

Atolls	2017	2018	2019
Male'	45	38	52
Haa Dhaalu	2	4	2
Meemu		2	
Outside Maldives	6	1	6
Alifu Alifu	1	1	
Seenu	3	1	3
Thaa		1	1
Lhaviyani		1	1
Raa	2		
Gnaviyani			1
Gaafu Alifu			1
Noonu	4		
Haa Alifu	2		2
Baa	1		1
Total	**66**	**49**	**70**

4.5.2 RESPIRATORY INFECTIONS

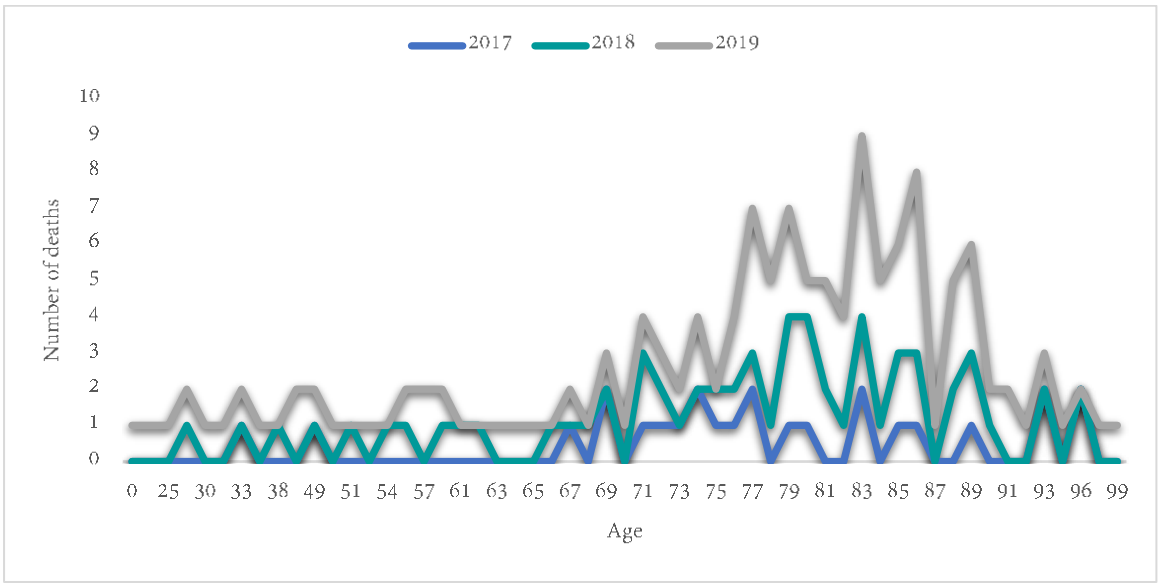
There was a total of 25 deaths in 2017, 38 deaths in 2018 and 80 deaths in 2019 due to respiratory infections.

Figure 4-46: Total deaths from respiratory infections by gender, 2017, 2018 and 2019 in numbers



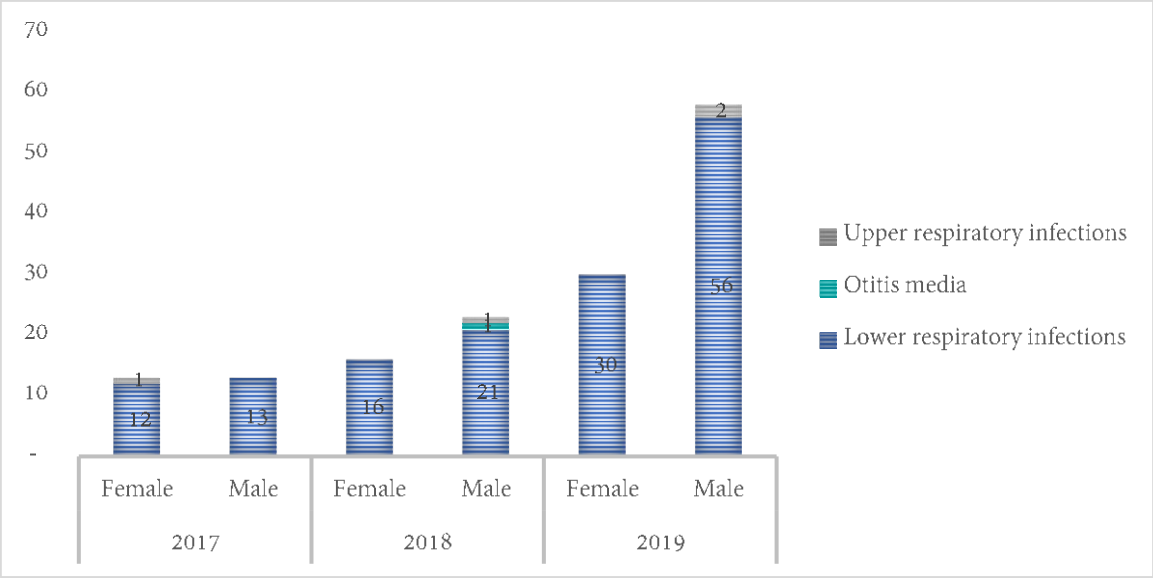
Respiratory infections increased with age and is more common for males peaking at 75-79 years.

Figure 4-47: Deaths from respiratory infections by age for 2017, 2018 and 2019, in numbers



For both genders, it can be seen that lower respiratory infections are the main causes of deaths for respiratory infections sub-groups in 2017, 2018 and 2019.

Figure 4-48: Deaths from Respiratory infections sub-groups by gender for 2017, 2018 and 2019, in numbers

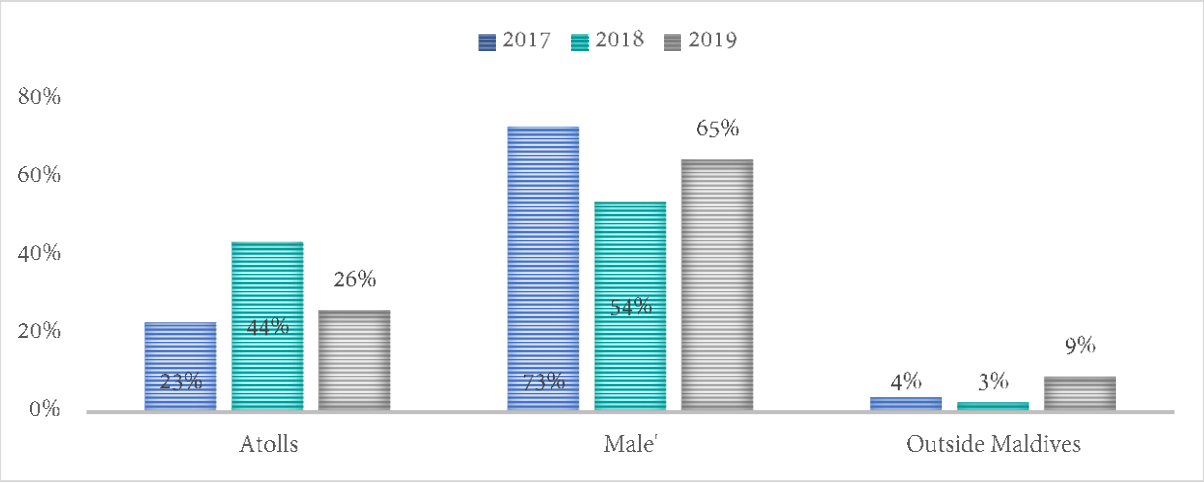


Respiratory infections related deaths increased in number from 2017 to 2019.

Table 4-31: Deaths from Respiratory infections by Male' and Atolls, 2017, 2018 and 2019

Location	2017	2018	2019
Atolls	6	17	23
Male'	19	21	57
Outside Maldives	1	1	8
Total	**26**	**39**	**88**

Figure 4-49: Deaths from Respiratory infections by Male' and Atolls, 2017, 2018 and 2019, in percentage



Excluding greater Male' region, respiratory infections deaths were highest in Raa and Seenu atoll in 2018.

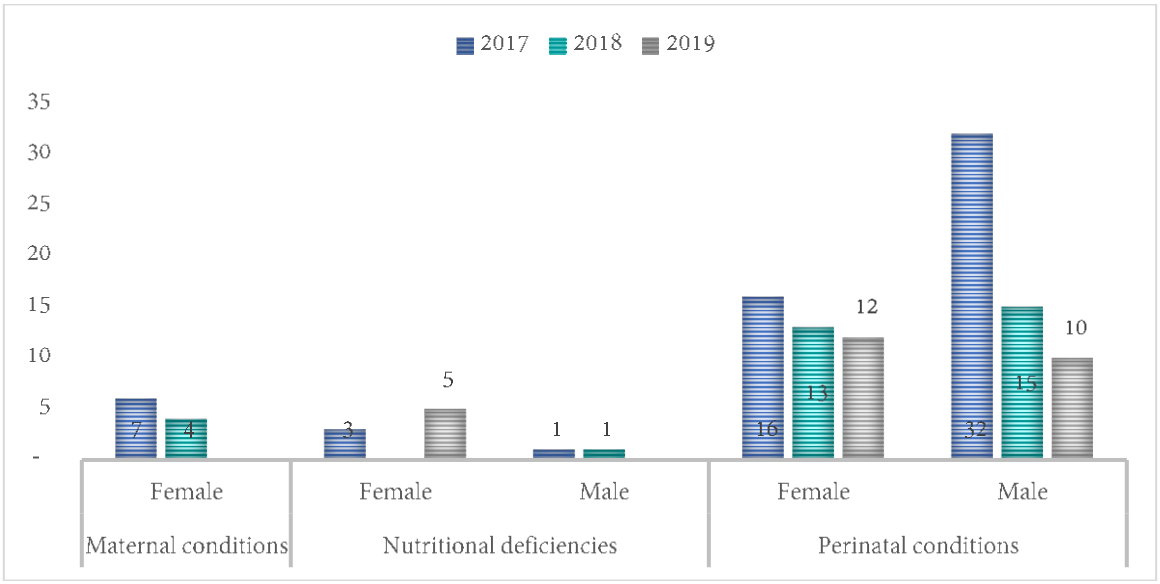
Table 4-32: Respiratory infections deaths by Atolls, 2017, 2018 and 2019

Atolls	2017	2018	2019
Male'	19	21	57
Raa	2	4	3
Seenu		3	3
Noonu		2	1
Gnaviyani	1	2	1
Outside Maldives	1	1	8
Dhaalu		1	
Lhaviyani	2	1	3
Gaafu Dhaalu	1	1	2
Haa Dhaalu		1	4
Laamu		1	
Alifu Alifu		1	
Baa			1
Haa Alifu			3
Shaviyani			1
Kaafu			1
Total	**26**	**39**	**88**

4.5.3 OTHER COMMUNICABLE DISEASE CONDITIONS

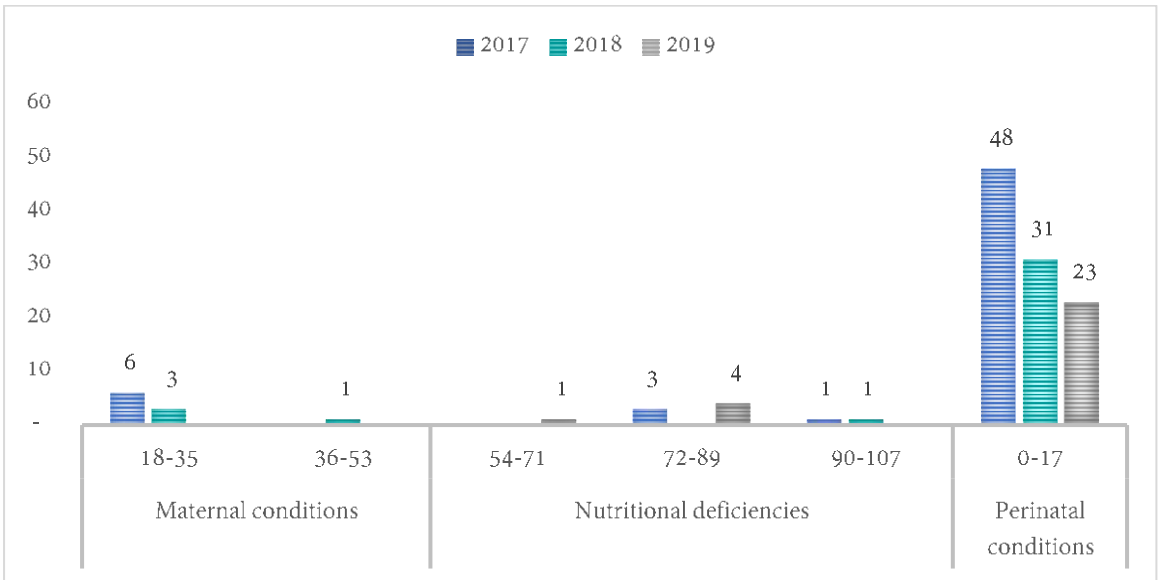
In this sub-section, maternal, perinatal and nutritional diseases are covered. Highest deaths occurred in perinatal conditions for both genders. There was a total of 7 maternal deaths in 2017, 4 deaths in 2018 and none in 2019.

Figure 4-50: Other communicable disease conditions related deaths by gender, 2017, 2018 and 2019 in numbers



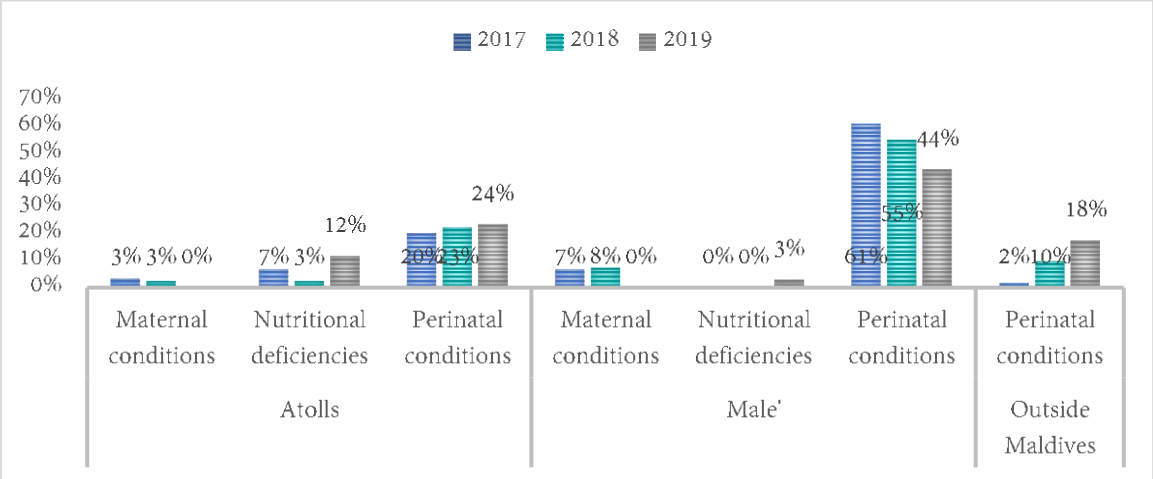
Maternal conditions related deaths are common among women in the reproductive age group 15-39 years in 2017, 2018 and 2019, while deaths due to nutritional deficiencies affected population of higher age group (aged 75+ years) and perinatal deaths occur for young children.

Figure 4-51: Other communicable disease condition related deaths by age groups for 2017, 2018 and 2019, in numbers



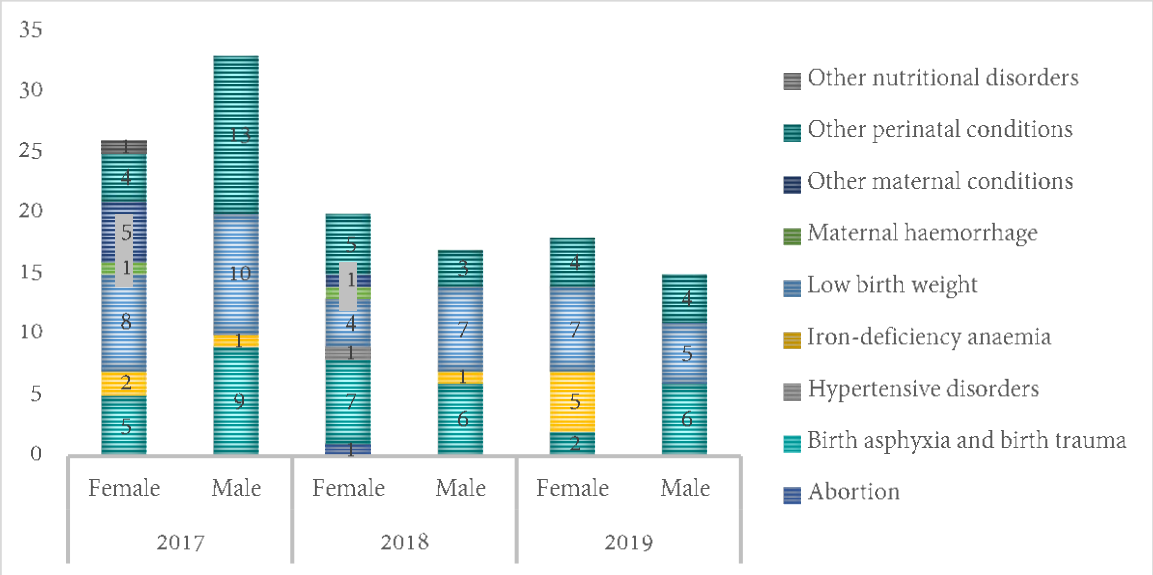
Maternal and perinatal deaths were more common in Male', while all the deaths for nutritional deficiencies occurred in atolls.

Figure 4-52: Other communicable disease condition related deaths by geographic locations for 2017, 2018 and 2019, in numbers



Other maternal conditions peaked for maternal deaths while iron-deficiency anemia peaked for nutritional deficiencies related deaths and other perinatal conditions peaked for perinatal conditions.

Figure 4-53: Other communicable diseases deaths sub-groups by gender for 2017, 2018 and 2019, in numbers



4.6 ANNEXES

Table 4-33: Sub-groups up to level 3 of global burden of diseases categories for non-communicable disease categories by location, age and gender, 2017, 2018 and 2019

NCDs	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Cardiovascular diseases	186	327	513	152	273	425	111	232	343
Cerebrovascular disease	28	66	94	28	57	85	28	55	83
0-17		1	1						
18-35	2	5	7		1	1	1	2	3
36-53		2	2	2	3	5	1	2	3
54-71	9	17	26	4	16	20	6	17	23
72-89	17	37	54	21	37	58	20	30	50
90-107		4	4	1		1		4	4
Hypertensive heart disease	32	41	73	12	24	36	16	13	29
18-35					2	2	1	1	2
36-53		2	2				1	1	2
54-71	5	5	10	2	2	4	5	3	8
72-89	26	29	55	10	18	28	6	5	11
90-107	1	5	6		2	2	3	3	6
Inflammatory heart diseases	6	8	14		6	6	2	2	4
0-17	1		1						
18-35							1		1
36-53	1	1	2		3	3	1		1
54-71	1	4	5		1	1			
72-89	3	3	6		2	2		2	2
Ischaemic heart disease	48	95	143	40	92	132	32	83	115
0-17							1	3	4
18-35		7	7	2	4	6		1	1
36-53	1	13	14	4	13	17	2	17	19
54-71	17	23	40	11	24	35	10	24	34
72-89	30	48	78	22	46	68	18	36	54
90-107		4	4	1	5	6	1	2	3
Other cardiovascular diseases	71	116	187	72	94	166	33	79	112
0-17	4	6	10	1	3	4	1	1	2
18-35	5	10	15	2	9	11	3	6	9
36-53	2	10	12	4	11	15	2	15	17
54-71	15	25	40	16	22	38	8	23	31
72-89	38	57	95	42	47	89	13	33	46
90-107	7	8	15	7	2	9	6	1	7
Rheumatic heart disease	1	1	2						
18-35		1	1						
72-89	1		1						
Congenital anomalies	5	5	10	6	6	12	4	6	10
Anencephaly					1	1		1	1

NCDs	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
0-17					1	1		1	1
Congenital heart anomalies	**2**		**2**	**1**	**2**	**3**	**1**	**2**	**3**
0-17	1		1	1	2	3	1	2	3
18-35	1		1						
Down syndrome	**1**		**1**		**1**	**1**		**1**	**1**
0-17	1		1		1	1			
36-53								1	1
Other Congenital anomalies	**2**	**4**	**6**	**5**	**2**	**7**	**3**	**2**	**5**
0-17	1	4	5	4	1	5	3	1	4
36-53					1	1			
54-71								1	1
72-89	1		1	1		1			
Abdominal wall defect		**1**	**1**						
0-17		1	1						
Diabetes mellitus	**12**	**23**	**35**	**16**	**16**	**32**	**10**	**10**	**20**
Not categorised / Multiple Sub-categories	**12**	**23**	**35**	**16**	**16**	**32**	**10**	**10**	**20**
Digestive diseases	**9**	**11**	**20**	**4**	**18**	**22**	**2**	**15**	**17**
Cirrhosis of the liver	**3**	**1**	**4**		**2**	**2**		**2**	**2**
18-35		1	1						
36-53								1	1
54-71	1		1						
72-89	2		2		1	1		1	1
90-107					1	1			
Other digestive diseases	**6**	**10**	**16**	**3**	**16**	**19**	**2**	**13**	**15**
0-17					1	1			
36-53	1	2	3		2	2	1	1	2
54-71	3	4	7		3	3		3	3
72-89	2	4	6	3	10	13		7	7
90-107							1	2	3
Peptic ulcer disease				**1**		**1**			
90-107				1		1			
Endocrine disorders	**14**	**17**	**31**	**17**	**16**	**33**	**10**	**12**	**22**
Not categorised / Multiple Sub-categories	**14**	**17**	**31**	**17**	**16**	**33**	**10**	**12**	**22**
Genitourinary diseases	**24**	**30**	**54**	**33**	**38**	**71**	**24**	**31**	**55**
Benign prostatic hypertrophy		**1**	**1**		**1**	**1**		**2**	**2**
72-89		1	1		1	1		1	1
90-107								1	1
Nephritis and nephrosis	**13**	**15**	**28**	**23**	**28**	**51**	**20**	**21**	**41**
0-17							1		1
18-35	1		1	1	3	4		1	1
36-53	1	1	2	3	1	4	4	4	8

NCDs	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
54-71	2	4	6	4	5	9	8	4	12
72-89	8	9	17	12	17	29	7	11	18
90-107	1	1	2	3	2	5		1	1
Other genitourinary system diseases	**11**	**14**	**25**	**10**	**9**	**19**	**4**	**8**	**12**
18-35				1		1			
36-53	1		1	1		1			
54-71	1	3	4	2	2	4		3	3
72-89	8	10	18	5	7	12	4	5	9
90-107	1	1	2	1		1			
Malignant neoplasms	**31**	**58**	**89**	**37**	**61**	**98**	**39**	**61**	**100**
Bladder cancer		**1**	**1**		**1**	**1**	**2**	**3**	**5**
36-53					1	1	1		1
72-89							1	2	3
90-107		1	1					1	1
Breast cancer	**1**		**1**	**4**		**4**	**3**		**3**
36-53				2		2	2		2
54-71	1		1	1		1	1		1
72-89				1		1			
Cervix uteri cancer	**2**		**2**	**1**		**1**	**3**		**3**
54-71	2		2				1		1
72-89				1		1	2		2
Colon and rectum cancers		**2**	**2**	**3**	**3**	**6**	**3**	**1**	**4**
36-53					1	1	2		2
54-71				2	1	3	1		1
72-89		2	2	1	1	2		1	1
Corpus uteri cancer				**1**		**1**	**3**		**3**
54-71				1		1	1		1
72-89							2		2
Leukaemia	**1**	**1**	**2**	**1**	**3**	**4**	**4**	**4**	**8**
18-35					1	1	1		1
36-53								1	1
54-71	1		1		1	1	1	1	2
72-89		1	1	1	1	2	2	2	4
Liver cancer		**7**	**7**	**4**	**6**	**10**	**3**	**13**	**16**
36-53		1	1	1		1		1	1
54-71		6	6	2	5	7	2	8	10
72-89				1	1	2	1	4	5
Lymphomas, multiple myeloma	**1**	**4**	**5**	**1**	**1**	**2**		**1**	**1**
54-71		3	3						
72-89	1	1	2	1	1	2		1	1
Mouth and oropharynx cancers		**4**	**4**	**2**	**4**	**6**		**2**	**2**

NCDs	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
36-53					1	1			
54-71				2	2	4		1	1
72-89		4	4		1	1		1	1
Oesophagus cancer		**1**	**1**	**1**	**1**	**2**	**1**	**1**	**2**
36-53				1		1			
54-71		1	1					1	1
72-89					1	1	1		1
Other malignant neoplasms	**19**	**31**	**50**	**10**	**18**	**28**	**4**	**11**	**15**
18-35	2	1	3	1	1	2		2	2
36-53	5	5	10	2	3	5	1		1
54-71	8	19	27	5	3	8	2	4	6
72-89	4	6	10	2	10	12	1	5	6
90-107					1	1			
Ovary cancer	**5**		**5**	**3**		**3**	**3**		**3**
36-53				1		1	2		2
54-71	1		1				1		1
72-89	4		4	2		2			
Pancreas cancer	**1**	**1**	**2**	**1**	**3**	**4**	**1**	**2**	**3**
54-71		1	1		2	2	1		1
72-89	1		1	1	1	2		2	2
Prostate cancer		**2**	**2**		**3**	**3**		**3**	**3**
54-71					1	1			
72-89		2	2		2	2		3	3
Stomach cancer					**2**	**2**	**1**	**1**	**2**
36-53					1	1			
72-89					1	1	1	1	2
Trachea, bronchus, lung cancers	**1**	**4**	**5**	**5**	**16**	**21**	**8**	**19**	**27**
18-35					1	1		1	1
36-53		1	1	1	1	2	1	4	5
54-71		1	1	1	6	7	4	8	12
72-89	1	2	3	3	8	11	3	6	9
Musculoskeletal diseases		**1**	**1**	**1**	**2**	**3**	**2**		**2**
Osteoarthritis					**1**	**1**			
72-89					1	1			
Other musculoskeletal disorders		**1**	**1**	**1**	**1**	**2**	**2**		**2**
18-35				1		1			
54-71		1	1		1	1	2		2
Neuropsychiatric conditions	**10**	**20**	**30**	**8**	**12**	**20**	**10**	**9**	**19**
Alzheimer and other dementias		**2**	**2**	**2**	**2**	**4**		**2**	**2**
0-17					1	1			
36-53					1	1			
54-71		1	1						

NCDs	2017 Female	2017 Male	2017 Total	2018 Female	2018 Male	2018 Total	2019 Female	2019 Male	2019 Total
72-89		1	1	2		2			
90-107								2	2
Epilepsy		**1**	**1**				**3**	**1**	**4**
18-35							1		1
36-53		1	1				1		1
72-89							1	1	2
Other neuropsychiatric disorders	**7**	**15**	**22**	**5**	**9**	**14**	**7**	**5**	**12**
0-17	2	5	7		2	2	1	1	2
18-35	1	2	3	1	5	6	4		4
36-53	1	3	4	1		1	1		1
54-71	1	1	2	2	1	3		1	1
72-89	2	3	5	1	1	2	1	3	4
90-107		1	1						
Parkinson disease	**2**	**1**	**3**	**1**	**1**	**2**		**1**	**1**
54-71					1	1			
72-89	2	1	3	1		1		1	1
Unipolar depressive disorders		**1**	**1**						
18-35		1	1						
Schizophrenia	**1**		**1**						
72-89	1		1						
Not categorised / Multiple Sub-categories				**1**		**1**			
Not categorised / Multiple Sub-categories				**1**		**1**			
Other neoplasms	**1**	**4**	**5**	**4**	**9**	**13**	**2**	**3**	**5**
Not categorised / Multiple Sub-categories	**1**	**4**	**5**	**4**	**9**	**13**	**2**	**3**	**5**
Respiratory diseases	**67**	**62**	**129**	**88**	**81**	**169**	**68**	**92**	**160**
Asthma	**5**	**2**	**7**	**7**	**3**	**10**	**1**	**2**	**3**
18-35		1	1	1		1			
36-53	1		1	1		1			
54-71	3		3	2	1	3			
72-89	1	1	2	3	2	5	1	2	3
Chronic obstructive pulmonary disease	**37**	**21**	**58**	**47**	**38**	**85**	**37**	**41**	**78**
0-17					1	1	1	1	2
18-35					1	1		1	1
36-53	2	1	3					5	5
54-71	2	6	8	6	8	14	5	6	11
72-89	29	13	42	36	26	62	29	22	51
90-107	4	1	5	5	2	7	2	6	8
Other respiratory diseases	**25**	**39**	**64**	**34**	**40**	**74**	**30**	**49**	**79**

NCDs	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
0-17	2		2		1	1	1	1	2
18-35	2	2	4		1	1	2		2
36-53	1	1	2	2	3	5	2	5	7
54-71	3	12	15	7	14	21	7	11	18
72-89	17	20	37	24	20	44	18	29	47
90-107		4	4	1	1	2		3	3
Skin diseases		**3**	**3**	**1**	**4**	**5**	**1**		**1**
Not categorised / Multiple Sub-categories		**3**	**3**	**1**	**4**	**5**	**1**		**1**
Total	**359**	**561**	**920**	**368**	**536**	**904**	**283**	**471**	**754**

Table 4-34: Sub-groups up to level 3 of global burden of diseases categories for communicable, maternal, perinatal and nutritional conditions by age and gender, 2017, 2018 and 2019

Communicable, maternal, perinatal & nutritional conditions	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Infectious and parasitic diseases	**27**	**39**	**66**	**20**	**29**	**49**	**30**	**40**	**70**
Dengue				**1**	**2**	**3**	**2**	**1**	**3**
0-17					1	1	2		2
36-53				1	1	2			
54-71								1	1
Diarrhoeal diseases	**3**		**3**		**1**	**1**	**1**		**1**
0-17	1		1						
18-35							1		1
54-71	2		2						
72-89					1	1			
Hepatitis B	**1**		**1**				**1**		**1**
54-71	1		1						
72-89							1		1
Meningitis				**1**		**1**			
0-17				1		1			
Other infectious diseases	**20**	**31**	**51**	**14**	**21**	**35**	**24**	**35**	**59**
0-17	1	1	2		1	1		1	1
18-35		4	4		2	2		2	2
36-53	1	4	5		3	3		1	1
54-71	8	6	14	4	3	7	11	9	20
72-89	9	16	25	10	9	19	11	18	29
90-107	1		1		3	3	2	4	6
Tuberculosis	**3**	**7**	**10**	**4**	**5**	**9**	**2**	**4**	**6**
18-35					1	1			
54-71	1	1	2	2	2	4	1		1
72-89	2	6	8	2	2	4	1	4	5
Childhood-cluster diseases		**1**	**1**						

Communicable, maternal, perinatal & nutritional conditions	2017		2017	2018		2018	2019		2019
	Female	Male	Total	Female	Male	Total	Female	Male	Total
36-53		1	1						
Maternal conditions	6		6	4		4			
Abortion				1		1			
18-35				1		1			
Hypertensive disorders				1		1			
18-35				1		1			
Maternal haemorrhage	1		1	1		1			
18-35	1		1						
36-53				1		1			
Other maternal conditions	5		5	1		1			
18-35	5		5	1		1			
Nutritional deficiencies	3	1	4		1	1	5		5
Iron-deficiency anaemia	2	1	3		1	1	5		5
54-71							1		1
72-89	2	1	3				4		4
90-107					1	1			
Other nutritional disorders	1		1						
90-107	1		1						
Perinatal conditions	17	32	49	16	16	32	13	15	28
Birth asphyxia and birth trauma	5	9	14	7	6	13	2	6	8
0-17	5	9	14	7	6	13	2	6	8
Low birth weight	8	10	18	4	7	11	7	5	12
0-17	8	10	18	4	7	11	7	5	12
Other perinatal conditions	4	13	17	5	3	8	4	4	8
0-17	4	13	17	5	3	8	4	4	8
Respiratory infections	13	13	26	16	23	39	30	58	88
Lower respiratory infections	12	13	25	16	21	37	30	56	86
0-17								1	1
18-35	1		1	1		1	2	6	8
36-53	1		1		2	2	5	2	7
54-71	2	2	4	2	7	9	5	9	14
72-89	6	9	15	12	12	24	16	32	48
90-107	2	2	4	1		1	2	6	8
Otitis media					1	1			
54-71					1	1			
Upper respiratory infections	1		1		1	1		2	2
72-89	1		1		1	1		2	2
Total	66	85	151	56	69	125	78	113	191

Table 4-35: Sub-groups up to level 3 of global burden of diseases categories for other disease groups by age and gender, 2017, 2018 and 2019

Other disease groups	2017		2017 Total	2018		2018 Total	2019		2019 Total
	Female	Male		Female	Male		Female	Male	
Ill-defined diseases	57	117	174	64	119	183	43	92	135
Not categorised / Multiple Sub-categories	57	117	174	64	119	183	43	92	135
Ill-defined injuries/accidents		2	2		4	4		4	4
Not categorised / Multiple Sub-categories		2	2		4	4		4	4
Injuries	11	29	40	7	47	54	10	26	36
Intentional injuries		2	2		4	4		5	5
Not categorised / Multiple Sub-categories		2	2		2	2		1	1
Self-inflicted injuries					2	2		4	4
18-35					2	2			
36-53								3	3
72-89								1	1
Unintentional injuries	11	27	38	7	43	50	10	21	31
Drownings	7	16	23	1	15	16		9	9
0-17		1	1		2	2			
18-35	3	8	11		5	5		4	4
36-53	1	3	4		3	3		3	3
54-71	3	2	5	1		1			
72-89		2	2		4	4		2	2
9990-10007					1	1			
Falls		1	1	1	2	3	2	2	4
18-35								1	1
36-53		1	1		1	1	1		1
72-89					1	1	1	1	2
90-107				1		1			
Fires							1		1
36-53							1		1
Other unintentional injuries	4	7	11	5	18	23	7	7	14
0-17				2	1	3		1	1
18-35					2	2			
36-53					1	1	1		1
54-71		3	3		6	6	2	1	3

Other disease groups	2017		2017 Total	2018		2018 Total	2019		2019 Total
	Female	Male		Female	Male		Female	Male	
72-89	4	4	8	3	6	9	4	5	9
90-107					2	2			
Road traffic accidents		3	3		8	8		3	3
0-17		1	1					1	1
18-35		1	1		5	5			
36-53								1	1
54-71		1	1					1	1
72-89					3	3			
Not categorised	5	21	26	8	20	28	3	8	11
Not categorised / Multiple Sub-categories	5	21	26	8	20	28	3	8	11
Total	73	169	242	79	190	269	56	130	186


PUBLIC HEALTH

5 CHAPTER 5 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" [25]. 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 and Thalassemia.

5.1. IMMUNIZATION AND VACCINATION

Table 5-1: Key finding of MDHS on immunization coverage by percentage, 2016-17

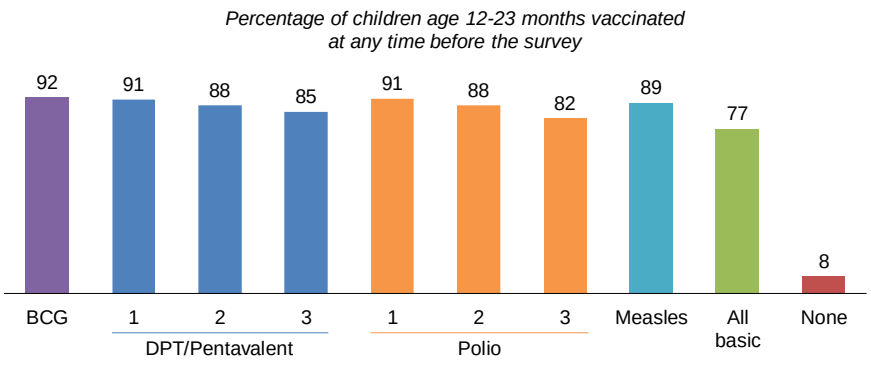
Immunization coverage rate	MDHS 2016-17
BCG	92%
OPV 3rd Dose	82%
Pentavalent Vaccine (DTP+HEP B+HIB) 3rd Dose	85%
Measles	89%
All basic vaccinations	77%

Definitions: Immunization coverage rate by vaccine for each vaccine in the national schedule is defined by WHO [1] 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".

Immunization is a safe and effective way to protect against harmful communicable diseases and, at the population level, prevent the spread of these diseases among the community.

In Maldives, routine immunization begins at birth, and includes vaccines against 17 diseases. Based on MDHS 2016-17 findings, 77% of children aged 12-23 months had received all basic vaccinations in the National Immunization Schedule [26].

Figure 5-1: Childhood vaccination



5.2. EXCLUSIVE BREAST FEEDING

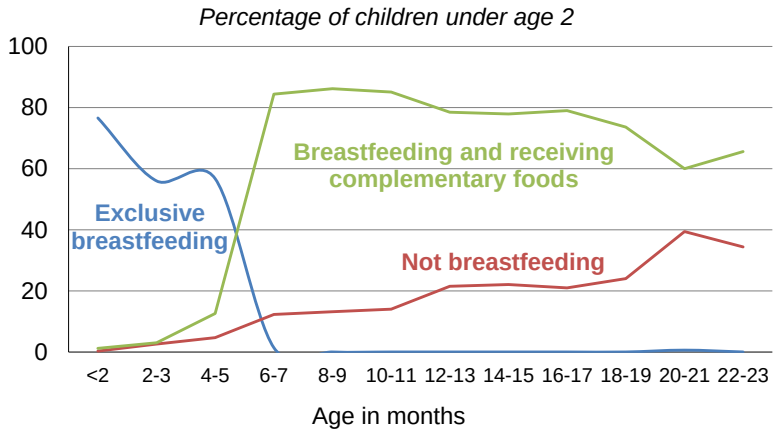
The most recent data on exclusive breastfeeding [27] is available from Maldives Demographic and Health Survey [MDHS] 2016-17 [26]. According to this survey, (64%) of infants under age 6 months are exclusively breastfed.

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.

Figure 5-2: Breastfeeding practice by age

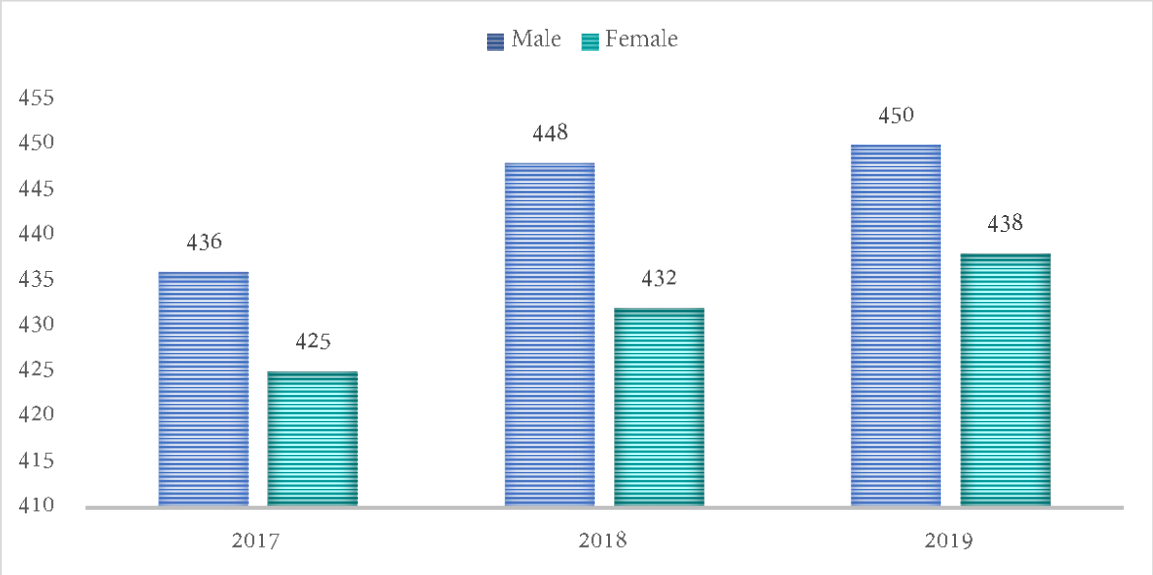


5.3. PUBLIC HEALTH SERVICES

5.3.1 THALASSAEMIA MAJOR

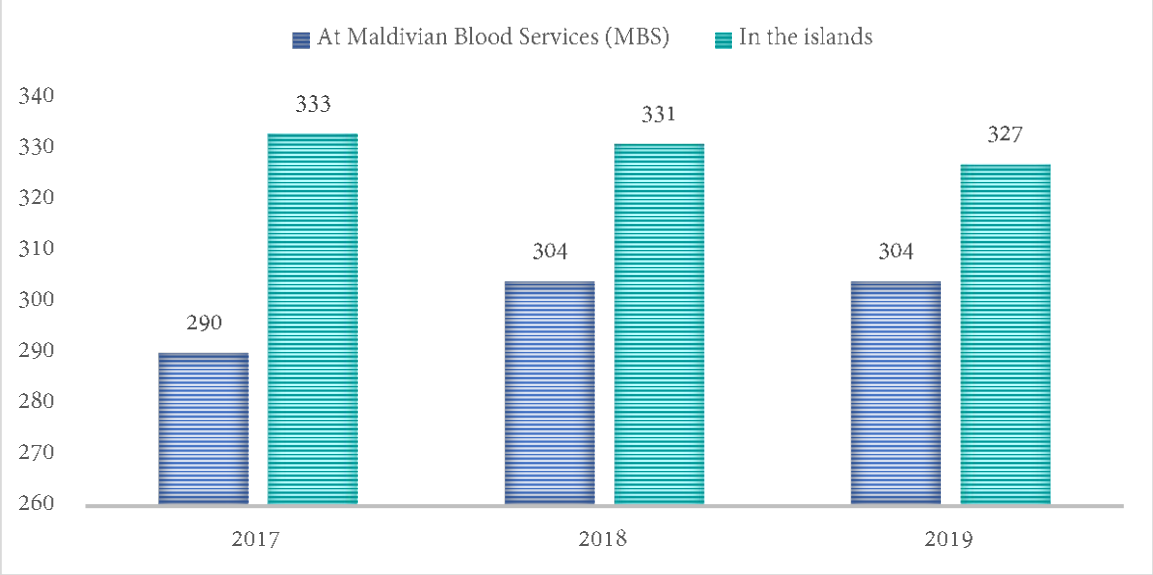
According to Maldives Blood Services (MBS) there were a total of 861, 880 and 888 registered Thalassemia major cases in 2017, 2018 and 2019 respectively in Maldives. It can be seen that there were more thalassemic males than females.

Figure 5-3: Registered Thalassemia cases in Maldives, 2017, 2018 and 2019



In addition, there were a total of 623, 635 and 631 thalassemic taking treatment in 2017, 2018 and 2019 respectively, with 11 and 19 new cases for 2017, 2018 and 2019.

Figure 5-4: Number of Thalassemics taking treatment in 2017, 2018 and 2019

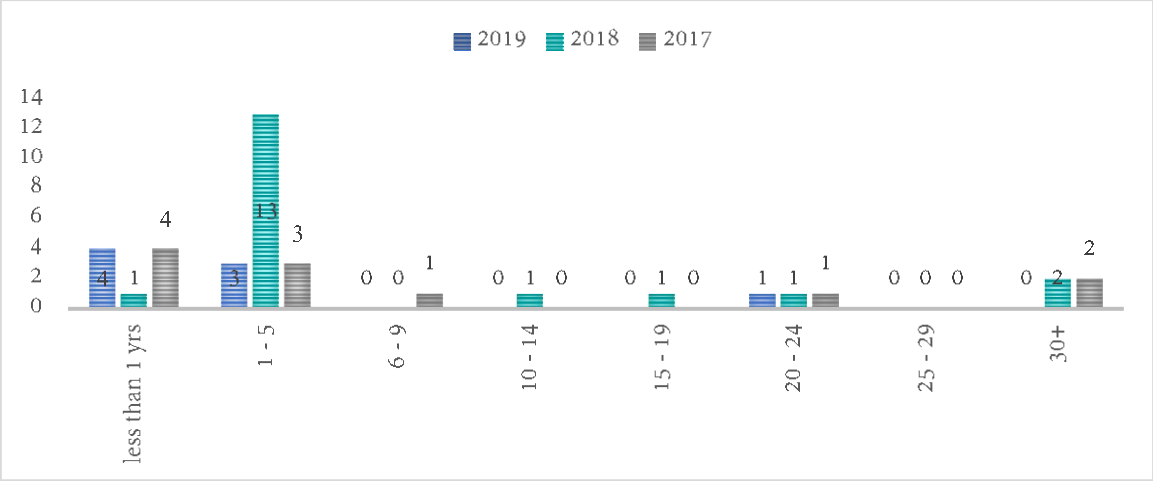


Equation 5.3-1: Prevalence Equation

$$Prevalence = \frac{\text{Number of Thalassemics}}{\text{Total population at the time}} x\ 100$$

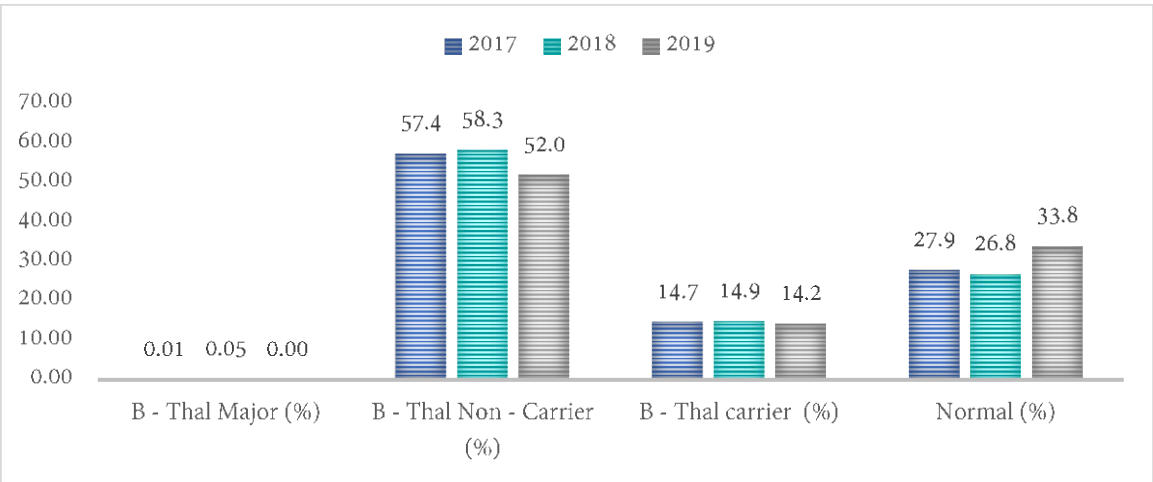
With a population of 427,964, 442,883 and 458,706 for 2017, 2018 and 2019, the prevalence of Thalassemia in Maldives is 0.20%, 0.2% and 0.19% for 2017, 2018 and 2019. The number of new cases registered by age-group show that the peak of registration was between 1-5 years.

Figure 5-5: Number of registered Thalassemia Major cases by age-groups, 2017, 2018 and 2019



One of the services offered at MBS is Thalassemic screening. There was a total of 5,751 people screened in 2017, 3,968 screened in 2018 and 3,107 in 2019. From this, almost 60% were B-Thal Non-Careers.

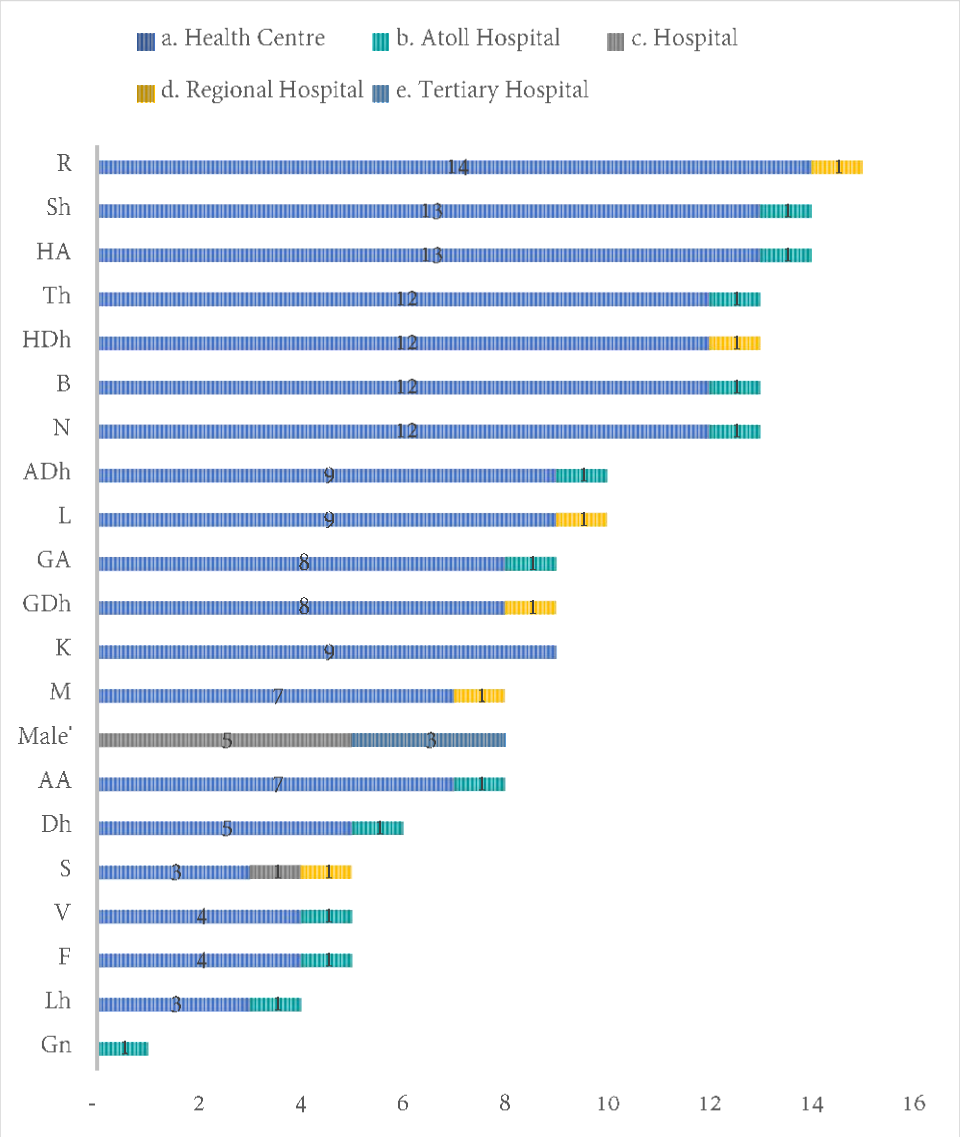
Figure 5-6: Persons screened for Thalassemia in per cent, 2017, 2018 and 2019



5.4. HEALTH SERVICE AVAILABILITY

General service availability refers to the physical presence for delivery of health services that meet a minimum standard. Availability comprises health infrastructure (facilities and beds per 10,000 population), the health workforce per 10,000 population and aspects of service utilization (inpatient/outpatient visits per 10,000 population) [28].

Figure 5-7: Total health facilities in regions by type of health facility, 2019



One of the key indicators to measure health service availability is the number and distribution of health facilities per 10,000 population. This is measured as the number of health facilities available relative to the total population for the same geographical area. Therefore, the equation is represented as:

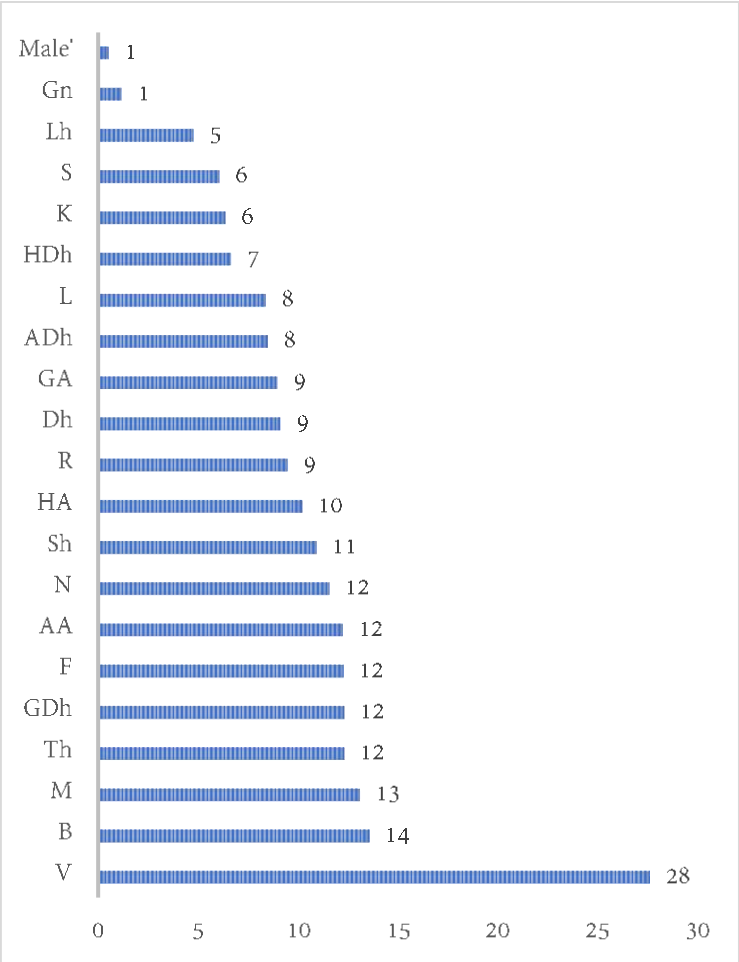
Equation 5.4-1: Number of health facilities available relative to total population

$$Health\ facilities\ relative\ to\ population = \frac{All\ private\ and\ public\ health\ facilities\ in\ an\ area}{Total\ population\ for\ the\ same\ geographic\ area}\ x\ 10{,}000$$

- Numerator: the number of health facilities, i.e. all public and private health facilities, defined as a static facility (a designated building) in which general health services are offered. It does not include mobile service delivery points and non-formal services, such as traditional healers.
- Denominator: the total population for the same geographical area.

Based on this equation, South Central region has 11 health facilities per 10,000 population, while Male' region has one facility per 10,000 population.

Figure 5-8: Number and distribution of health facilities per 10 000 population, 2019

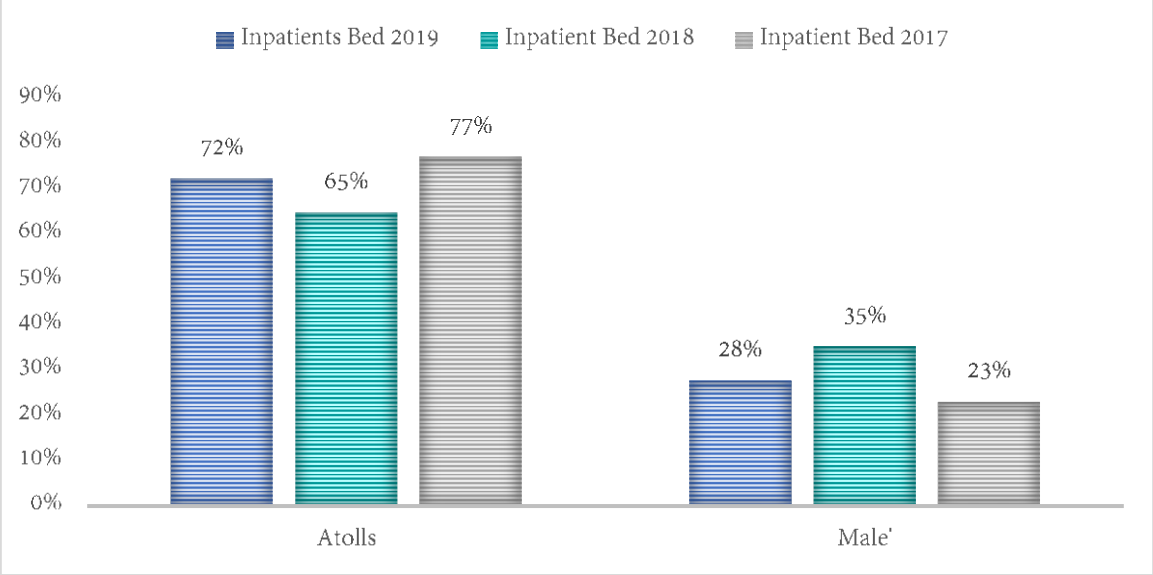


3.4.1 INPATIENT BEDS

Service delivery is an important component of health systems. To capture availability, access and distribution of health services delivery, a range of indicators or a composite indicator is needed. Currently, there is no such data for the majority of countries. In-patient beds density is one of the few available indicators on a component of level of health service delivery.

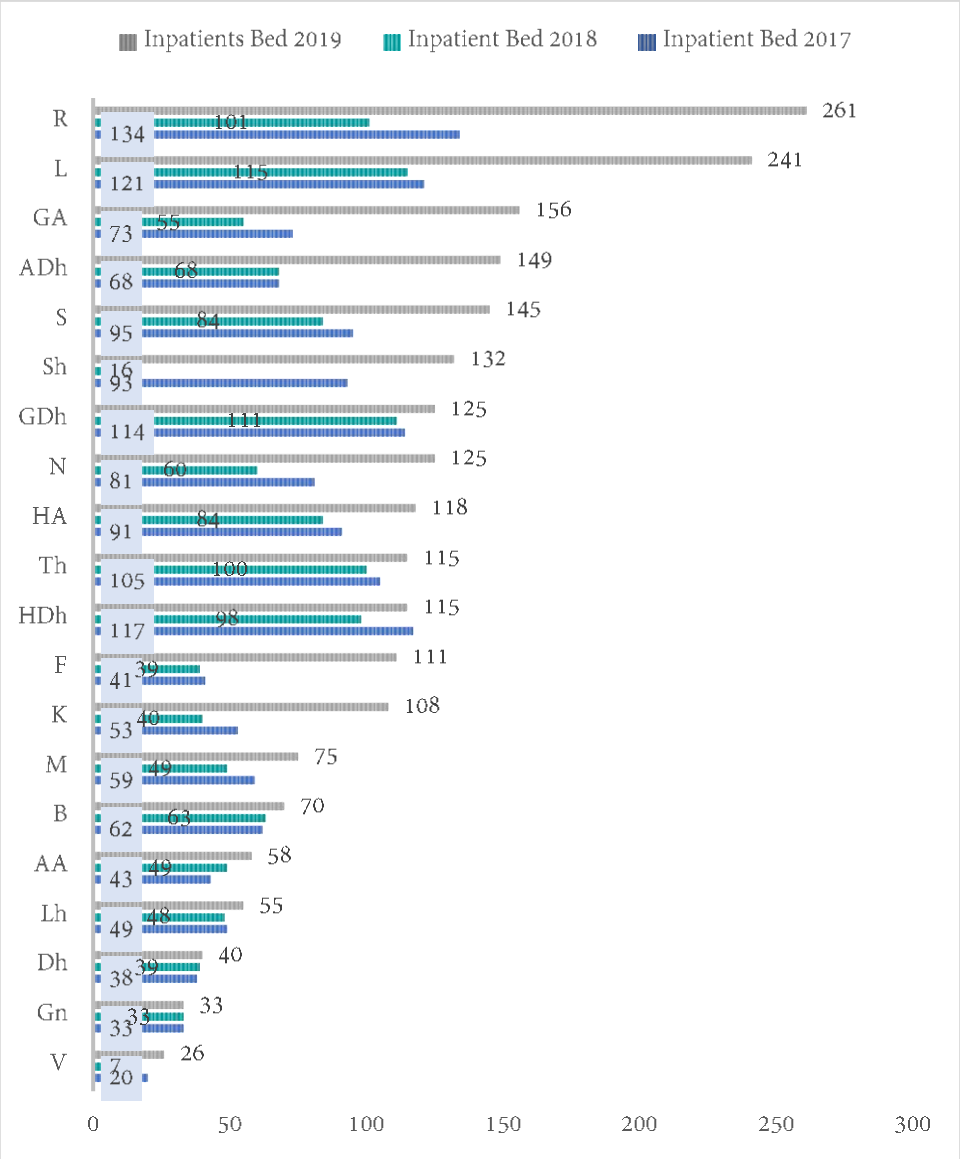
It is notable that from 2017-2018, inpatient bed increased in Male' region, while this decreased from 2018-2019.

Figure 5-9: Total inpatients beds for Atolls and Male', 2017, 2018 and 2019



Excluding, Male', atoll level disaggregation of hospital beds (which includes health center beds as well), shows that Seenu, Gaaf Dhaal and Laamu atoll has the highest number of beds in 2018.

Figure 5-10: Total inpatients beds for Atolls, 2017, 2018 and 2019

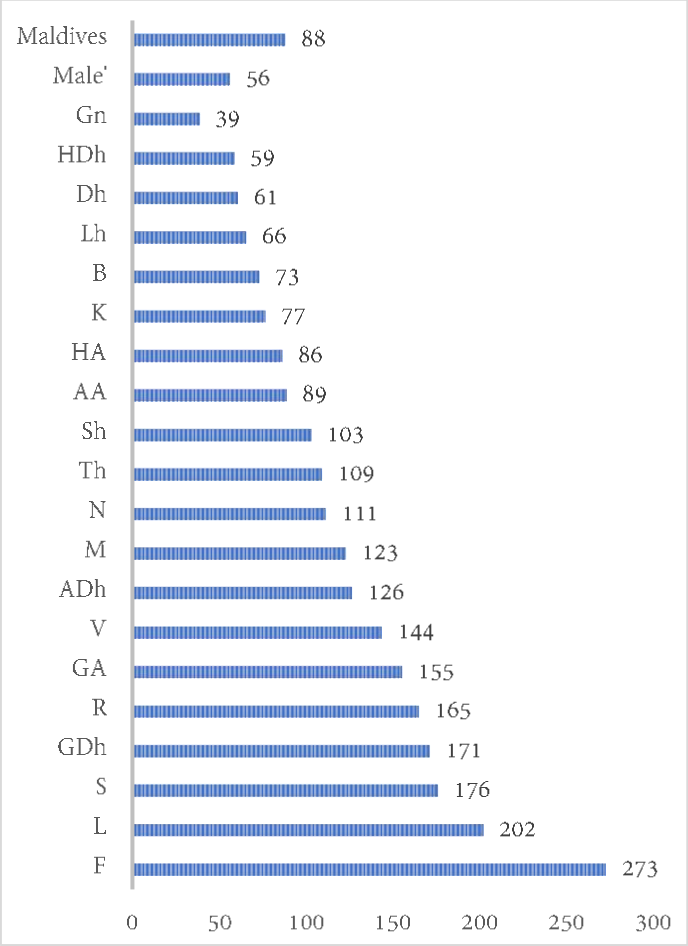


The number of inpatient beds is available relative to the total population for the same geographical area. This is defined as number of in-patient beds per 100,000 population [29]. However, due to the small population of Maldives this indicator is adapted for 10,000 population. Hence, this can be calculated using:

Equation 5.4-2: Number and distribution of inpatient beds

$$Number\ \&\ distribution\ of\ inpatient\ beds = \frac{No.\ of\ inpatient\ bed}{Total\ population\ for\ the\ same\ geographic\ area}\ x\ 10{,}000$$

Figure 5-11: Number of inpatient beds available relative to the total population in Atolls and Male', 2019



- Numerator: the number of inpatient beds. This includes total hospital beds (for long-term and acute care), maternity beds and pediatric beds, but not delivery beds. Public and private sectors are included.
- Denominator: the total population for the same geographical area (atoll).

5.5. OUTPATIENTS

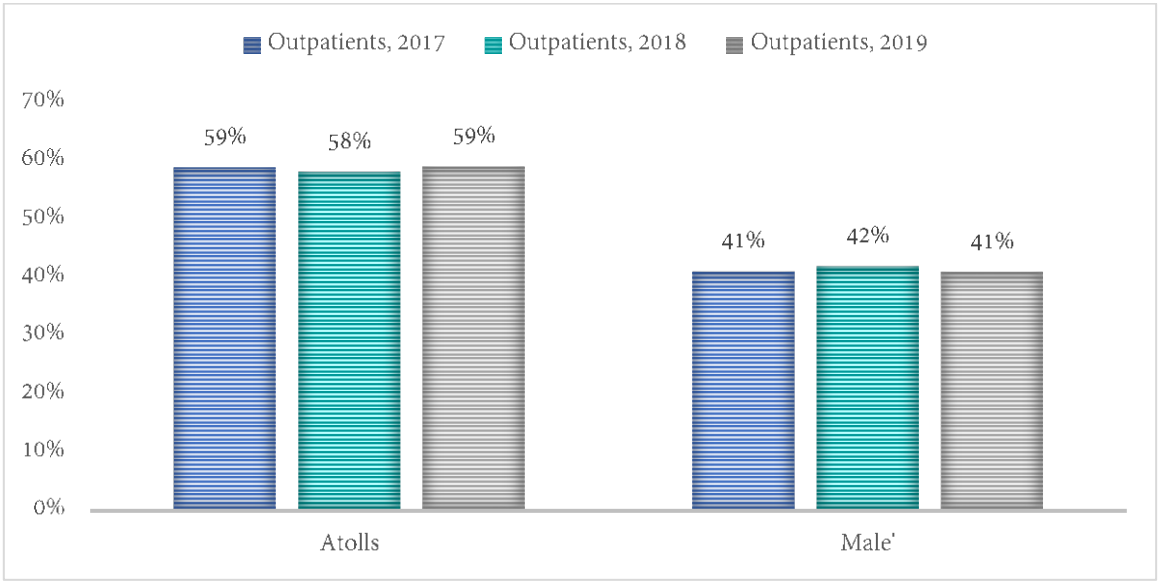
Unlike inpatients [6], outpatients increased in Maldives. Male' shows the biggest increase.

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 5-2: Total outpatients in Atolls and Male', 2017, 2018 and 2019 in numbers

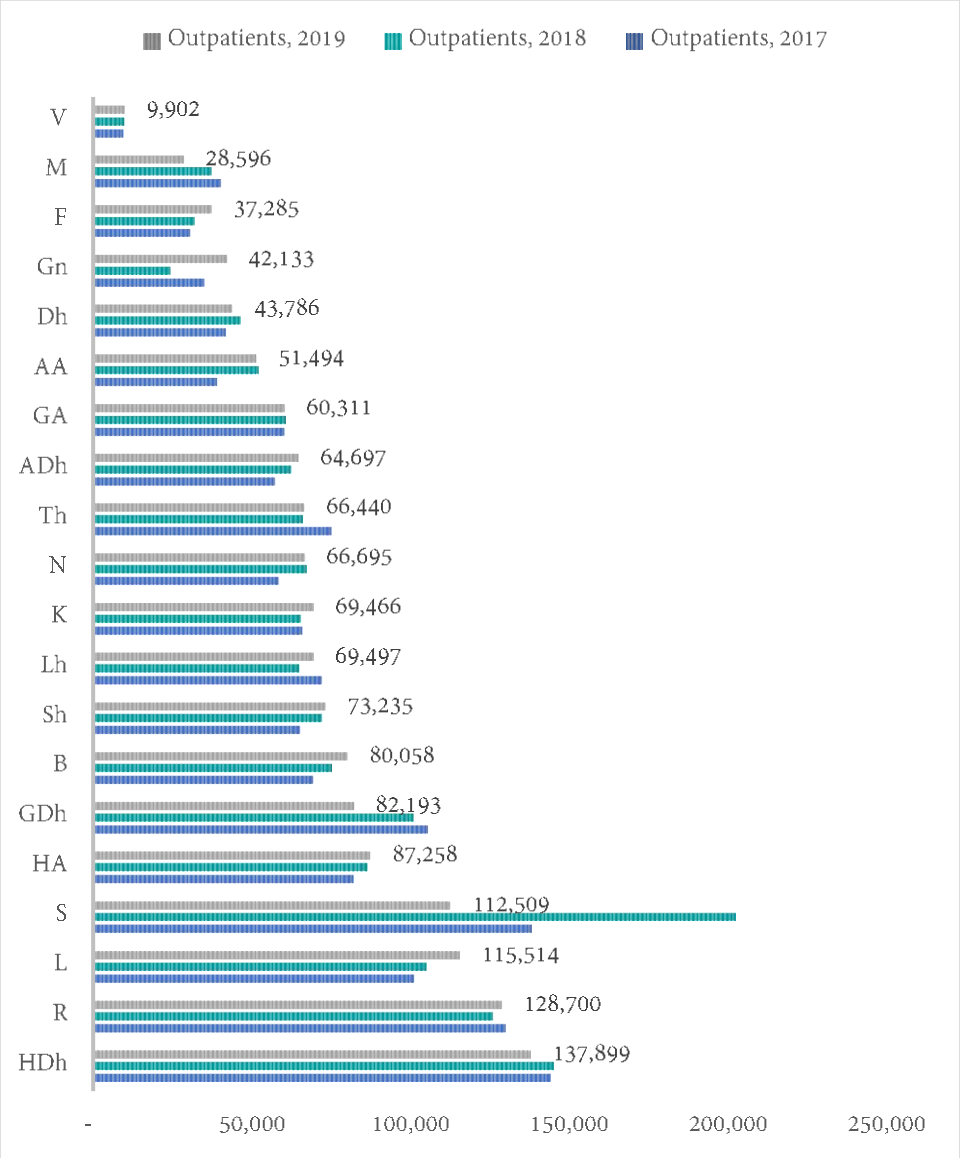
Location	2017	2018	2019
Atolls	1,420,577	1,502,667	1,427,668
Male'	989,606	1,084,754	991,177
Total	**2,410,183**	**2,587,421**	**2,418,845**

Figure 5-12: Total outpatients in Atolls and Male', 2017, 2018 and 2019 in percent



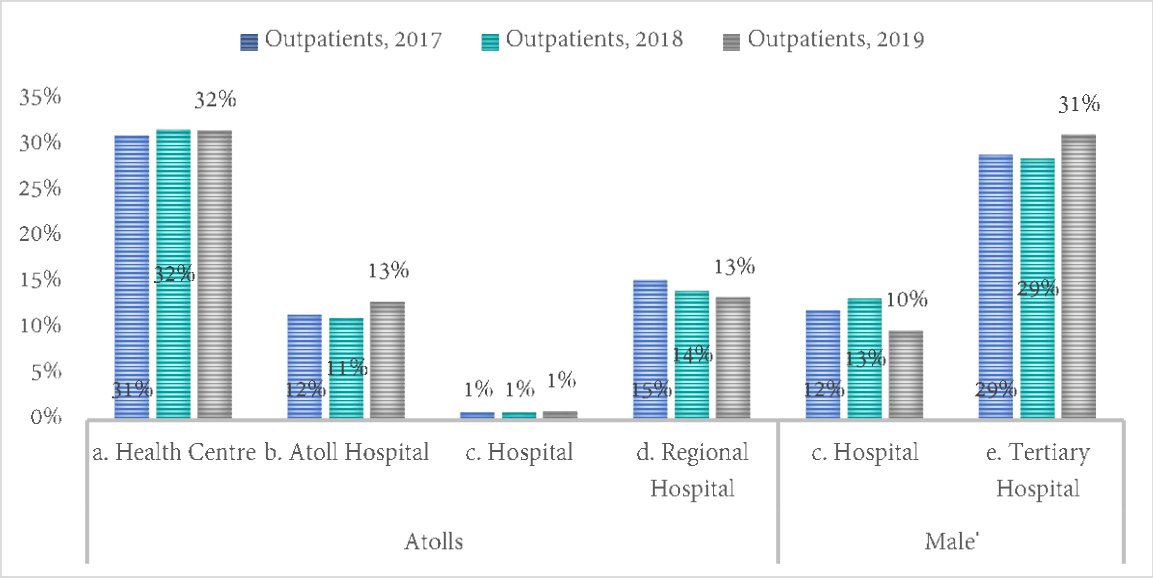
Excluding Male', when disaggregated by atoll, Haa Dhaal, Raa and Laamu had the highest number of outpatients in 2019, while Seenu atoll had a huge peak compared to all other atolls in number of outpatients in 2018.

Figure 5-13: Outpatients in the atolls of Maldives, 2017, 2018 and 2019



Except a slight decrease in regional hospital, all other types of health facilities showed an increase in outpatients in 2019.

Figure 5-14: Total outpatients by type of health facility, 2017, 2018 and 2019[32]



Detailed tables on public health programmatic data are attached as annex tables.

[32] *Hospitals include Villimale, Hulhumale and IMDC hospital.*

5.6. ANNEXES

Table 5-3: Registered Thalassemia cases in Maldives, 2017, 2018 and 2019

Details	Description	2017	2018	2019
Number of cases registered		861	880	889
	Male	436	448	450
	Female	425	432	438
Total deaths		10	8	11
	Male'	5	-	5
	Atolls	5	8	6
Total New cases		11	19	11
	Male'	5	1	8
	Atolls	6	18	3
Number of thalassemic taking treatment		623	635	631
	At Maldivian Blood Services (MBS)	290	304	304
	In the islands	333	331	327

Source: MBS

Table 5-4: Persons screened for Thalassemia, 2017, 2018 and 2019

Year	2017	2018	2019
Number Screened	5751	3968	3107
B - Thal Major (%)	0.01	0.05	0
B - Thal Non - Carrier (%)	57.4	58.3	52.0
B - Thal carrier (%)	14.7	14.9	14.2
Homozygous D (%)	0.03	0	
HbS Trait (%)	0.01	0.01	
HbD Trait (%)	0.38	0.37	
HbE Trait (%)	0.69	0.75	
Repeat (%)	4.29	4.78	
Iron deficiency anemia (%)	1.68	1.66	
Inconclusive (%)	20.7	18.9	

Source: MBS

Table 5-5: Number of registered thalassemia cases by Age group and sex, 2017

Gender	Total	less than 1 yrs	1 - 5	6 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Total	11	4	3	0	0	0	1	0	0
Male	5	2	2	0	0	0	0	0	1
Female	6	3	1	1	0	0	0	0	1

Source: MBS

Table 5-6: Number of registered thalassemia cases by Age group and sex, 2018

Gender	Total	less than 1 yrs.	1 - 5	6 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Total	19	1	13	0	1	1	1	0	2
Male	12	1	6	0	1	1	1	0	2
Female	7	0	7	0	0	0	0	0	0

Source: MBS

Table 5-7: Number of registered thalassemia cases by Age group and sex, 2019

Gender	Total	less than 1 yrs.	1 - 5	6 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Total	8	4	3	0	0	0	1	0	0
Male	2	2	0	0	0	0	0	0	0
Female	6	2	3	0	0	0	1	0	0

Source: MBS

Table 5-8: Awareness programs in Male' (Family court sessions) and in Atoll/Islands, 2017, 2018 and 2019

Year	Male' sessions	Atoll	Island
2017	12	6	21
2018	61	2	5
2019	0	2	2

Source: Dhamanaveshi

Table 5-9: Inpatient Beds for 2017, 2018 and 2019, in numbers

Location	Category	IP Beds 2017	IP Beds 2018	IP Beds 2019
Atolls		1,490	1,259	2,258
AA	a. Health Centre	26	28	42
AA	b. Atoll Hospital	17	21	16
ADh	a. Health Centre	52	52	109
ADh	b. Atoll Hospital	16	16	40
B	a. Health Centre	44	45	46
B	b. Atoll Hospital	18	18	24
Dh	a. Health Centre	23	23	23
Dh	b. Atoll Hospital	15	16	17
F	a. Health Centre	24	16	65
F	b. Atoll Hospital	17	23	46
GA	a. Health Centre	43	41	108
GA	b. Atoll Hospital	30	14	48
GDh	a. Health Centre	67	61	68
GDh	d. Regional Hospital	47	50	57
Gn	b. Atoll Hospital	33	33	33

Location	Category	IP Beds 2017	IP Beds 2018	IP Beds 2019
HA	a. Health Centre	66	63	95
HA	b. Atoll Hospital	25	21	23
HDh	a. Health Centre	63	64	84
HDh	d. Regional Hospital	54	34	31
K	a. Health Centre	53	40	108
L	a. Health Centre	65	63	133
L	d. Regional Hospital	56	52	108
Lh	a. Health Centre	26	28	28
Lh	b. Atoll Hospital	23	20	27
M	a. Health Centre	34	25	44
M	d. Regional Hospital	25	24	31
N	a. Health Centre	63	45	95
N	b. Atoll Hospital	18	15	30
R	a. Health Centre	84	54	163
R	d. Regional Hospital	50	47	98
S	a. Health Centre	37	22	55
S	c. Hospital	16	21	21
S	d. Regional Hospital	42	41	69
Sh	a. Health Centre	79	13	117
Sh	b. Atoll Hospital	14	3	15
Th	a. Health Centre	79	74	87
Th	b. Atoll Hospital	26	26	28
V	a. Health Centre	14	6	14
V	b. Atoll Hospital	6	1	12
Male'		**445**	**686**	**867**
Male'	c. Hospital	51	51	54
Male'	e. Tertiary Hospital	394	635	813
Male'	Public Health		-	
Total		**1,935**	**1,945**	**3,125**

Table 5-10: Outpatients in numbers for 2017, 2018 and 2019

Location	Category	OP, 2017	OP, 2018	OP 2019
Atolls		**1,420,577**	**1,502,667**	**1,427,668**
AA	a. Health Centre	29,555	34,746	38,202
AA	b. Atoll Hospital	9,530	17,367	13,292
ADh	a. Health Centre	38,027	42,078	45,354
ADh	b. Atoll Hospital	19,252	20,402	19,343
B	a. Health Centre	41,791	43,345	47,174
B	b. Atoll Hospital	27,562	31,861	32,884
Dh	b. Atoll Hospital	21,471	25,106	25,017
Dh	a. Health Centre	20,337	21,416	18,769
F	a. Health Centre	18,068	18,273	19,652
F	b. Atoll Hospital	12,476	13,681	17,633
GA	a. Health Centre	37,764	36,434	35,114
GA	b. Atoll Hospital	22,493	24,323	25,197
GDh	d. Regional Hospital	65,954	61,612	57,115
GDh	a. Health Centre	39,574	39,403	25,078
Gn	b. Atoll Hospital	35,037	24,323	42,133
HA	a. Health Centre	49,429	51,218	51,643
HA	b. Atoll Hospital	32,556	35,212	35,615
HDh	d. Regional Hospital	95,570	94,908	90,310
HDh	a. Health Centre	48,571	50,222	47,589
K	a. Health Centre	65,829	65,464	69,466
L	d. Regional Hospital	50,436	53,909	63,305
L	a. Health Centre	50,689	51,256	52,209
Lh	b. Atoll Hospital	41,309	39,929	44,249
Lh	a. Health Centre	30,765	25,044	25,248
M	a. Health Centre	19,138	18,489	17,471
M	d. Regional Hospital	21,115	18,886	11,125
N	a. Health Centre	44,309	51,207	48,945
N	b. Atoll Hospital	14,092	16,034	17,750
R	a. Health Centre	74,535	66,049	78,047
R	d. Regional Hospital	55,415	59,996	50,653
S	d. Regional Hospital	81,577	77,250	53,043
S	a. Health Centre	34,923	101,820	35,667

Location	Category	OP, 2017	OP, 2018	OP 2019
S	c. Hospital	21,708	23,488	23,799
Sh	a. Health Centre	50,979	55,926	57,525
Sh	b. Atoll Hospital	14,180	16,171	15,710
Th	a. Health Centre	51,101	45,363	47,681
Th	b. Atoll Hospital	23,942	20,691	18,759
V	b. Atoll Hospital	4,750	5,542	5,477
V	a. Health Centre	4,768	4,223	4,425
Male'		**989,606**	**1,135,396**	**991,177**
Male'	e. Tertiary Hospital	699,821	740,475	754,314
Male'	c. Hospital	289,785	344,279	236,863
Male'	Public Health	-	50,642	
Total		**2,410,183**	**2,638,063**	**2,418,845**

Table 5-11: Services rendered in Dhamanaveshi Male' in numbers, 2017, 2018 and 2019

Service rendered from Dhamanaveshi	Females			Males		
	2017	2018	2019	2017	2018	2019
Other Specialties	28,952	25,172	28,200	27,692	25,470	27,424
Growth Monitoring	15,467	13,990	14,191	15,456	14,536	14,664
Travel Vaccination	7,185	3,377	4,475	6,494	3,196	4,242
EPI Vaccination	3,226	3,149	3,127	3,264	3,378	3,220
Optional Vaccination	954	2,504	3,124	831	2,394	2,696
General OPD Consultation	1,355	1,542	2,527	1,313	1,659	2,273
Counseling	360	257	359	98	147	185
Tobacco Cessation	12	9	8	188	128	100
Home Visits	136	154	276	88	63	107
NCD Consultation	10	-	-	45	32	24
Psychosocial Education Session	3	30	78	2	18	24
Family Planning	238	234	208	-	-	20
Adolescent Clinic	4	1		3	-	
T.T Vaccination	141	109	181	-	-	-
Total	**58,043**	**50,528**	**56,754**	**55,474**	**51,021**	**54,979**

Source: Dhamanaveshi Male'

Table 5-12: Deworming medication to children aged 24-59 months, 2016-17

KEY FINDINGS OF MDHS	2016-17
Total Number of Children Aged 24-59 Months	1,632
Percentage of Children Aged 24-59 Months Who Received Deworming Medication in the Past 6 Months	0.86

Source: MDHS (2016-17)

Table 5-13: Deworming and Vitamin A data by region, 2017-2018

	2017	2017	2018	2018
Atoll/School	Vitamin A	Deworming	Vitamin A	Deworming
HA	2,420	1,987	5,374	451
HDH	3,558	2,933	3,742	2,698
SH	2,164	1,626	3,843	1,563
N	1,712	1,428	1,635	1,441
R	3,008	2,278	2,787	2,183
B	1,932	1,605	1,345	1,111
LH	1,211	1,190	1,444	1,155
K	1,937	1,709	2,086	1,757
AA	1,418	1,151	1,358	1,099
A.DH	1,572	788	1,460	982
V	199	175	218	123
M	872	690	763	606
F	1,017	881	430	259
DH	1,197	919	1,160	918
TH	1,864	1,450	1,853	1,546
L	1,767	1,166	2,453	1,761
GA	1,460	1,122	1,291	1,031
GDH	2,015	1,460	3,172	2,876
Gn	493	1,103	472	1,006
S	1,052	212	1,135	675
Male School	7,933	7,308	7,542	7,569
Health Centers	9,677	3,868	10,630	4,951
Sub total	50,478	37,049	56,193	37,761
Population	70,338	57,018	70,662	57,930
%	72	65	80	65

Source: HPA

Table 5-14: Deworming medication to children by age groups, 2017-2018

Atoll/School	2017 2-5 years	2018 2-5 years	2017 5-13 years	2018 5-13 years
HA	1,987	451	3,889	410
HDH	2,933	2,698	6,353	6,916
SH	1,626	1,563	4,577	4,605
N	1,428	1,441	2,183	2,081
R	2,278	2,183	5,188	5,422
B	1,605	1,111	2,643	2,879
LH	1,190	1,155	2,487	2,307
K	1,709	1,757	3,235	3,248
AA	1,151	1,099	2,290	2,118
A.Dh	788	982	2,521	3,137
V	175	123	404	435
M	690	606	1,450	1,625
F	881	259	1,678	785
DH	919	918	1,789	1,946
TH	1,450	1,546	3,167	3,212
L	1,166	1,761	2,625	3,717
GA	1,122	1,031	2,350	2,247
GDH	1,460	2,876	3,781	5,298
Gn	1,103	1,006	2,410	2,410
S	212	675	1,280	1,174
Male' Schools	7,308	7,569	23,029	24,323
Male Health Facilities	3,868	4,951		
Sub total	37,049	37,761	79,329	80,295
Population	57,018	57,930	116,434	119,628
%	65	65	68	67

Source: HPA

Table 5-15: TB prevalence and incidence, 2017-2018

	2017		2018	
Quick Facts	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

Source: HPA

Table 5-16: HIV cases, 2017-2018

QUICK FACTS	2017	2018
Total number of New HIV positive cases detected	18	24
Total number of New HIV positive cases detected among Maldivians	2	-
Total number of New HIV positive cases detected among Expatriates	16	24
Total number of individuals screened for HIV	61,224	97,189

Source: HPA

Table 5-17: Syphilis cases, 2017-2018

	2017		2018	
Quick Facts	Antenatal Clinic	Blood Donors	Antenatal Clinic	Blood Donors
Total number screened	3105	7700	2953	5488
Total number of Syphilis positive cases detected	0	7	0	0

Source: HPA


HUMAN
RESOURCES
FOR
HEALTH

6 CHAPTER 6: HUMAN RESOURCES FOR HEALTH

This chapter is a presentation of the health workforce as of 31 December of 2017, 2018 and 2019 covering the following areas: staff profile; staff category; distribution of staff by gender; geographical representation; nationality; category of staff; distribution of staff in professional and higher category posts across the main occupational groups.

6.1 DATA PRESENTATIONS

The data for this chapter is presented for all the hospitals in the country which includes data from 188 islands including (Hulhumale, Male' and Villimale). This includes 191 facilities in 2017, 2018 and 2019. This includes 5 private facilities and 188 public health facilities.

Table 6-1: Data representation on HRH, 2017, 2018 and 2019

Atoll	Tertiary Hospital	Regional Hospital	Hospital	Health Center	Atoll Hospital	Total
Male'	3		4[33]			7
R		1		14		15
Sh				13	1	14
HA				13	1	14
B				12	1	13
N				12	1	13
Th				12	1	13
HDh		1		12		13
ADh				9	1	10
L		1		9		10
GA				8	1	9
GDh		1		8		9
K				9		9
M		1		7		8
AA				7	1	8
Dh				5	1	6
V				4	1	5
S		1	1[34]	3		5
F				4	1	5
Lh				3	1	4
Gn					1	1
Total	**3**	**6**	**5**	**164**	**13**	**191**

[33] This includes Hulhumale, Villimale, Senahiya and Medica Hospital

[34] IMDC Hospital in Seenu atoll

6.2 STAFF PROFILE

This section presents the health workforce as at 31 December of 2017, 2018 and 2019. Where relevant, it is compared with the corresponding profile from 2015 and 2016. Unless otherwise specified, all data in this section relate to health staff holding a fixed-term or a continuing appointment in all the public health hospitals, registered pharmacies and specified private health hospitals.

At 31 December of 2017, 2018 and 2019 health sector had a total of 9,115, 9592 and 11,027 staff members across Maldives (excluding staff working at the Ministry of Health). Of those, 10% were Medical professionals, 19% were Allied health professional, 28% were Nurses, and 43% were Non-medical staff (management and support staff).

Table 6-2: Total staff by Skills in numbers, 2017, 2018 and 2019

Year	Allied health professionals	Medical professionals	Non-medical staff	Nurses	Total
2017	1,564	868	3,929	2,754	9,115
2018	1,772	922	3,921	2,977	9,592
2019	2,121	1,080	4,718	3,108	11,027

Thus, health worker density and distribution is a health sector sustainable development indicator [30] which is defined as density of health worker per 10,000 population [31, 32].

Definition: Stock (and density) of HRH

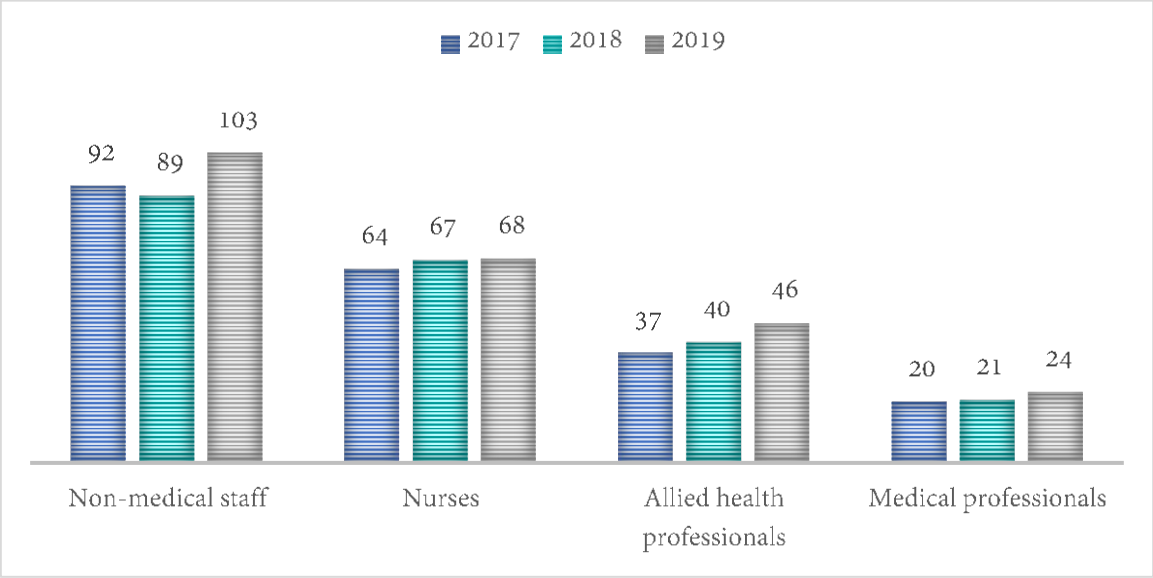
Total number of health human resources -HRH (relative to the population). Definition and boundaries of HRH, such as by occupation (e.g., physicians, nurses, etc.), industry or training – with distinction between headcounts versus job positions.

Equation 6-1: Stock (and density) of HRH

$$\text{Stock (and density)of HRH} = \frac{\text{Total number of health workers in a given country}}{\text{(Total population of the same country)}} x\ 10{,}000$$

The project mid-year population by National Bureau of Statistics [33] for Maldives 2017, 2018 and 2019 was 427, 964, 442,883 and 458,706 for 2017, 2018 and 2019. Therefore, it can be seen that there is slight increase in the stock or density of HRH from 213, 217 and 240 (per 10,000 population) for 2017, 2018 and 2019 respectively. This also means that for every 1000 people there are 24 health professionals in Maldives in 2019.

Figure 6-1: Health worker density (per 10,000 population) and distribution for 2017, 2018 and 2019



6.2.1 DISTRIBUTION OF HRH BY GENDER

Health sector has always been dominated by women.

Table 6-3: Total by gender, 2017, 2018 and 2019

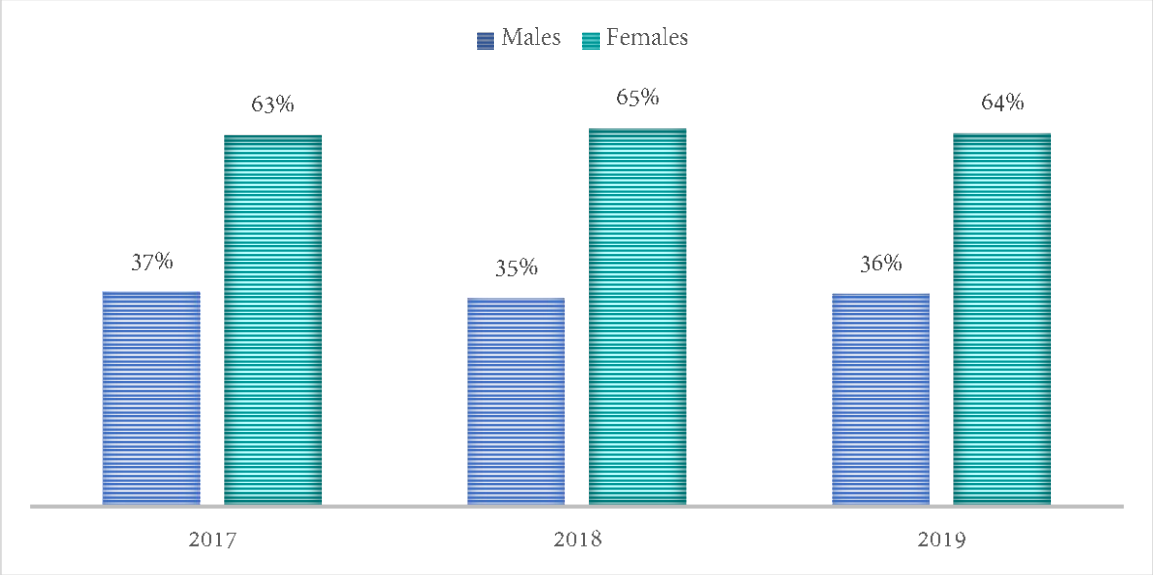
Year	Males	Females	Totals
2017	3,338	5,777	9,115
2018	3,405	6,187	9,592
2019	4,000	7,027	11,027

In 2017, 2018 and 2019 there were around 35% men and almost 65% women in health sector. Thus, distribution of HRH by sex is defined as percentage of HRH by sex [32] and can be depicted as;

Equation 6-2: Gender Distribution of Health Workers

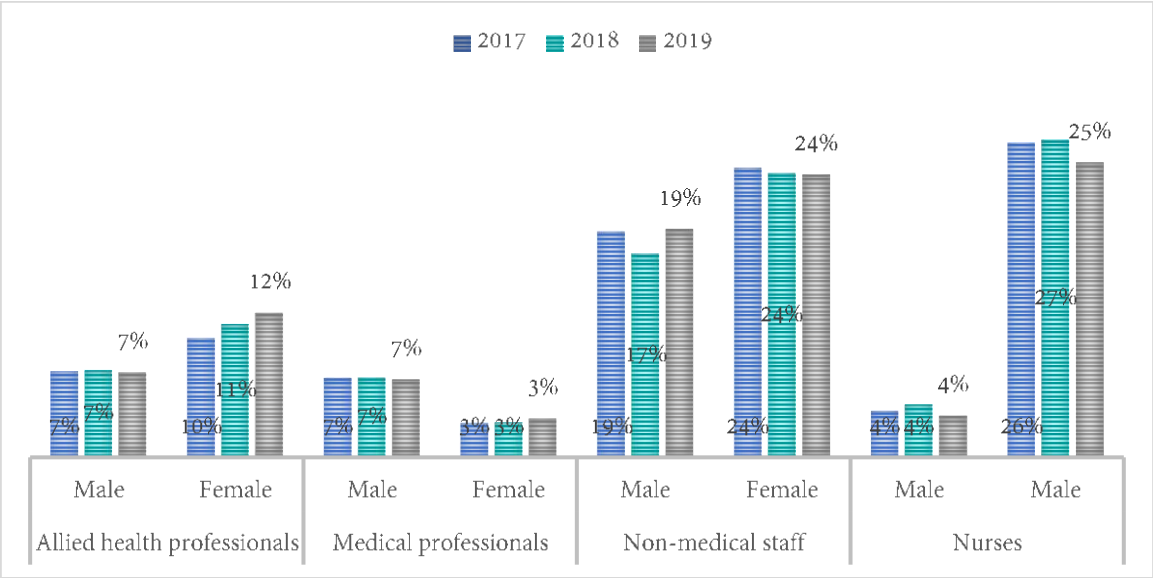
$$\text{Gender distribution} = \frac{\text{Number of female or male health workers}}{\text{Total number of health workers}} x\ 100$$

Figure 6-2: Gender distribution of HRH, 2017, 2018 and 2019



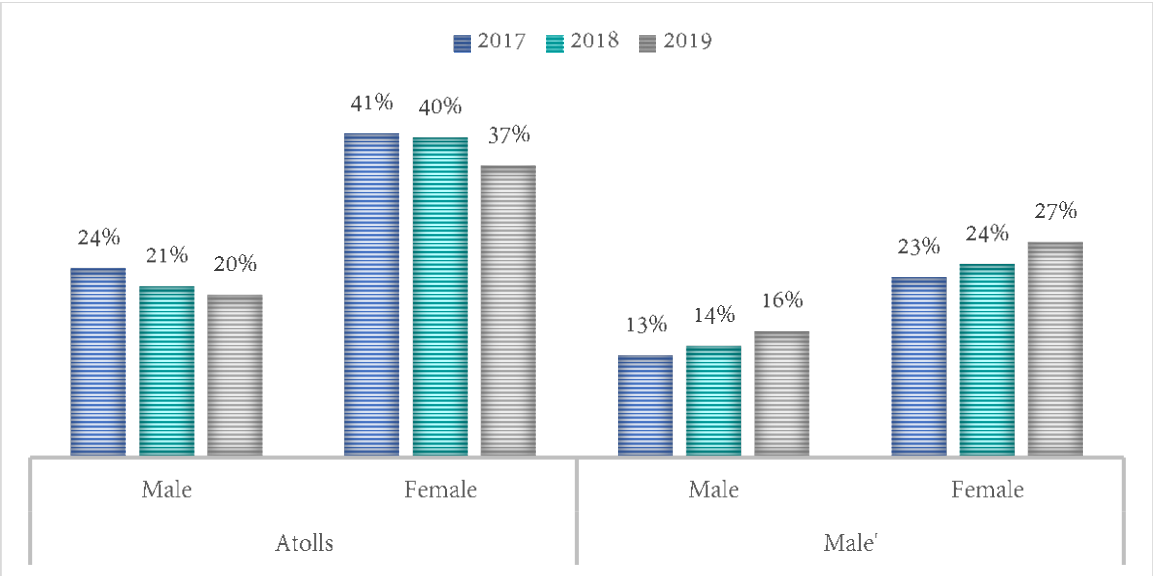
Taking into account the different occupational categories, it can be observed that except medical professionals (general doctors and specialists), number of females are high in all other categories. The highest number of females were nurses (25%-27%), followed by non-medical staff.

Figure 6-3: Gender distribution by categories, 2017, 2018 and 2019



In terms of gender distribution in Male' and Atolls, it can be seen that majority of females (41% - 37%) worked in atolls in the three consecutive years (2017, 2018 and 2019).

Figure 6-4: Gender distribution to Male' and Atolls, 2017, 2018 and 2019



6.2.2 GEOGRAPHICAL REPRESENTATION

As of 31 December 2017, 5,877posts (64%) accounted for atoll representation in the HRH members while this increased in numbers to 5,917 posts but decreased in total percentage to 62% in 2018 and further decreased to 57% in 2019.

Table 6-4: HRH by geographic distribution for 2017, 2018 and 2019

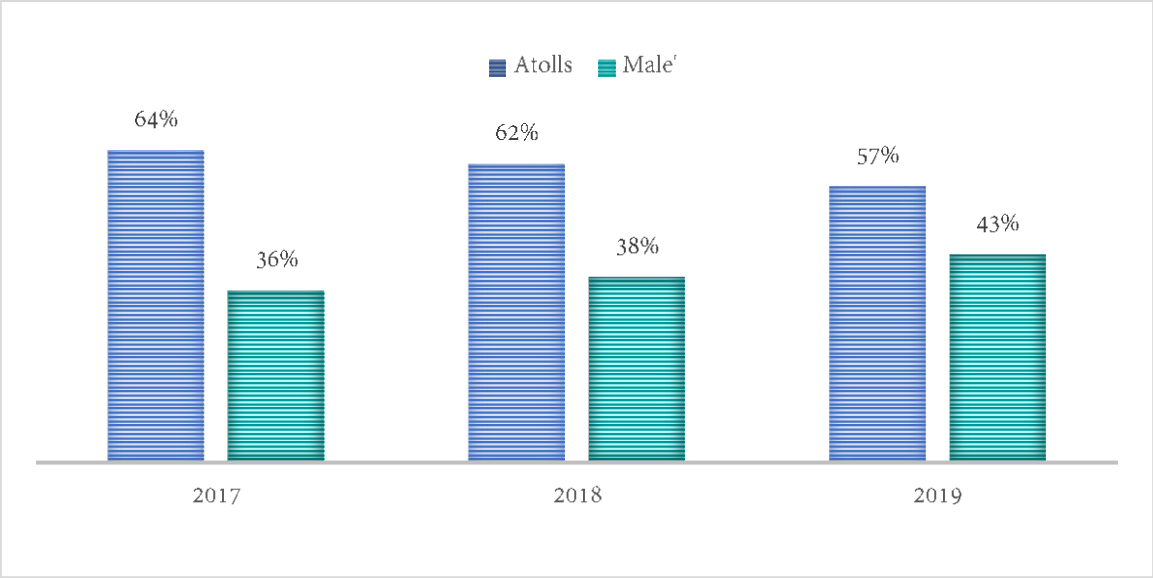
Year	Atolls	Male'	Total
2017	5,877	3,238	9,115
2018	5,917	3,675	9,592
2019	6,290	4,737	11,027

Thus, distribution of HRH by geographical location is determined by Male' or Atolls.

Equation 6-3: Geographic Distribution of Health Workers

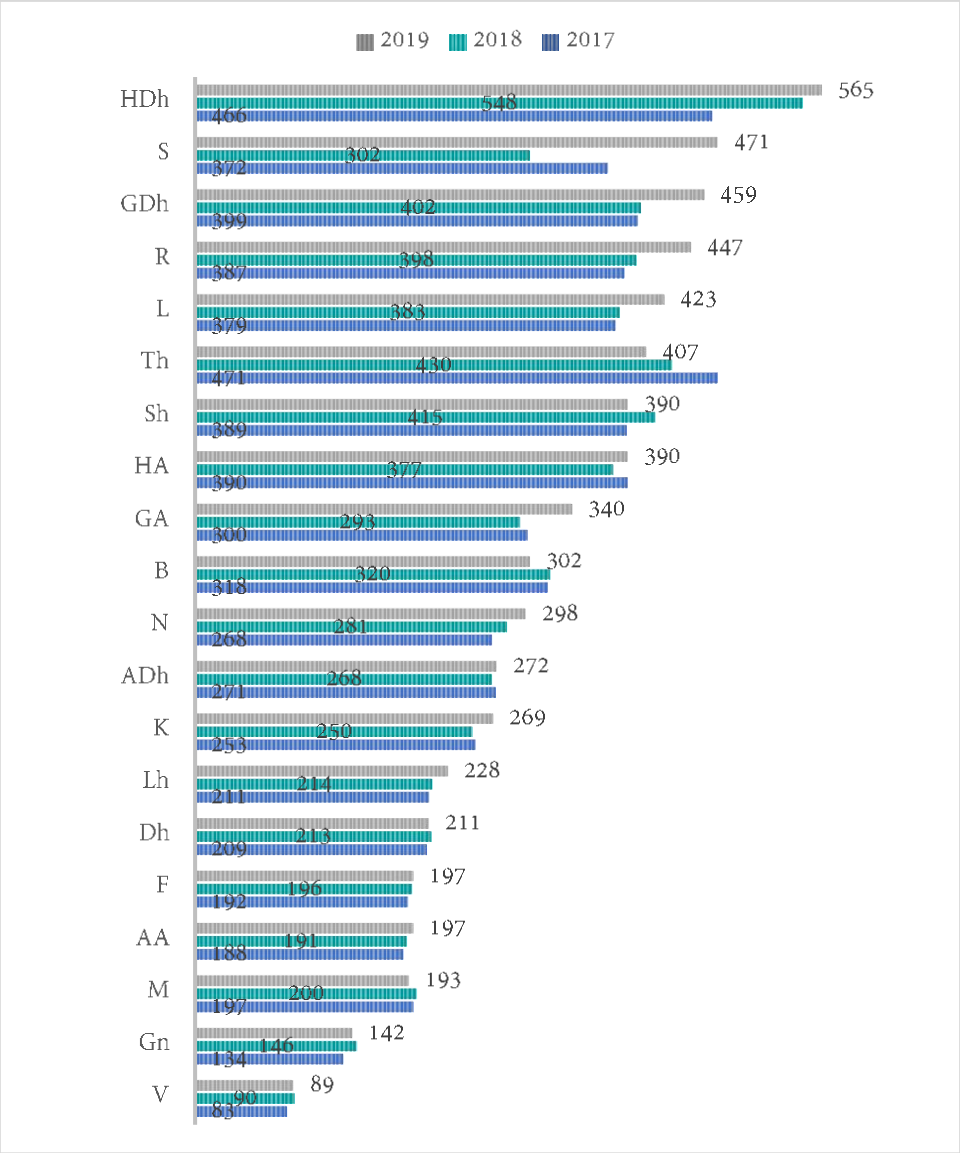
$$\text{Geographic distribution} = \frac{\text{Number of health workers in atolls or Male}'}{\text{Total number of health workers}} x100$$

Figure 6-5: HRH by geographic distribution, 2017, 2018 and 2019



Excluding, Male', by the end of 2017, 2018 and 2019, the highest number of HRH resided in Haa Dhaal, Seenu and Gaafu Dhaal atoll.

Figure 6-6: Distribution of HRH in Atolls, 2017, 2018 and 2019



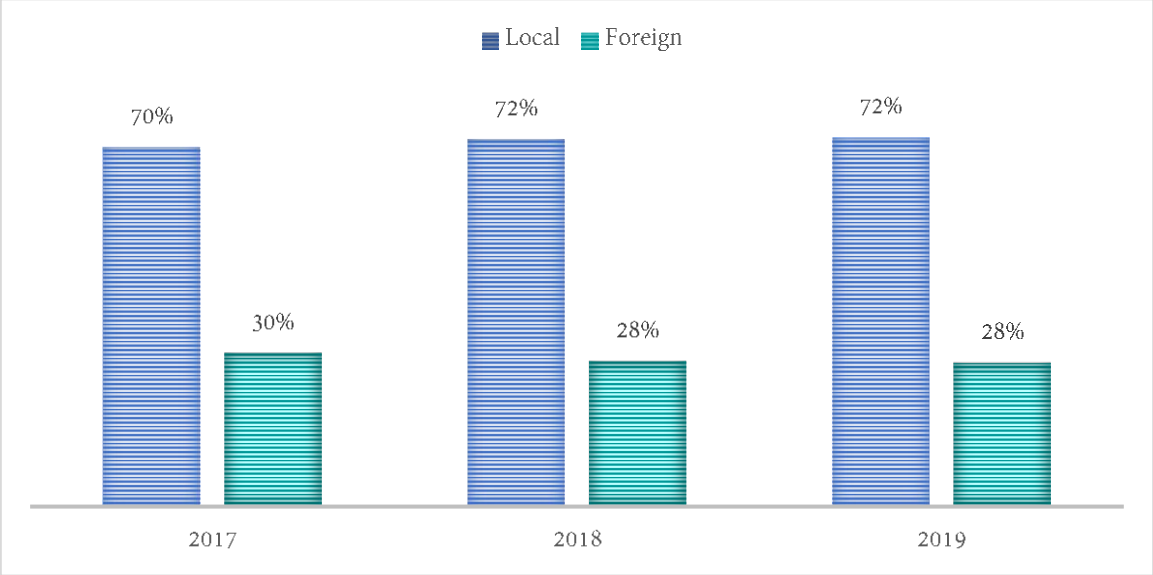
6.2.3 HRH BY NATIONALITY

There were 6,388, 6875 and 6,937 locals working in 2017, 2018 and 2019 respectively, in HRH of Maldives. This is more than 70% of total HRH.

Table 6-5: HRH by nationality, region and gender, 2017, 2018 and 2019

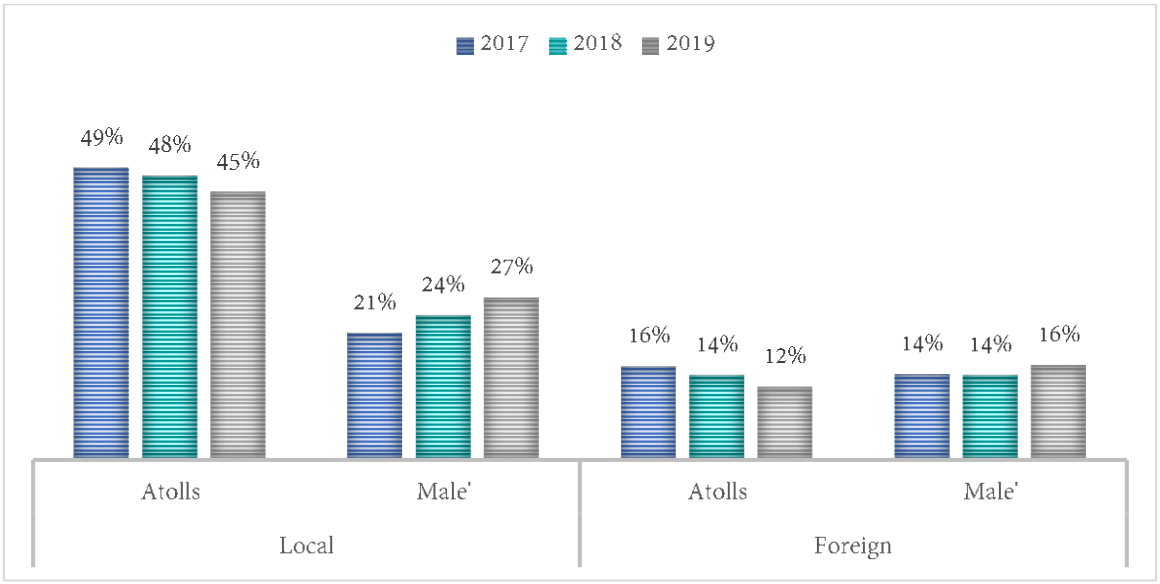
	Local		Foreigners		Total
Year	Males	Females	Males	Females	
2017	**1,886**	**4,502**	**1,452**	**1,275**	**9,115**
Atolls	1,461	2,993	705	718	5,877
Male'	425	1,509	747	557	3,238
2018	**1,853**	**5,022**	**1,552**	**1,165**	**9,592**
Atolls	1,388	3,171	673	685	5,917
Male'	465	1,851	879	480	3,675
2019	**2,264**	**5,673**	**1,736**	**1,354**	**11,027**
Atolls	1,531	3,414	719	626	6,290
Male'	733	2,259	1,017	728	4,737

Figure 6-7: HRH by nationality, 2017, 2018 and 2019



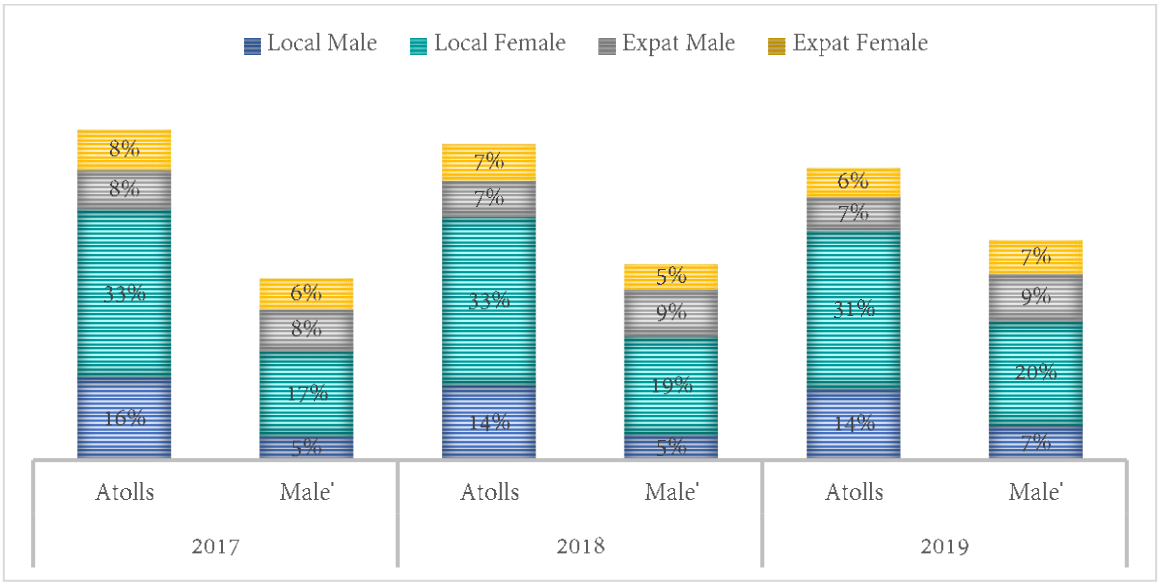
From these locals, 49%, 48% and 45% in 2017, 2018 and 2019 respectively were working in atolls.

Figure 6-8: HRH by nationality and geographic location, 2017, 2018 and 2019



Among the locals working in HRH, more than 45% of females were working in the atolls in 2017, 2018 and 2019, while this reduced to 43% in 2019.

Figure 6-9: HRH by nationality and gender, 2017, 2018 and 2019



6.2.4 OCCUPATIONAL GROUPS

More than two-fifth of the posts held by staff (43%, 41% and 43% in 2017, 2018 and 2019 respectively) were in the non-medical staff groups. The second highest group was nurses with almost 30%, 31% and 28% for 2017, 2018 and 2019 respectively.

Therefore, skills mix for these occupational groups can be depicted using the following;

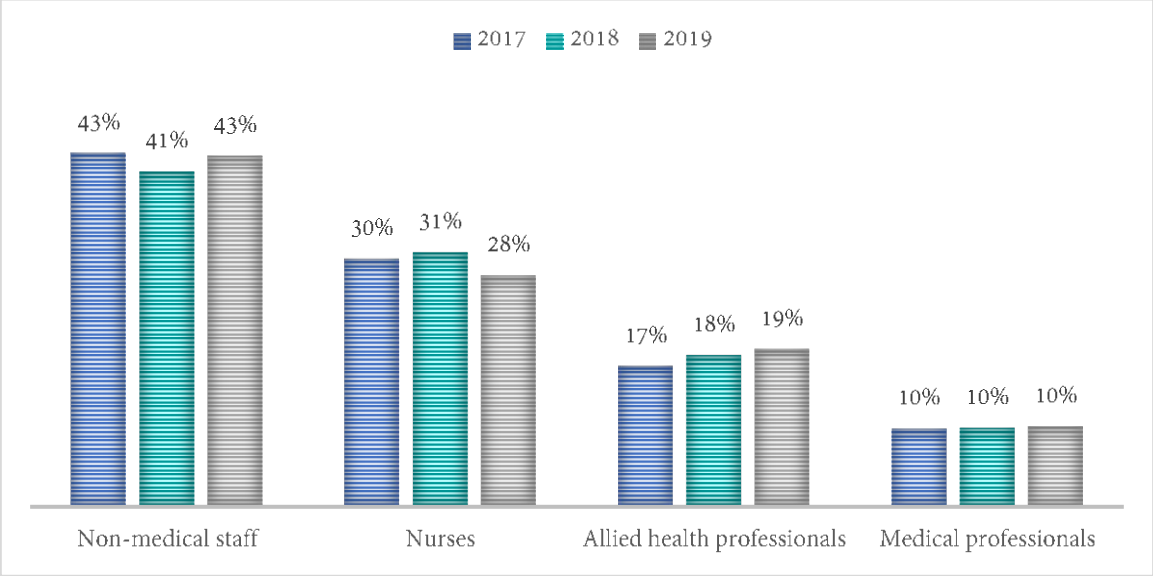
Definition: Skills Mix

Distribution of HRH by occupation, specialization or another skill-related characteristic. Occupational classification – with distinction between headcounts versus job positions (with positions weighted for full-time equivalency on the basis of working hours)

Equation 6-4: Skills Mix

$$\text{Skills mix} = \frac{\text{Number of physicians, nurses and midwives}}{\text{Total number of health workers}} x100$$

Figure 6-10: Occupational groups (skills mix) in 2017, 2018 and 2019



For the remainder of this chapter, details will be presented based on these occupational groups:

- Allied health professionals
- Medical professionals
- Nurses
- Non-medical staff

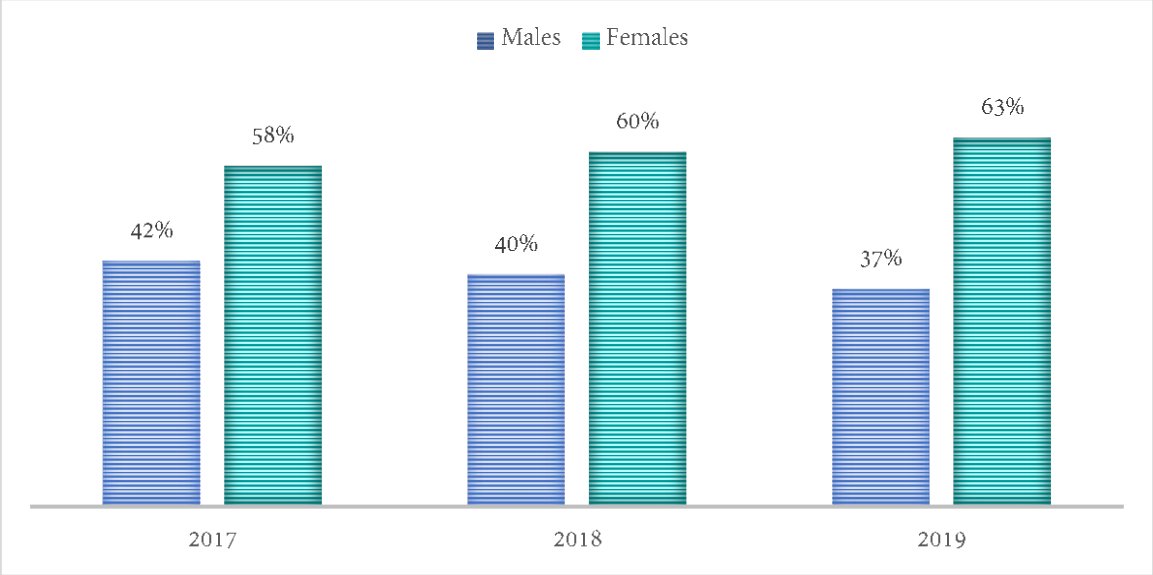
6.3 ALLIED HEALTH PROFESSIONALS

There were 1,564, 1,772 and 2,121 allied health professionals in 2017, 2018 and 2019 respectively in Maldives. More than 60% of these were females in both 2018 and 2019, while it was 58% females in 2017.

Table 6-6: Allied health professionals by gender, 2017, 2018 and 2019

Year	Males	Females	Totals
2017	655	909	1,564
2018	701	1,071	1,772
2019	786	1,335	2,121

Figure 6-11: Allied health professionals by gender, 2017, 2018 and 2019

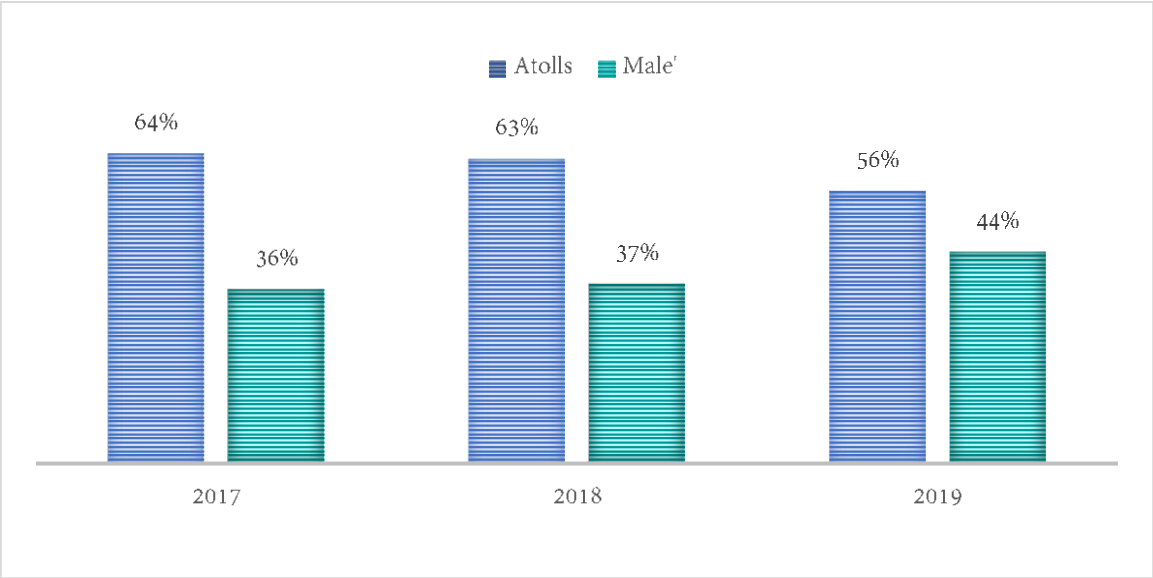


By the geographic location, 64%, 63% and 56% (in 2017, 2018 and 2019 respectively) of the allied health professionals worked in atolls.

Table 6-7: Allied health professionals Male' and Atolls, 2017, 2018 and 2019

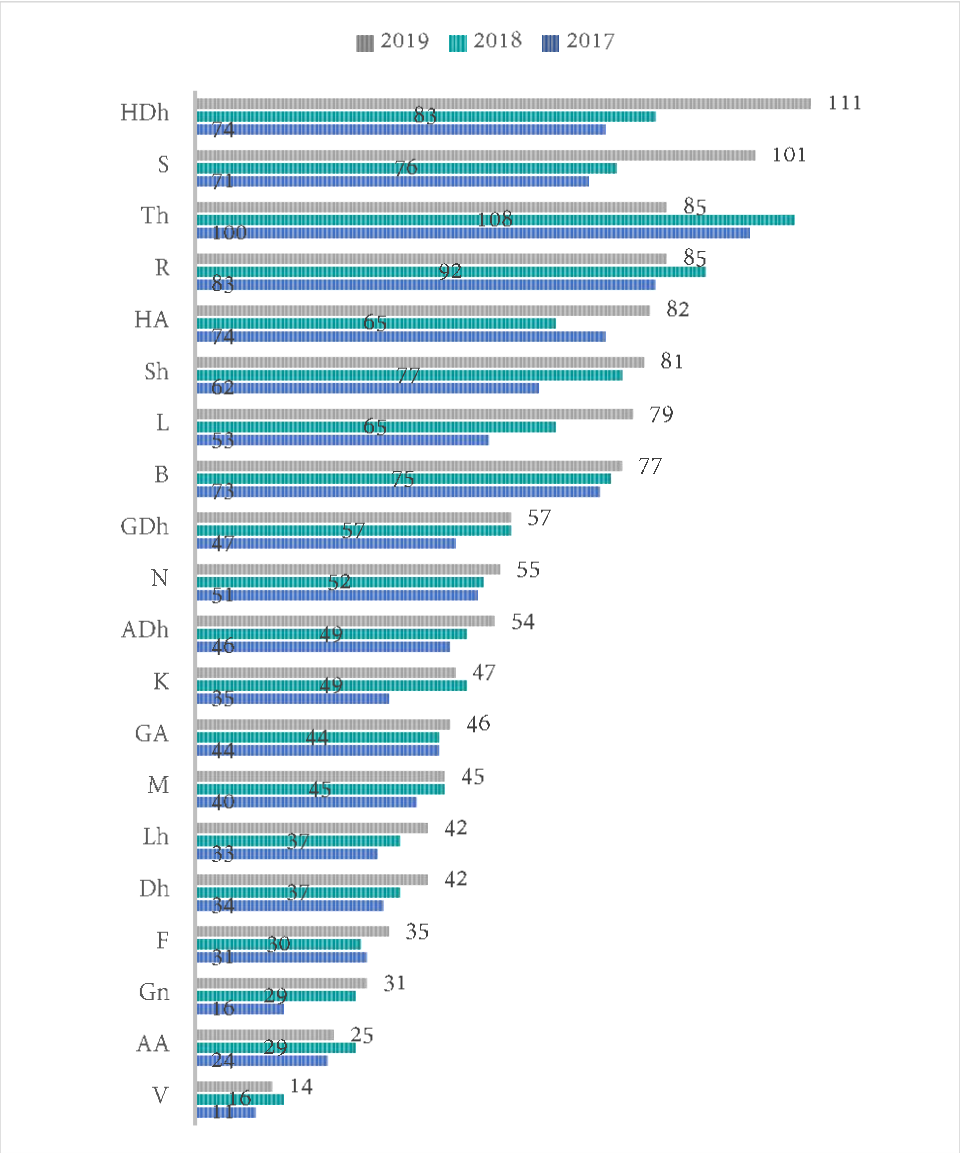
Year	Atolls	Male'	Total
2017	1,002	562	1,564
2018	1,115	657	1,772
2019	1,194	927	2,121

Figure 6-12: Allied health professionals Male' and Atolls, 2017, 2018 and 2019



Excluding Male', Haa Dhaal and Seenu had the highest number of allied health professionals in 2019.

Figure 6-13: Allied health professionals by Atolls, 2017, 2018 and 2019

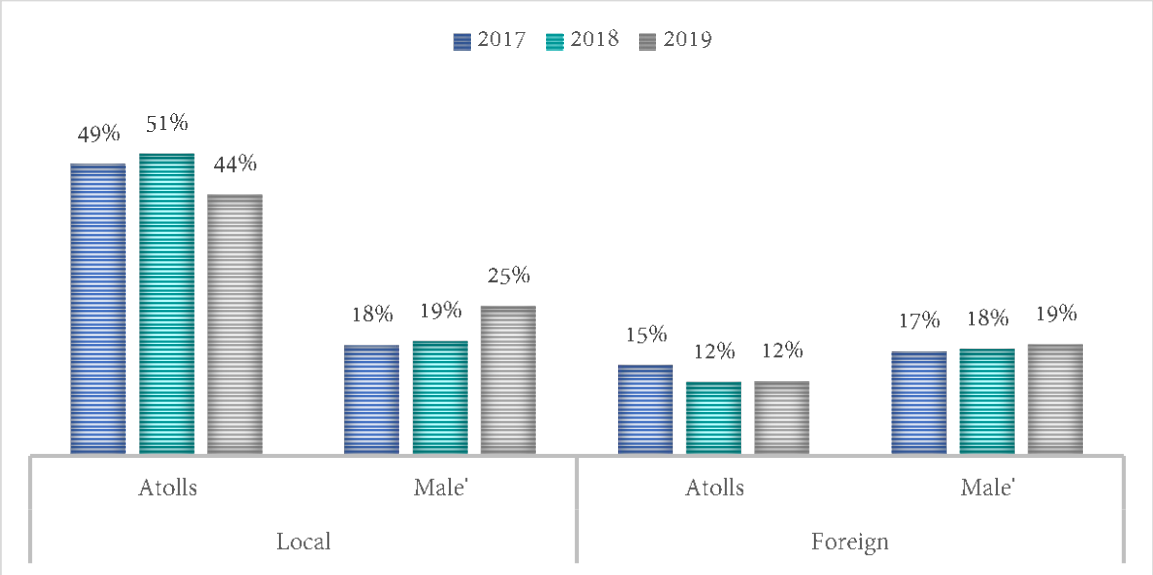


There was a fluctuating trend of locals from 449% in 2017 to 51% in 2018 and again 44% in 2019 worked as allied health professionals.

Table 6-8: Allied health professionals by geographic location and nationality, 2017, 2018 and 2019

	Local		Expat	
Year	Males	Females	Males	Females
2017	**244**	**809**	**411**	**100**
Atolls	196	568	179	59
Male'	48	241	232	41
2018	**275**	**961**	**426**	**110**
Atolls	217	679	168	51
Male'	58	282	258	59
2019	**291**	**1,170**	**495**	**165**
Atolls	209	720	202	63
Male'	82	450	293	102

Figure 6-14: Allied health professionals by geographic location and nationality, 2017, 2018 and 2019



Although there was a total of 17%, 18% and 19% of allied health professionals in 2017, 2018 and 2019 respectively, the cadres of professionals in this group differed. In this respect, the highest number of allied health professionals were pharmacy professionals, community health professionals and medical laboratory professionals.

Table 6-9: Occupational groups of Allied Health Professionals, 2017, 2018 and 2019

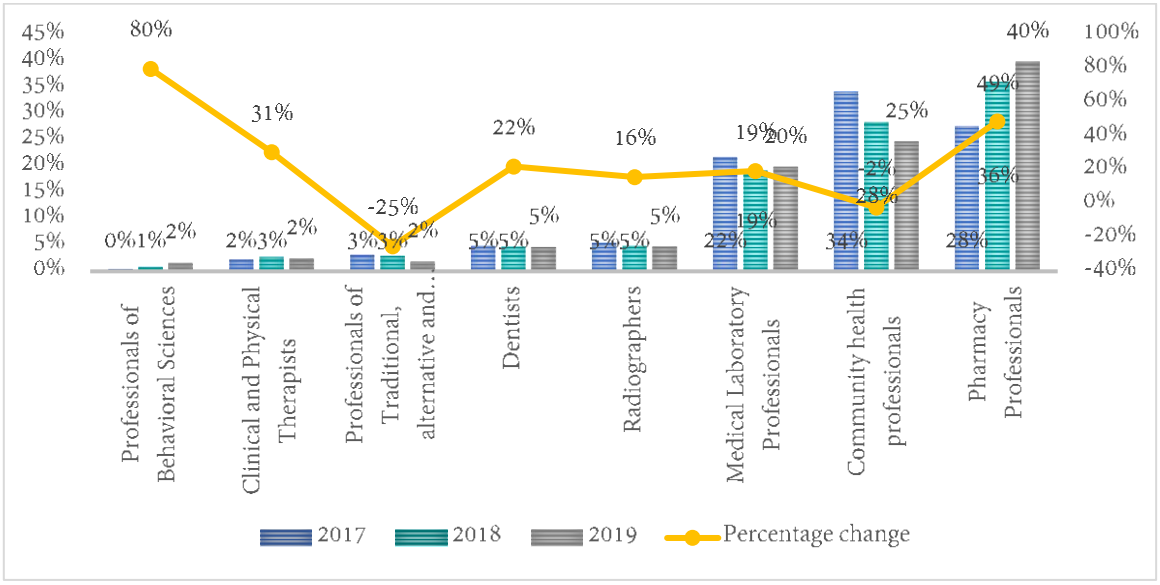
Year	2017	2018	2019
Professionals of Behavioral Sciences	7	16	35
Clinical and Physical Therapists	36	49	52
Professionals of Traditional, alternative and complementary medicine	50	53	40
Dentists	77	85	99
Radiographers	85	87	101
Medical Laboratory Professionals	340	340	422
Community health professionals	536	503	525
Pharmacy Professionals	433	639	847
Total	**1,564**	**1,772**	**2,121**

It is also notable that pharmacy professionals have increased in numbers. However, when the percentage change is considered it can be noted that professionals of behavior sciences had a highest positive change, followed by pharmacy professionals and clinical and physical therapists from 2017 to 2019. This is calculated using:

Equation 6-5: Percent change[35]

$$Percent\ change = \frac{2019\ value\ (old\ value) - 2017\ value(new\ value)}{2017\ value\ (old\ value)} x\ 100$$

Figure 6-15: Occupational groups of Allied Health Professionals, 2017, 2018 and 2019



[35] If the result is positive, it is an increase and if the result is negative, it is a decrease

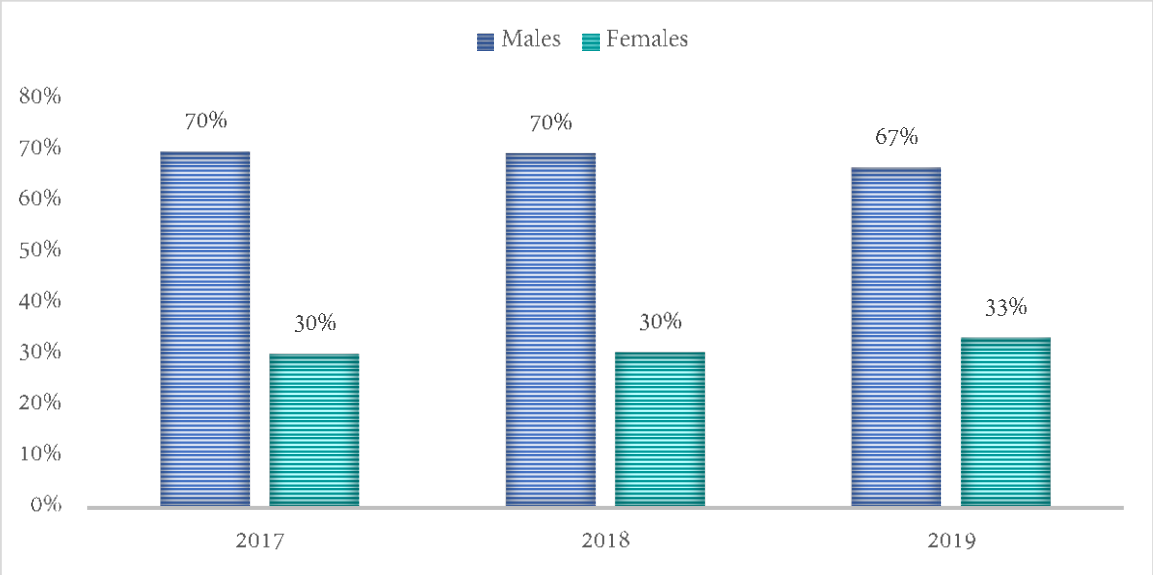
6.4 MEDICAL PROFESSIONALS

There were 868, 922 and 1,080 medical professionals in 2017, 2018 and 2019 respectively in Maldives. Unlike allied health professionals, medical professionals are dominated by men, 70% in 2017, 2018 and 67% in 2019.

Table 6-10: Medical professionals by gender, 2017, 2018 and 2019

Year	Males	Females	Totals
2017	606	262	868
2018	641	281	922
2019	720	360	1,080
Total	**1,967**	**903**	**2,870**

Figure 6-16: Medical professionals by gender, 2017, 2018 and 2019



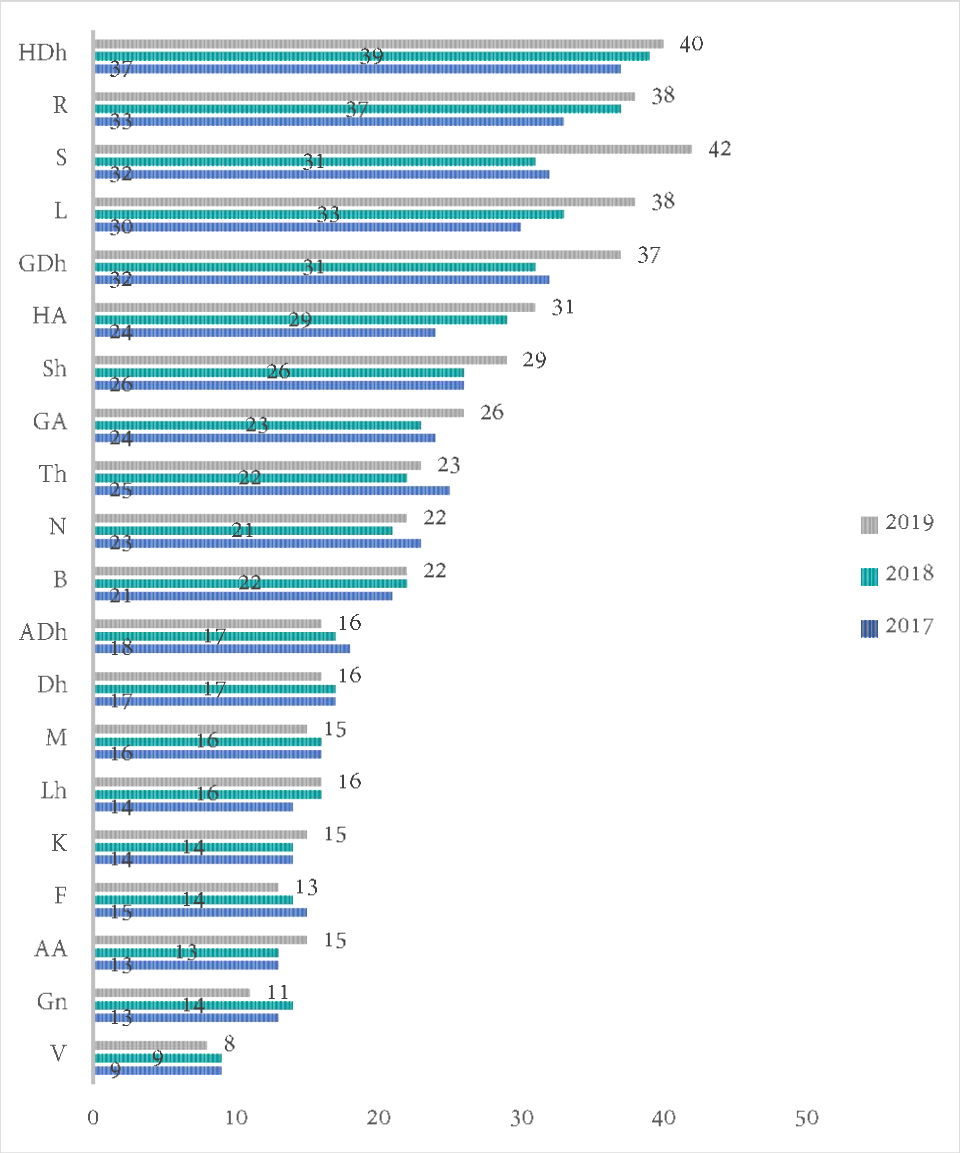
By the geographic location, 50% of the medical professional's work in atolls in 2017. However, this reduced in the consecutive years with less than 50% (48% in 2018 and 44% in 2019) of the medical professional's work in atolls.

Table 6-11: Medical professionals by Male' and Atolls 2017, 2018 and 2019

Year	Atolls	Male'	Total
2017	436	432	868
2018	444	478	922
2019	473	607	1,080
Total	**1,353**	**1,517**	**2,870**

Excluding Male', when disaggregated, the highest number of medical professionals were resident in Haa Dhaal, Raa and Seenu atoll.

Figure 6-17: Medical professionals by region, 2017, 2018 and 2019



There was an increase of local medical professionals from 26%, 29% and 34% for 2017, 2018 and 2019 respectively, where only 1% of locals worked in atolls in 2017, 2018 and 2019, while 2% worked in atolls in 2019.

Table 6-12: Medical professionals by geographic location, gender and nationality, 2017, 2018 and 2019

	Local		Foreigners	
Year	**Males**	**Females**	**Males**	**Females**
2017	**102**	**127**	**504**	**135**
Atolls	4	8	343	81
Male'	98	119	161	54
2018	**107**	**164**	**534**	**117**
Atolls	4	9	367	64
Male'	103	155	167	53
2019	**144**	**223**	**576**	**137**
Atolls	13	13	380	67
Male'	131	210	196	70
Total	**353**	**514**	**1,614**	**389**

Figure 6-18: Medical professionals by geographic location and nationality, 2017, 2018 and 2019

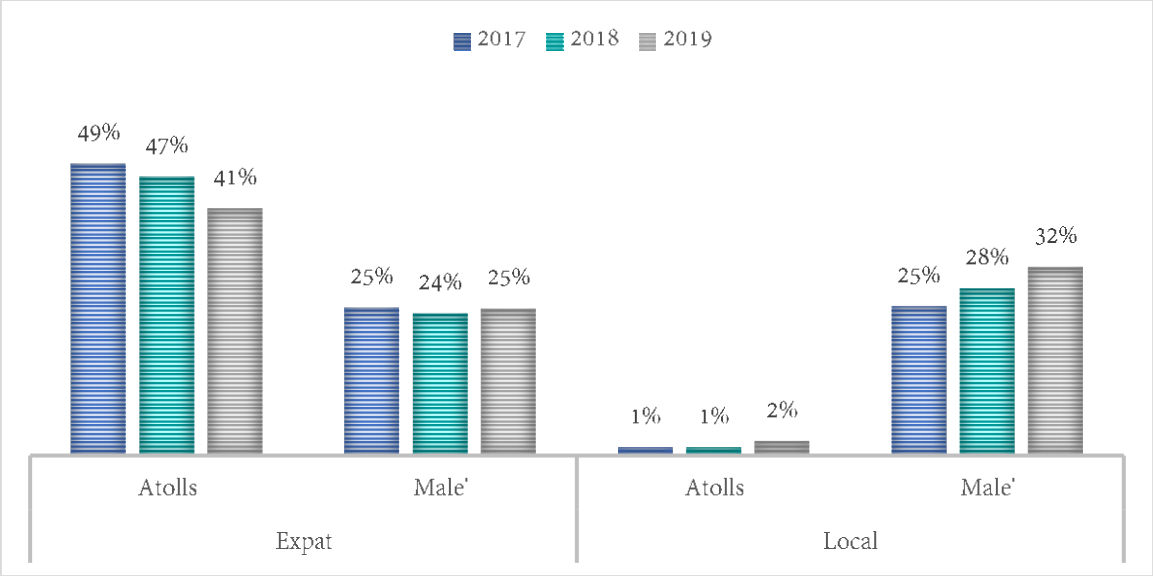
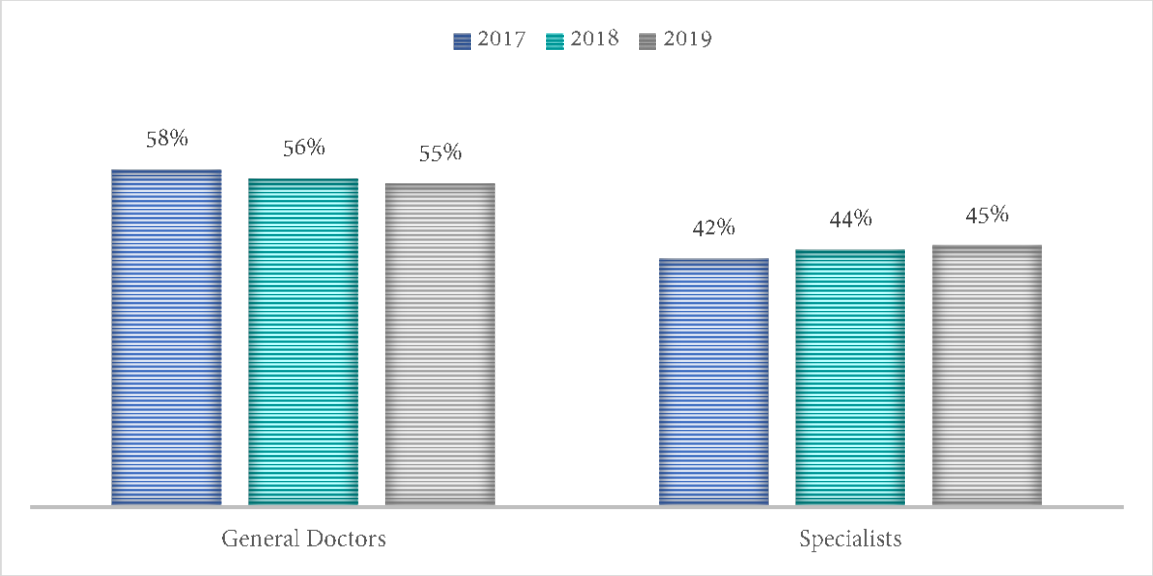


Table 6-13: Occupational groups of Medical Professionals, 2017, 2018 and 2019

Year	2017	2018	2019	Total
General Doctors	500	517	597	1,614
Specialists	368	405	483	1,256
Total	**868**	**922**	**1,080**	**2,870**

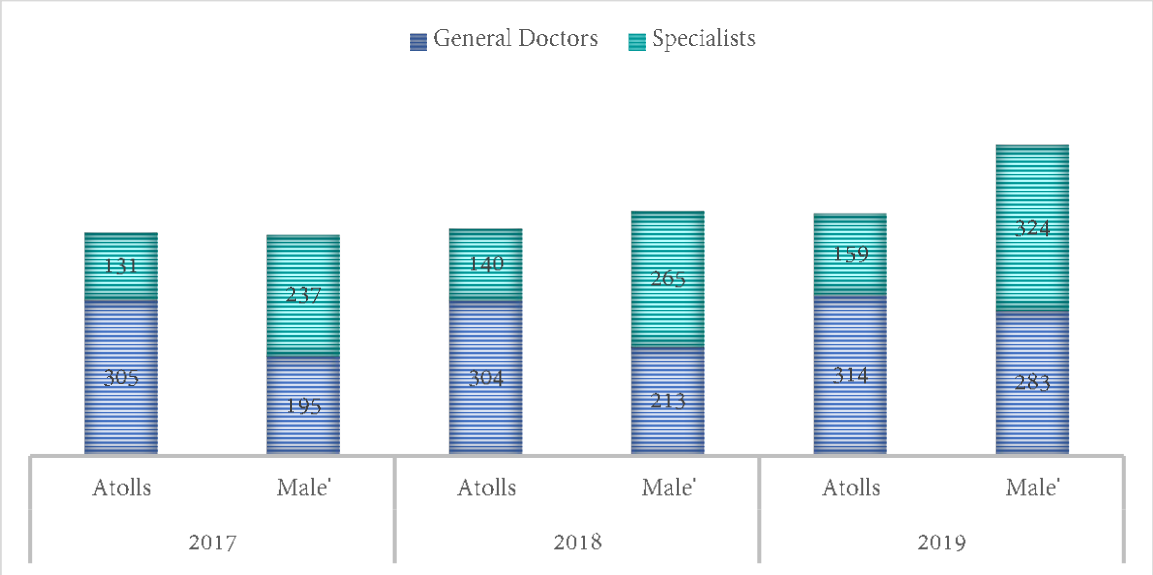
Medical professionals represent 10% per cent of health professionals in the Maldives for years 2017, 2018 and 2019. The ratio of general doctors to specialist is 3 is to 2 (3:2).

Figure 6-19: Occupational groups of Medical Professionals, 2017, 2018 and 2019



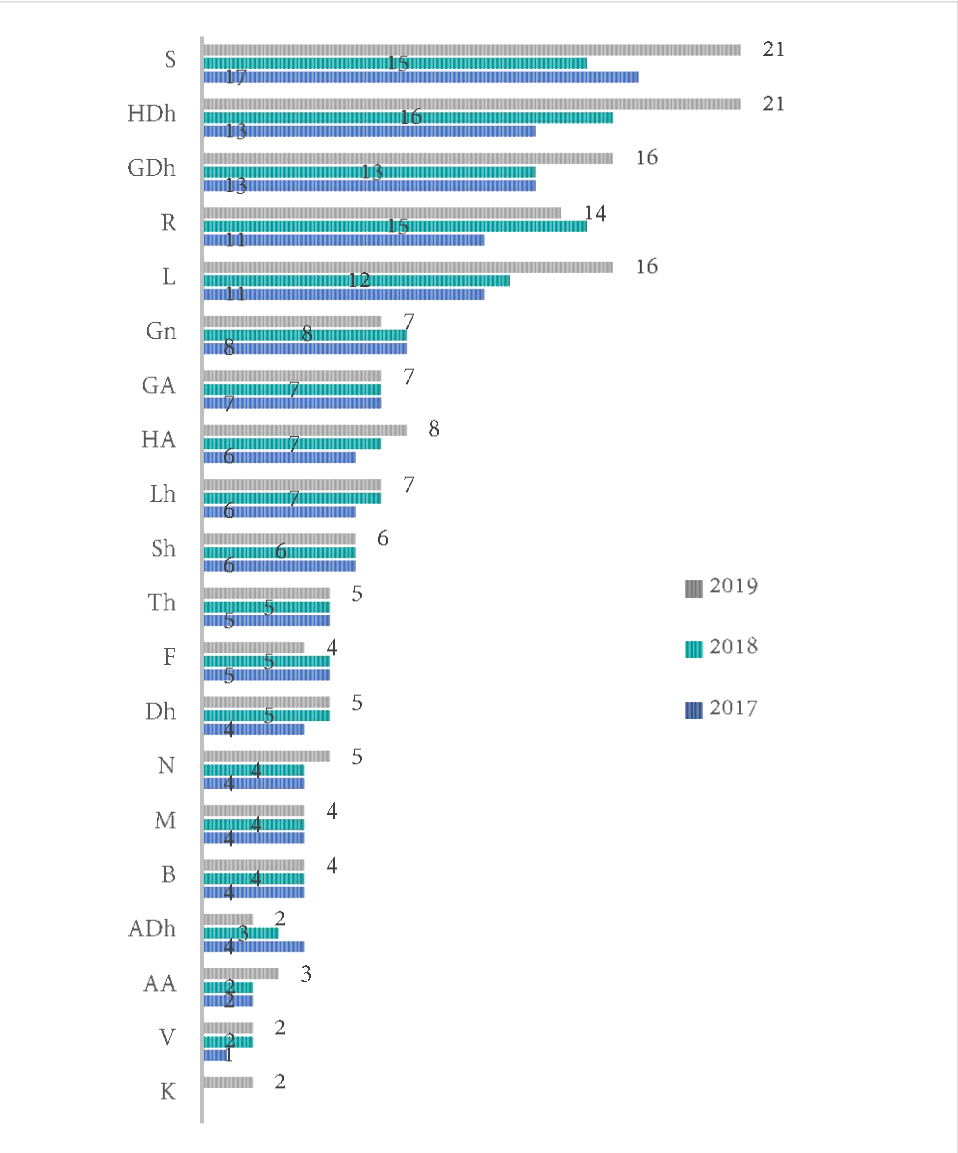
Further, disaggregation of doctors and specialist by geographic location shows that there are more general doctors in atolls while more specialists reside in greater Male' region.

Figure 6-20: Occupational groups of Medical Professionals by region, 2017, 2018 and 2019



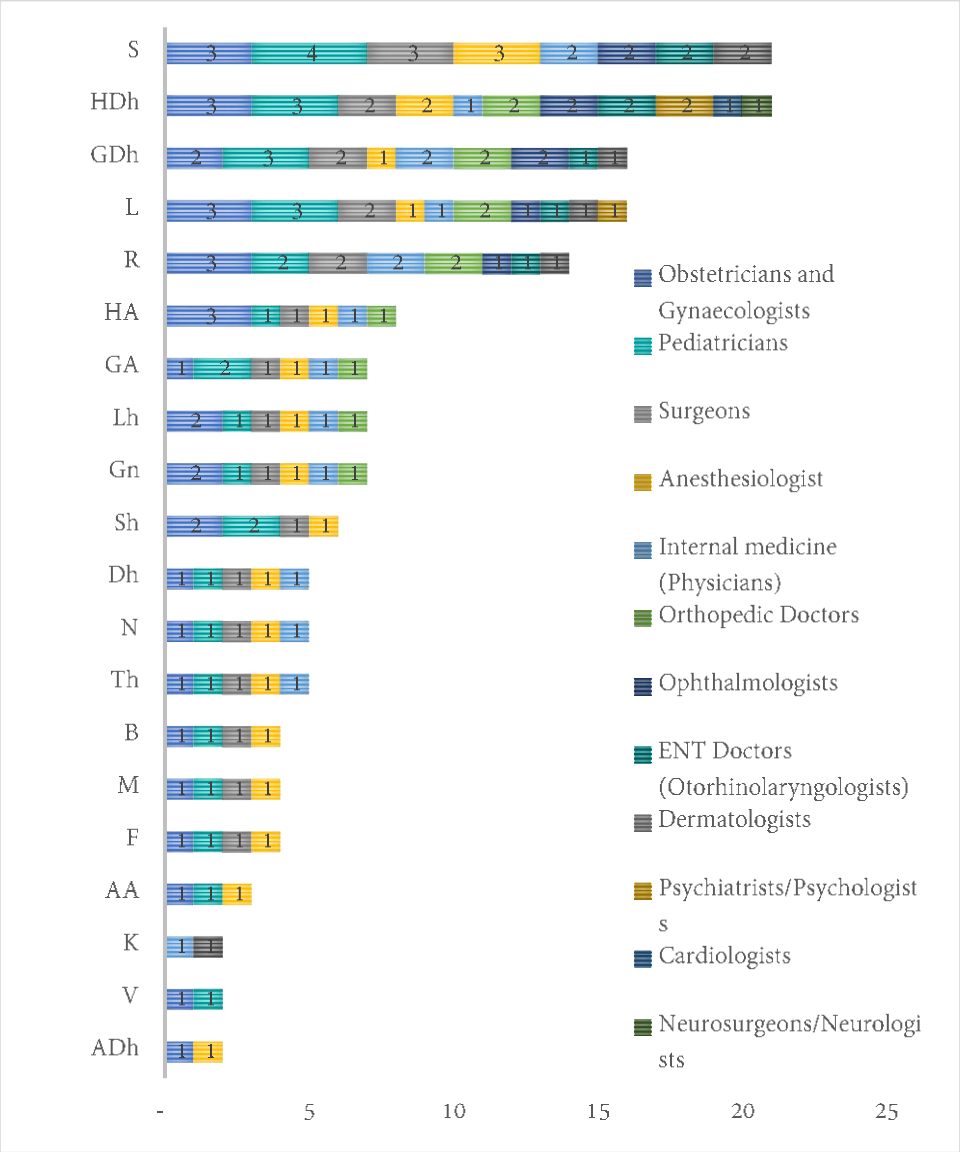
Excluding Male', general doctors were highest in numbers in Seenu, Haa Dhaal and Gaaf Dhaal atoll.

Figure 6-21: Number of general doctors in atolls, 2017, 2018 and 2019



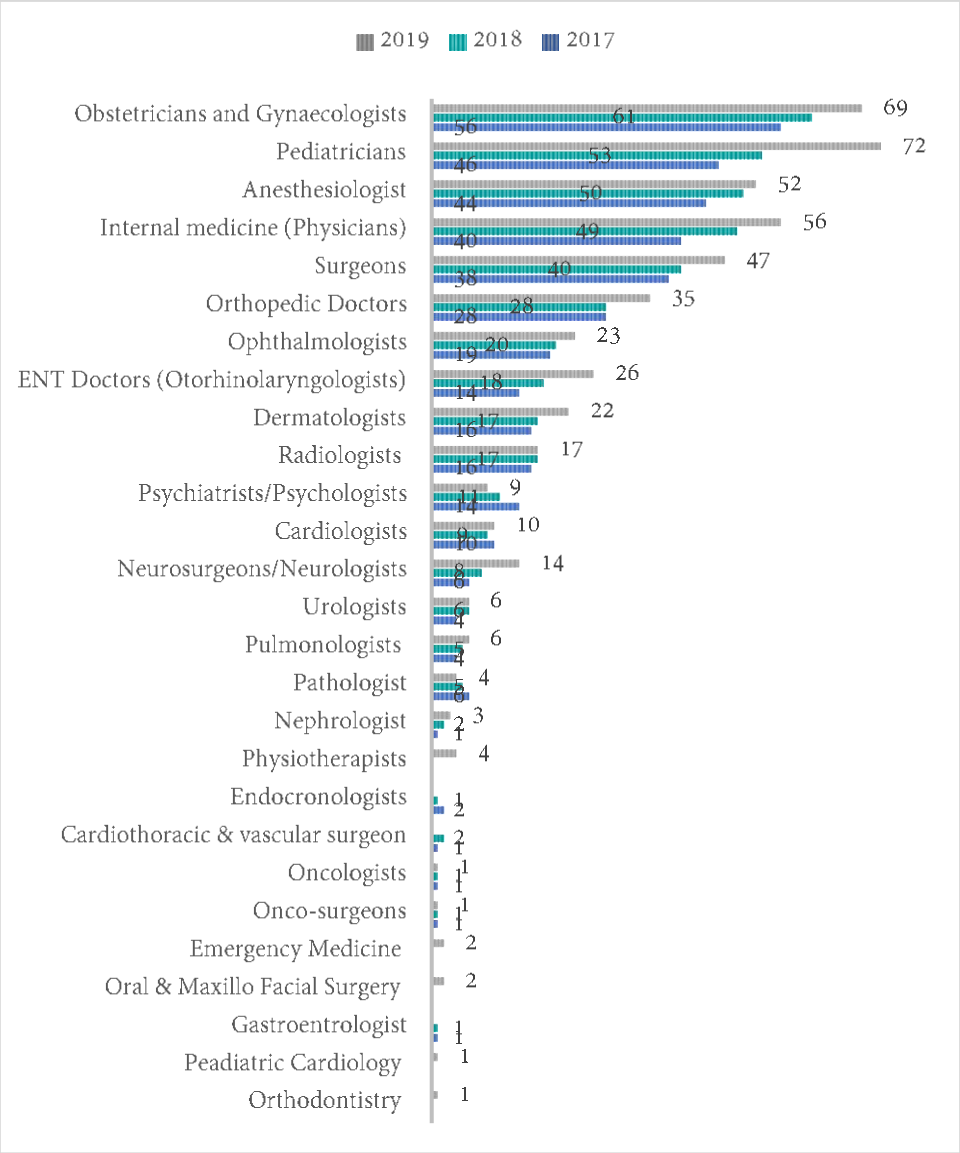
Similarly, excluding Male', specialist doctors were most common in Seenu, Haa Dhaal, and Gaaf Dhaal atoll in 2019.

Figure 6-22: Specialist Doctors by Title and Atoll, 2019



It can be seen that the specialists are lower than that of general doctors, hence exact numbers are reported.

Figure 6-23: Number of Specialists by Profession, 2017, 2018 and 2019



A detailed table on medical professional is attached with the annex.

6.5 NURSES

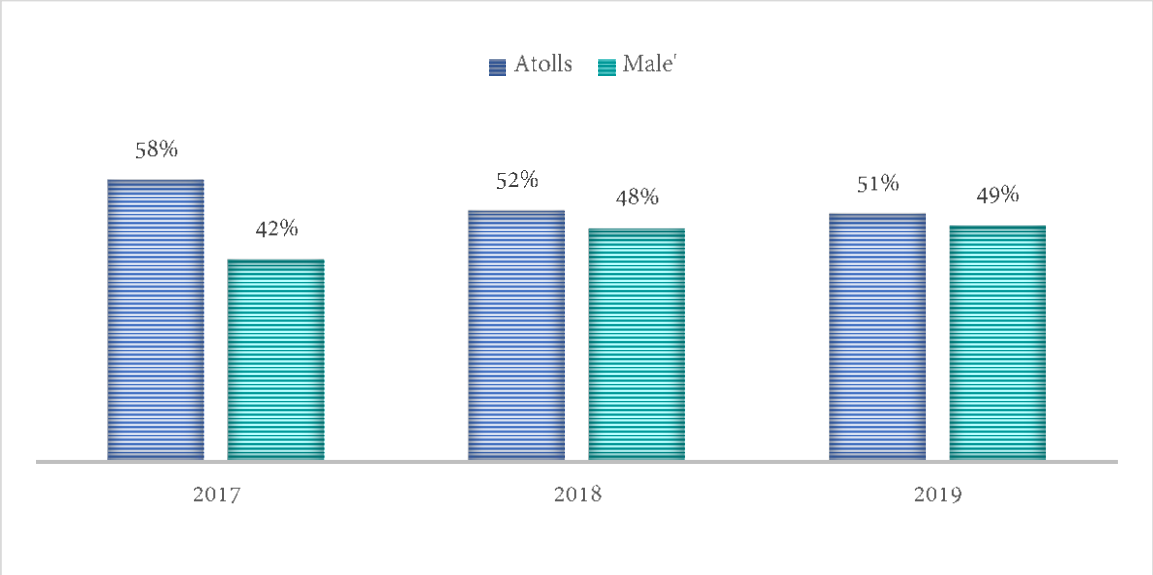
Nurses are the second largest group of health professionals in Maldives. There was a total of 2,754, 2,977 and 3,108 nurses in Maldives in 2017, 2018 and 2019 respectively. Among these, registered nurses and registered nurse midwife were highest in number.

Table 6-14: Nurses by Gender, 2017, 2018 and 2019

Year	Males	Females	Totals
2017	356	2,398	2,754
2018	425	2,552	2,977
2019	386	2,722	3,108
Total	**1,167**	**7,672**	**8,839**

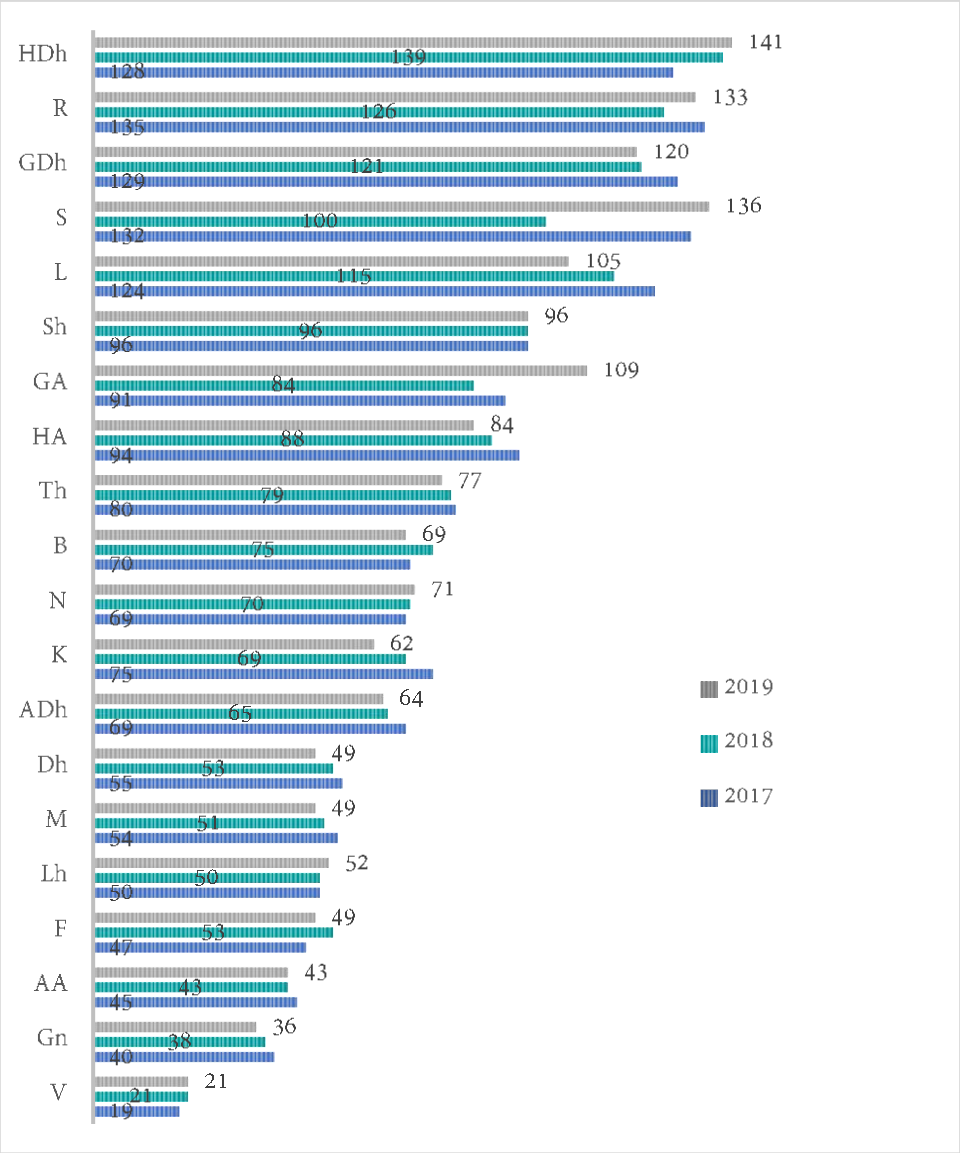
By geographic location, more than 50% of the nurses' work in Atolls.

Figure 6-24: Nurses by Region, 2017, 2018 and 2019



Excluding Male', when disaggregated, the highest number of nurses reside in Haa Dhaal, Raa and Gaafu Dhaal atoll.

Figure 6-25: Nurses by atolls, 2017, 2018 and 2019

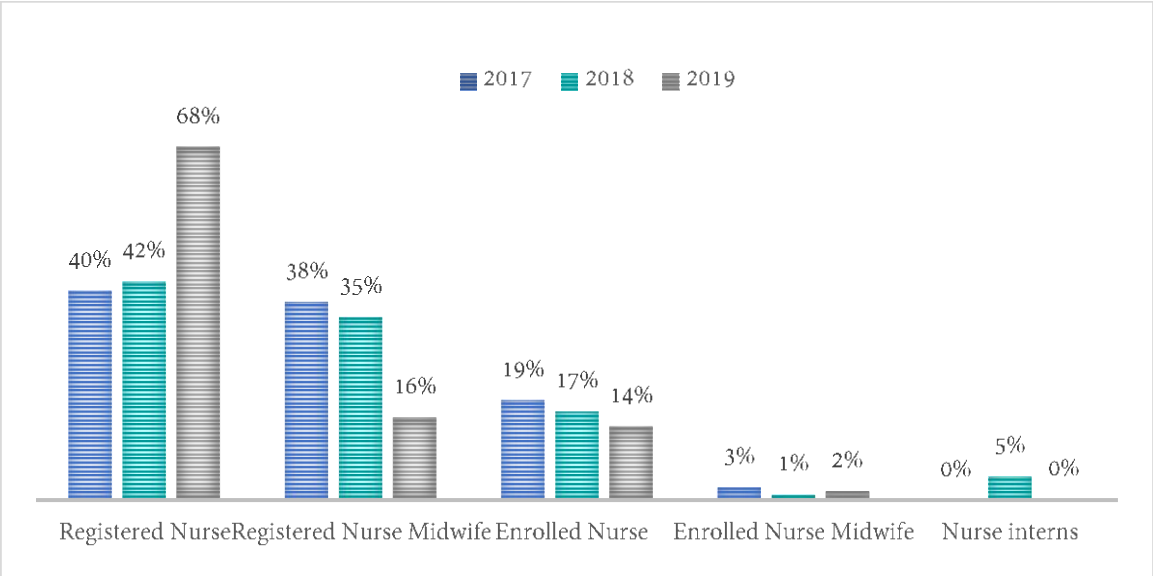


As per the different cadres of nurses, registered nurses and registered nurse midwives are highest in 2017, 2018 and 2019 compared to enrolled nurses indicating higher level of trained nurses in service.

Table 6-15: Nurses by title, 2017, 2018 and 2019

Year	2017	2018	2019
Nurses	**2,754**	**2,977**	**3,108**
Enrolled Nurse	530	507	442
Enrolled Nurse Midwife	69	33	54
Nurse interns	-	137	6
Registered Nurse	1,108	1,251	2,111
Registered Nurse Midwife	1,047	1,049	495
Total	**2,754**	**2,977**	**3,108**

Figure 6-26: Nurses, 2017, 2018 and 2019



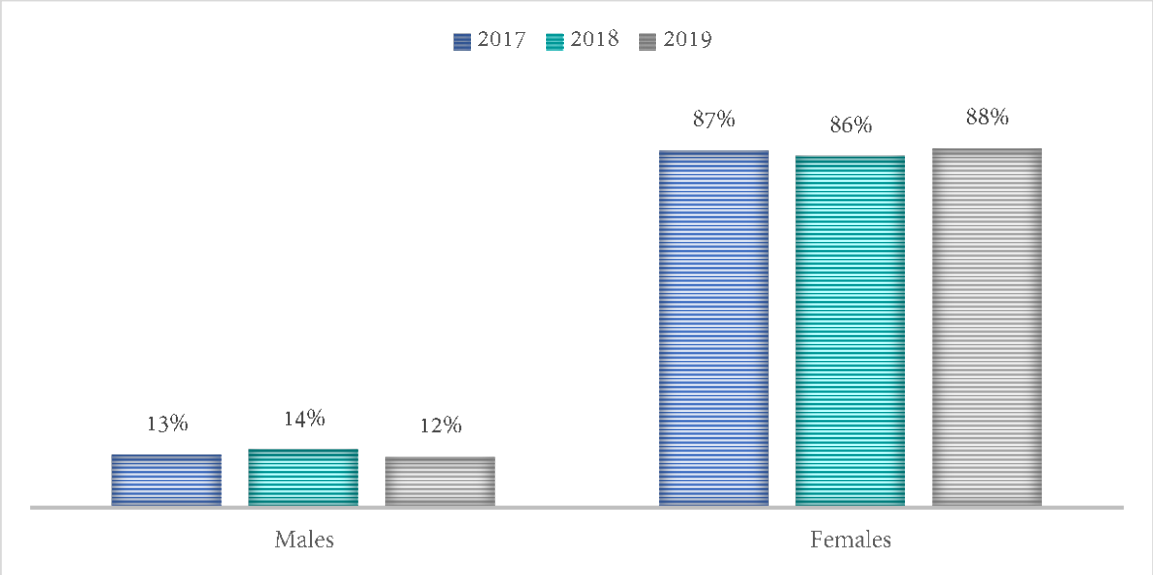
A detailed table on nurses is attached with the annex.

Almost 90% of nurses working in Maldives were female for three years.

Table 6-16: Nurse by gender, 2017, 2018 and 2019

	Locals		Expats	
Year	Male	Female	Male	Female
2017	70	1,388	286	1,010
2018	8	1,673	417	879
2019	41	1,707	345	1,015
Total	**119**	**4,768**	**1,048**	**2,904**

Figure 6-27: Nurses by gender, 2017, 2018 and 2019

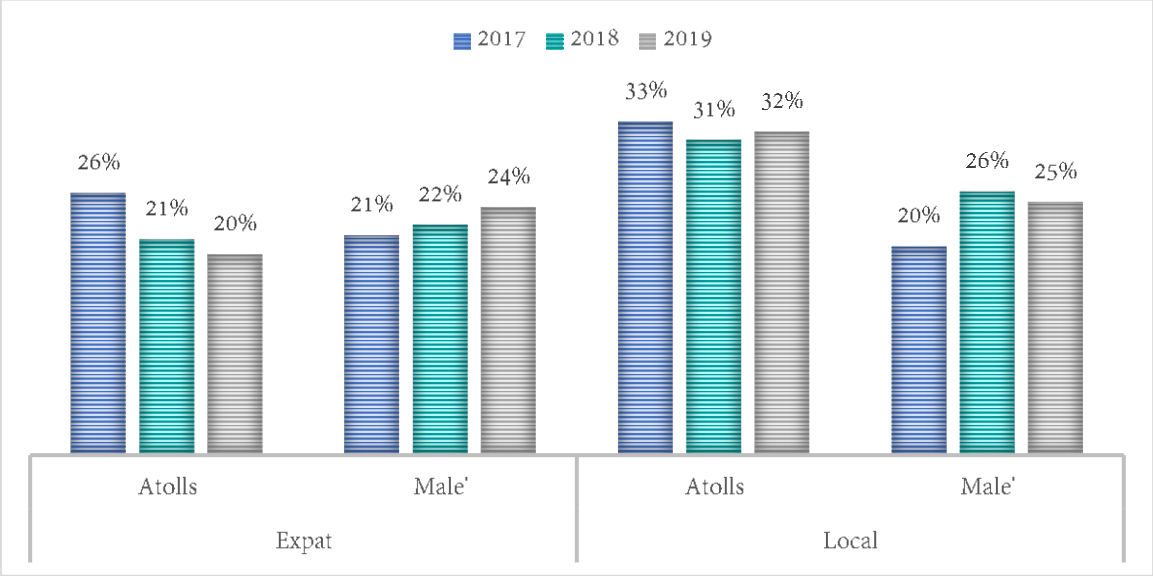


There was an increasing trend of local nurses from 53% in 2017 to 57% in 2018, where more than 30% of nurses working in atolls were locals in both the years.

Table 6-17: Nurses by geographic location and nationality, 2017, 2018 and 2019

Origin	Region	2017	2018	2019
Expat	Atolls	705	627	609
	Male'	591	669	751
Local	Atolls	897	916	981
	Male'	561	765	767
	Total	**2,754**	**2,977**	**3,108**

Figure 6-28: Nurses by geographic location and nationality, 2017, 2018 and 2019



Although, the number of nurses working in atolls is higher than Male', disaggregation by nationality of nurses shows that most of local nurses work in Male'.

Table 6-18: Number of nurses by nationality, gender and region, 2017, 2018 and 2019

	Local		Foreigners	
Year	Males	Females	Males	Females
2017	**70**	**1,388**	**286**	**1,010**
Atolls	66	831	154	551
Male'	4	557	132	459
2018	**8**	**1,673**	**417**	**879**
Atolls	5	911	104	523
Male'	3	762	313	356
2019	**41**	**1,707**	**345**	**1,015**
Atolls	18	963	129	480
Male'	23	744	216	535
Total	**119**	**4,768**	**1,048**	**2,904**

6.6 NON-MEDICAL STAFF

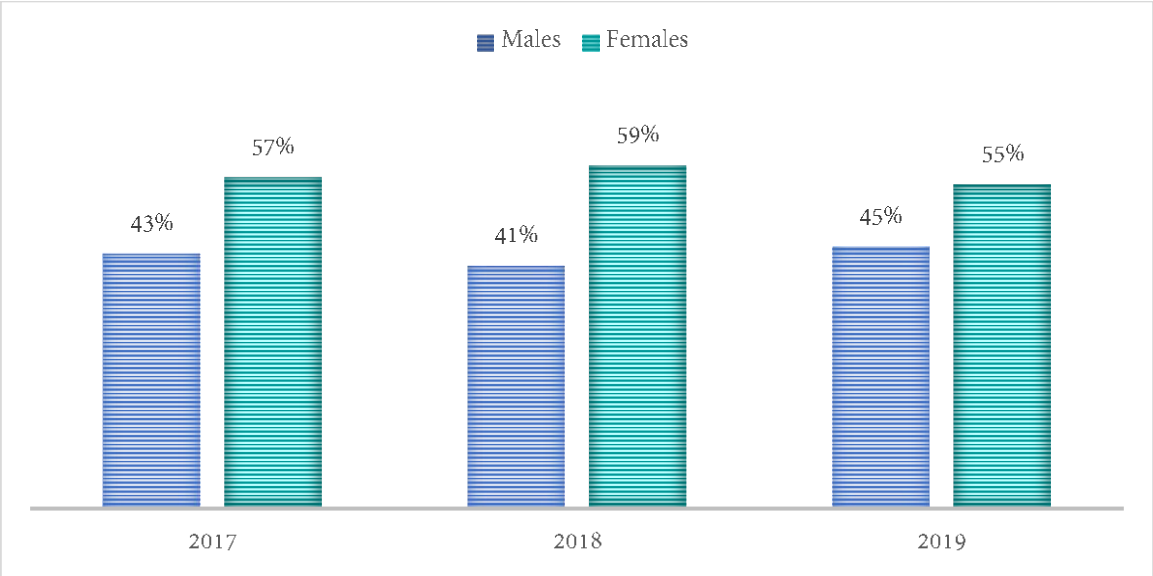
Non-medical staff or support staff were more than 40% of total HRH in 2017, 2018 and 2019.

Table 6-19: Non-medical Staff by Gender, 2017, 2018 and 2019

Year	Males	Females	Totals
2017	1,636	2,127	3,763
2018	1,551	2,193	3,744
2019	2,108	2,610	4,718
Total	**5,295**	**6,930**	**12,225**

Similar to nurses, the non-medical staff are also dominated by women, with almost 60% of non-medical staff being females.

Figure 6-29: Non-medical Staff by Gender, 2017, 2018 and 2019

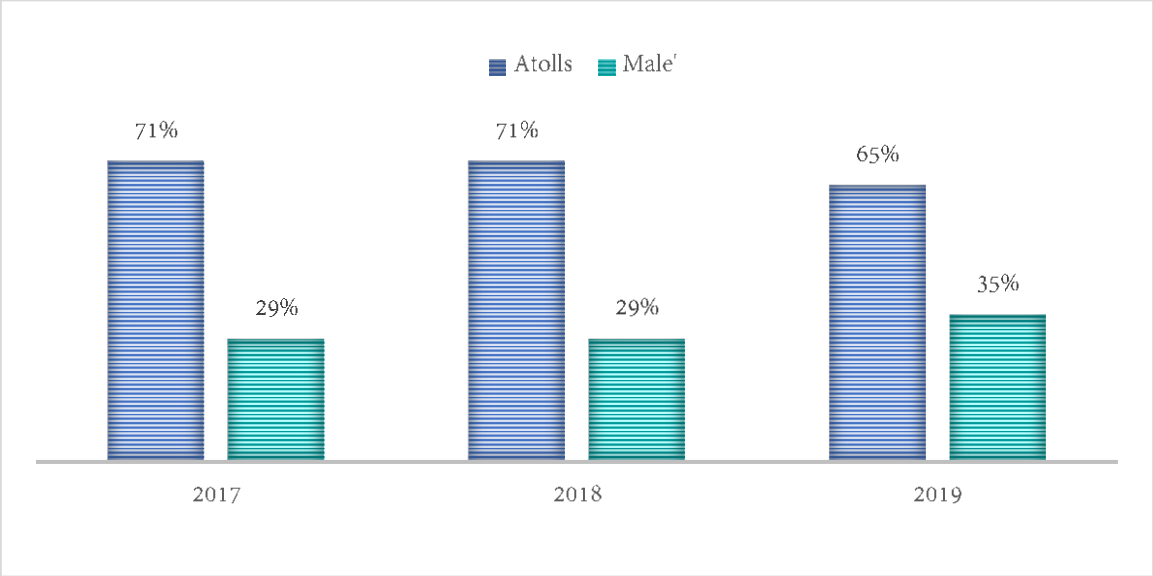


By the geographic location, 71% of the non-medical staff worked in atolls in 2017, 2018 and 2019, while is 2017 non-medical staff reduced to 65% in atolls.

Table 6-20: Non-medical staff by region, 2017, 2018 and 2019

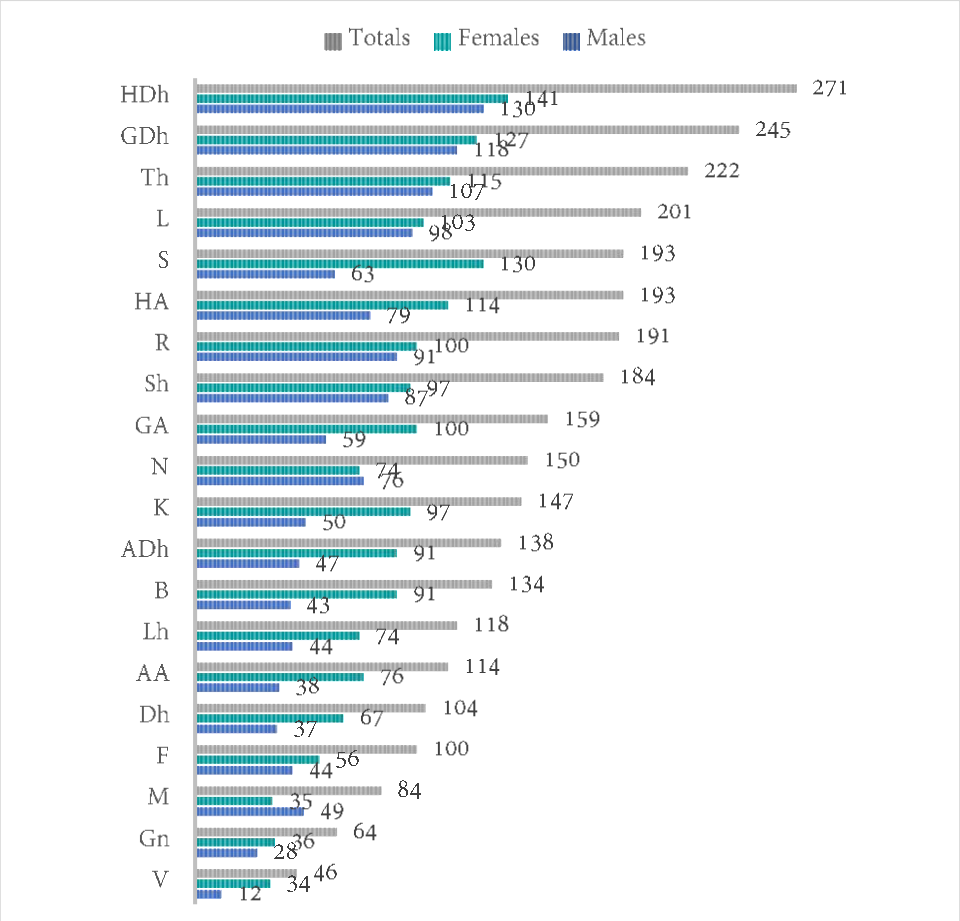
Year	Atolls	Male'	Total
2017	2,671	1,092	3,763
2018	2,657	1,087	3,744
2019	3,078	1,640	4,718
Total	**8,406**	**3,819**	**12,225**

Figure 6-30: Non-medical staff by region, 2017, 2018 and 2019



Excluding Male', when disaggregated, the highest number of non-medical professionals were highest in Haa Dhaal, Gaaf Dhaal and Thaa.

Figure 6-31: Non-medical professionals by Atoll, 2017, 2018 and 2019



Even though, there were an increase in number of non-medical local professionals, the percentage of local professionals were fluctuating from 93%, 94% and 92% for 2017, 2018 and 2019 respectively.

Table 6-21: Non-medical professionals by geographic location and nationality, 2017, 2018 and 2019

	Local		Expat		
Year	Males	Females	Males	Females	Total
2017	**1,470**	**2,178**	**251**	**30**	**3,929**
Atolls	1,195	1,586	29	27	2,837
Male'	275	592	222	3	1,092
2018	**1,463**	**2,224**	**175**	**59**	**3,921**
Atolls	1,162	1,579	34	47	2,822
Male'	301	645	141	12	1,099
2019	**1,788**	**2,573**	**320**	**37**	**4,718**
Atolls	1,291	1,737	9	21	3,058
Male'	497	836	311	16	1,660
Total	**4,721**	**6,975**	**746**	**126**	**12,568**

Figure 6-32: Non-medical professionals by geographic location and nationality, 2017, 2018 and 2019

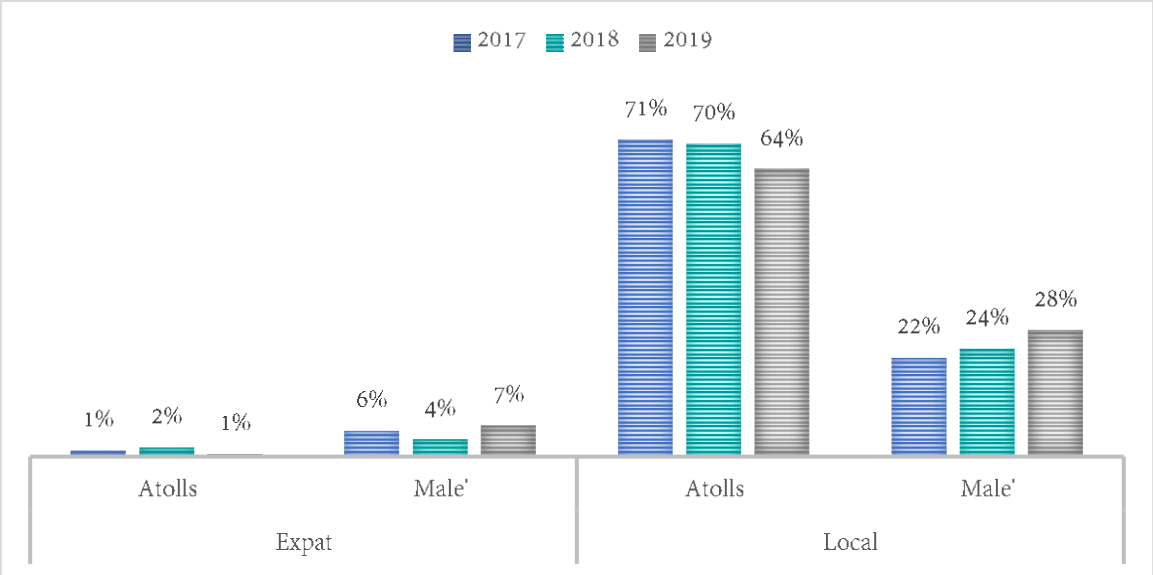


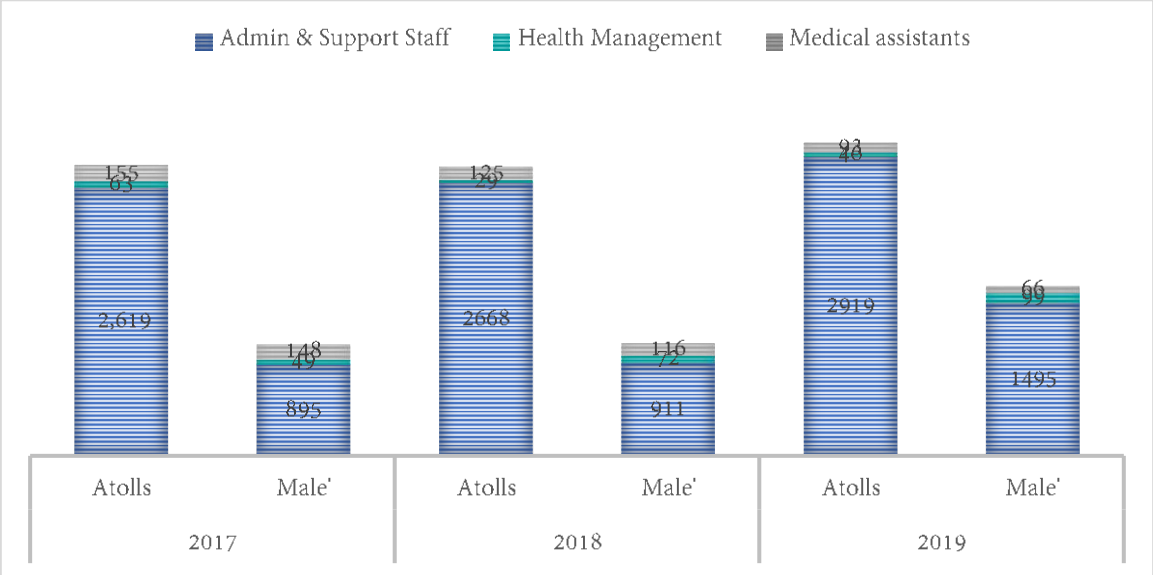
Table 6-22: Occupational groups of non-medical professionals, 2017, 2018 and 2019

Year	2017	2018	2019
Admin & Support Staff	3,514	3,579	4,414
Medical assistants	303	241	159
Health Management	112	101	145
Total	**3,929**	**3,921**	**4,718**

Non-medical professionals represent more than 40% per cent of health professionals in the Maldives for years 2017, 2018 and 2019. The ratio of non-medical staff to medical staff is 2 is to 3 (2:3).

Further, disaggregation of non-medical professional by geographic location shows that there are more administrative and support staff in atolls.

Figure 6-33: Occupational groups of Non-medical Professionals by region, 2017, 2018 and 2019



6.7 ANNEXES

Table 6-23: HRH categories by region for 2017, 2018 and 2019

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
AA	**102**	**42**	**24**	**20**	**108**	**41**	**21**	**21**	**108**	**49**	**18**	**22**
Admin & Support Staff	68	36	-	-	71	35	-	-	76	38	-	-
Anesthesiologist									-	-	-	1
Community health workers	3	3	-	-	3	2	-	-	3	2	-	-
Dispenser									3	-	-	-
Enrolled Nurse	8	-	-	-	7	-	-	-	6	-	-	-
Enrolled Nurse Midwife	1	-	-	-	1	-	-	-	-	-	1	-
Family Health Workers	6	3	-	-	5	3	-	-	4	3	-	-
General Doctors	-	-	2	9	-	-	2	9	1	5	-	6
Laboratory technicians/assistants	1	-	2	1	1	-	2	2	1	-	2	3
Medical assistants	2	-	-	-								
Obstetricians and Gynecologists	-	-	-	1	-	-	-	1	-	-	-	1
Pediatricians	-	-	-	1	-	-	-	1	-	-	-	1
Pharmacist	3	-	-	-	3	-	-	-	1	-	-	-
Pharmacy Assistants	1	-	-	-	4	1	-	-	1	-	-	-
Radiographers	-	-	-	1	-	-	-	1	-	-	-	1
Registered Nurse	9	-	9	7	10	-	5	7	11	-	10	8
Registered Nurse Midwife	-	-	11	-	1	-	12	-	-	1	5	1
Traditional birth attendants					2	-	-	-	1	-	-	-
ADh	**168**	**59**	**19**	**25**	**170**	**55**	**23**	**20**	**173**	**56**	**20**	**23**
Admin & Support Staff	81	46	-	-	91	45	-	-	91	45	-	-
Anesthesiologist	-	-	-	1	-	1	-	-	-	-	-	1

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Community health workers	12	4	-	-	12	4	-	-	10	4	-	-
Dispenser									11	-	-	-
Enrolled Nurse	32	-	-	-	31	-	-	-	26	-	-	-
Enrolled Nurse Midwife	1	-	-	-					5	-	1	1
Family Health Workers	10	2	-	-	7	2	-	-	7	1	-	-
General Doctors	-	-	2	12	-	-	4	10	-	2	2	10
Health Management	-	5	-	-	-	-	1	-	-	2	-	-
Laboratory technicians/assistants	2	-	2	3	1	1	3	2	4	-	1	2
Medical assistants	6	-	-	-								
Nurse interns									-	1	-	-
Obstetricians and Gynecologists	-	-	-	1	-	-	-	1	-	-	-	1
Onco-surgeons	1	-	-	-								
Pediatricians	-	-	-	1	-	-	-	1				
Pharmacist	-	1	-	4	-	1	-	4	-	1	-	4
Pharmacy Assistants	4	-	-	-	6	-	-	-	2	-	-	-
Psychiatrists/Psychologists									-	-	-	1
Radiographers	-	1	-	1	-	1	-	-	-	-	-	1
Registered Nurse	13	-	-	-	11	-	1	-	6	-	6	-
Registered Nurse Midwife	6	-	15	2	6	-	14	2	6	-	10	2
Traditional birth attendants					5	-	-	-	5	-	-	-
B	**166**	**84**	**36**	**32**	**175**	**75**	**34**	**36**	**181**	**63**	**27**	**31**
Admin & Support Staff	73	60	-	-	75	53	-	-	77	41	-	-
Anesthesiologist	-	-	-	1	-	-	-	1	-	-	-	1
Community health workers	7	11	-	-	8	10	-	-	10	9	-	-
Dental technicians/assistants					-	-	-	1				

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Dentists	-	-	-	1	-	-	-	1	-	-	-	1
Dispenser									7	1	-	-
Enrolled Nurse	28	-	-	-	29	-	-	-	27	-	-	-
Enrolled Nurse Midwife	1	-	-	-	2	-	-	-	2	-	-	-
Family Health Workers	14	1	-	-	13	1	-	-	13	1	-	-
General Doctors	-	-	2	15	-	-	-	18	-	-	2	16
Health Management									-	1	-	-
Laboratory Scientists									-	-	1	-
Laboratory technicians/assistants	-	1	4	4	-	1	4	4	-	1	2	4
Medical assistants	13	8	-	-	14	6	-	-	14	1	-	-
Obstetricians and Gynecologists	-	-	-	1	-	-	-	1	-	-	-	1
Pediatricians	-	-	1	-	-	-	1	-	-	-	1	-
Personal Care Workers									4	6	-	-
Pharmacist	2	-	1	3	1	-	1	3	1	-	-	1
Pharmacy Assistants	13	2	-	-	15	3	-	-	7	2	-	-
Radiographers	-	1	-	1	-	1	-	1	-	-	-	1
Registered Nurse	5	-	-	-	9	-	2	-	12	-	9	3
Registered Nurse Midwife	3	-	28	5	3	-	25	5	2	-	12	2
Surgeons	-	-	-	1	-	-	-	1	-	-	-	1
Traditional birth attendants	7	-	-	-	6	-	1	-	5	-	-	-
Dh	**128**	**43**	**19**	**19**	**135**	**43**	**17**	**18**	**127**	**51**	**16**	**17**
Admin & Support Staff	57	34	-	-	60	34	-	-	57	34	-	-
Anesthesiologist	-	-	1	-	-	-	1	-	-	-	-	1
Community health workers	5	5	-	-	5	5	-	-	4	6	-	-
Dentists									-	-	-	1

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Dispenser									6	-	-	-
Enrolled Nurse	19	-	-	-	18	-	-	-	10	2	-	-
Enrolled Nurse Midwife									1	-	-	-
Family Health Workers	6	2	-	-	6	2	-	-	6	2	-	-
General Doctors	-	1	2	10	1	1	1	9	1	-	4	6
Health Management									-	2	-	-
Internal medicine (Physicians)					-	-	-	1	-	-	1	-
Laboratory technicians/assistants	4	1	1	2	4	1	1	1	2	1	3	1
Medical assistants	12	-	-	-	12	-	-	-	10	1	-	-
Obstetricians and Gynecologists	-	-	-	1	-	-	-	1	-	-	-	1
Pediatricians	-	-	-	1	-	-	-	1	-	-	-	1
Pharmacist	-	-	-	2	-	-	-	2	-	-	-	3
Pharmacy Assistants	4	-	-	-	8	-	-	-	4	-	-	-
Radiographers	-	-	-	1	-	-	-	1	-	-	-	1
Registered Nurse	19	-	15	1	19	-	14	1	22	2	7	1
Registered Nurse Midwife	1	-	-	-	1	-	-	-	3	-	1	-
Surgeons	-	-	-	1	-	-	-	1	-	-	-	1
Traditional birth attendants	1	-	-	-	1	-	-	-	1	1	-	-
F	**58**	**62**	**7**	**65**	**124**	**50**	**7**	**15**	**119**	**54**	**7**	**17**
Admin & Support Staff	47	40	-	-	50	39	-	-	47	42	2	-
Anesthesiologist	-	-	-	1					-	-	-	1
Community health workers	7	-	-	1	-	7	-	-	-	7	-	-
Dental technicians/assistants									1	-	-	-
Dentists									-	-	-	1
Dispenser									2	-	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Enrolled Nurse	-	-	-	19	19	-	-	-	12	-	-	-
Enrolled Nurse Midwife									3	-	-	-
Family Health Workers	-	-	-	9	9	-	-	-	9	-	-	-
General Doctors	1	1	-	8	1	1	1	6	1	-	-	8
Health Management	-	4	-	-	-	2	-	-	-	2	-	-
Internal medicine (Physicians)					1	-	-	-				
Laboratory technicians/assistants	1	-	5	-	-	1	1	4	-	1	2	3
Medical assistants	-	8	-	-	8	-	-	-	7	-	-	-
Obstetricians and Gynecologists	-	-	-	1	-	-	-	1	-	-	-	1
Pediatricians	-	-	-	1	-	-	-	1	-	1	-	-
Pharmacy Assistants	2	-	-	-	4	-	-	-	5	-	-	-
Psychiatrists/Psychologists	-	-	1	-	-	-	-	1				
Radiographers	-	2	1	1	1	-	-	1	1	-	-	1
Registered Nurse	-	5	-	21	26	-	-	-	26	1	1	1
Registered Nurse Midwife	-	-	-	2	3	-	5	-	3	-	2	-
Surgeons	-	-	-	1	-	-	-	1	-	-	-	1
Traditional birth attendants	-	2	-	-	2	-	-	-	2	-	-	-
GA	**151**	**61**	**53**	**35**	**154**	**61**	**47**	**31**	**179**	**62**	**46**	**53**
Admin & Support Staff	84	53	-	-	85	54	-	-	100	53	-	-
Anesthesiologist	-	-	-	2	-	-	-	2	-	-	-	1
Community health workers	5	4	-	-	3	4	-	-	4	2	-	-
Dentists					-	-	-	1	-	-	-	1
Dispenser									8	-	-	-
Enrolled Nurse	20	-	-	-	19	-	-	-	18	-	-	-
Enrolled Nurse Midwife	5	-	-	-	1	-	-	-	7	-	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Family Health Workers	5	-	3	-	8	-	-	-	6	1	-	-
General Doctors	1	-	1	15	1	-	3	12	-	-	1	18
Health Management	-	4	-	-	-	3	-	-	-	6	-	-
Internal medicine (Physicians)	-	-	-	1	-	-	-	1	-	-	-	1
Laboratory technicians/assistants	2	-	2	4	2	-	3	3	2	-	2	5
Obstetricians and Gynecologists	-	-	-	2	-	-	-	2	-	-	-	1
Orthopedic Doctors	-	-	-	1	-	-	-	1	-	-	-	1
Pediatricians									-	-	-	2
Pharmacist	-	-	-	2	3	-	1	1	1	-	1	1
Pharmacy Assistants	11	-	-	-	9	-	-	-	6	-	-	-
Physiotherapists									-	-	-	1
Radiographers	1	-	-	2	1	-	-	2	-	-	-	2
Registered Nurse	12	-	41	5	16	-	32	4	21	-	22	9
Registered Nurse Midwife	2	-	6	-	3	-	8	1	3	-	20	9
Surgeons	-	-	-	1	-	-	-	1	-	-	-	1
Traditional birth attendants	3	-	-	-	3	-	-	-	3	-	-	-
GDh	**202**	**100**	**49**	**48**	**204**	**106**	**41**	**51**	**220**	**126**	**59**	**54**
Admin & Support Staff	99	89	-	-	98	93	-	-	123	116	4	1
Anesthesiologist	-	-	-	1	-	-	-	2	-	-	-	1
Community health workers	5	3	-	-	5	3	-	-	7	2	-	-
Dentists	-	-	-	1	-	-	-	1	-	-	-	2
Dermatologists	-	-	-	1	-	-	-	1	-	-	-	1
Dispenser									7	1	-	-
Enrolled Nurse	37	-	-	-	37	-	-	-	23	-	-	-
Enrolled Nurse Midwife									1	-	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
ENT Doctors (Otorhinolaryngologists)	-	-	-	1	-	-	-	1	-	-	-	1
Family Health Workers	6	5	-	-	6	5	-	-	6	4	-	-
General Doctors	-	-	2	17	-	-	2	16	-	-	4	17
Health Management	1	2	-	-	1	1	-	-	-	1	-	-
Internal medicine (Physicians)	-	-	-	1	-	-	-	1	-	-	-	2
Laboratory technicians/assistants	2	1	2	6	2	-	2	6	-	1	3	8
Obstetricians and Gynecologists	-	-	-	2	-	-	-	1	-	-	-	2
Ophthalmologists	-	-	-	1	-	-	-	1	-	-	-	2
Orthopedic Doctors	-	-	-	1	-	1	-	-	-	1	-	1
Pediatricians	-	-	1	1	-	-	-	2	-	-	1	2
Pharmacist	-	-	-	3	1	-	-	4	1	-	-	2
Pharmacy Assistants	9	-	-	-	14	1	-	-	7	-	-	-
Physiotherapists	-	-	1	1	-	1	1	1	-	-	1	1
Psychiatrists/Psychologists	-	-	-	1	-	-	-	1	-	-	-	2
Radiographers	-	-	-	2	-	1	1	2	-	-	1	1
Registered Nurse	42	-	34	5	39	-	26	8	44	-	31	6
Registered Nurse Midwife	1	-	9	1	1	-	9	1	1	-	14	-
Surgeons	-	-	-	2	-	-	-	2	-	-	-	2
Gn	**77**	**32**	**8**	**17**	**92**	**34**	**5**	**15**	**94**	**32**	**3**	**13**
Admin & Support Staff	25	28	-	-	26	28	-	-	28	26	-	-
Anesthesiologist	-	-	-	1	-	-	-	1	-	-	-	1
Community health workers	2	2	-	-	2	2	-	-	2	2	-	-
Dentists					-	-	-	1	-	-	-	1
Dispenser									3	-	-	-
Enrolled Nurse	12	-	-	-	11	-	-	-	10	-	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Enrolled Nurse Midwife	2	-	-	-	2	-	-	-	1	-	-	-
Family Health Workers	3	1	-	-	3	1	-	-	2	1	-	-
General Doctors	-	-	1	4	-	-	1	5	-	-	-	4
Health Management	1	-	-	2	-	2	-	-	-	1	-	-
Internal medicine (Physicians)	-	-	-	1					-	-	1	-
Laboratory technicians/assistants	4	-	-	1	4	-	-	-	3	-	-	-
Medical assistants	8	1	-	-	8	1	-	-	8	1	-	-
Obstetricians and Gynecologists	-	-	1	1	-	-	1	1	-	-	1	1
Ophthalmologists	-	-	-	1	-	-	1	-				
Orthopedic Doctors	-	-	-	1	-	-	-	1	-	-	-	1
Pediatricians	-	-	1	-	-	-	1	-	-	-	1	-
Pharmacist	-	-	-	2	-	-	-	3	1	-	-	1
Pharmacy Assistants					11	-	-	-	11	1	-	-
Physiotherapists					-	-	-	1	-	-	-	1
Radiographers	-	-	-	1	-	-	-	1	-	-	-	2
Radiologists					-	-	1	-				
Registered Nurse	14	-	5	1	20	-	-	-	20	-	-	-
Registered Nurse Midwife	6	-	-	-	5	-	-	-	5	-	-	-
Surgeons	-	-	-	1	-	-	-	1	-	-	-	1
HA	**127**	**147**	**65**	**51**	**170**	**107**	**51**	**49**	**204**	**94**	**40**	**52**
Admin & Support Staff	87	77	8	10	100	92	-	-	113	72	-	-
Anesthesiologist	-	-	1	-	-	-	-	1	-	-	-	1
Community health workers	5	5	-	8	8	9	-	-	6	9	-	-
Dentists					-	-	-	1	-	-	-	1
Dispenser									13	1	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Enrolled Nurse	6	-	-	3	13	-	-	-	8	-	-	-
Enrolled Nurse Midwife	-	34	-	-					1	-	-	-
Family Health Workers	7	4	-	7	13	3	-	-	12	3	-	-
General Doctors	1	-	13	4	-	-	1	21	-	-	2	21
Health Management	-	-	13	-	-	1	-	-	-	6	-	-
Internal medicine (Physicians)									-	-	-	1
Laboratory Scientists					-	-	-	2	-	-	-	1
Laboratory technicians/assistants	1	1	7	1	2	-	2	3	2	1	3	8
Medical assistants	1	2	-	-	1	1	-	-	1	1	-	-
Nurse interns									3	-	-	-
Obstetricians and Gynecologists	-	-	1	1	-	-	1	3	-	-	1	2
Ophthalmologists	-	1	-	-								
Orthopedic Doctors									-	-	-	1
Other Health Workers									4	-	-	-
Pediatricians	-	-	1	-	-	-	-	1	-	-	-	1
Pharmacist	1	8	-	3	1	-	-	4	1	-	-	4
Pharmacy Assistants	8	1	-	-	12	1	-	-	9	1	-	-
Physiotherapists					-	-	-	1	-	-	-	1
Radiographers	-	2	1	-	-	-	-	1	-	-	-	1
Registered Nurse	7	11	15	12	17	-	27	9	28	-	15	1
Registered Nurse Midwife	-	1	4	1	1	-	20	1	2	-	19	7
Surgeons	-	-	1	-	-	-	-	1	-	-	-	1
Traditional birth attendants	3	-	-	1	2	-	-	-	1	-	-	-
HDh	**257**	**112**	**49**	**48**	**279**	**114**	**75**	**80**	**309**	**152**	**44**	**60**
Admin & Support Staff	107	94	-	-	107	94	33	29	141	130	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Anesthesiologist	-	-	1	1	-	-	1	1	-	-	1	1
Cardiologists					-	-	-	1	-	-	-	1
Community health workers	10	6	-	-	5	3	-	-	7	6	-	-
Dental technicians/assistants					-	-	1	-	1	-	-	-
Dentists	1	-	-	1	1	-	-	1	1	-	-	2
Dermatologists	-	-	-	1	-	-	-	1				
Dispenser									12	-	-	-
Enrolled Nurse	31	2	-	-	32	2	-	-	25	1	2	-
Enrolled Nurse Midwife									1	-	-	-
ENT Doctors (Otorhinolaryngologists)	-	-	-	1	-	-	-	1	-	-	-	2
Family Health Workers	25	2	-	-	20	2	-	-	22	4	-	-
General Doctors	-	-	3	21	-	-	1	22	-	-	3	18
Internal medicine (Physicians)	-	-	-	1	-	-	-	1	-	-	-	1
Laboratory Scientists					-	-	-	1				
Laboratory technicians/assistants	4	1	4	6	5	2	4	6	4	2	6	10
Medical assistants	20	6	-	-	18	6	-	-				
Neurosurgeons/Neurologists					-	-	-	1	-	-	-	1
Obstetricians and Gynecologists	-	-	-	2	-	-	1	1	-	-	2	1
Ophthalmologists					-	-	1	-	-	-	1	1
Orthopedic Doctors	-	-	-	1	-	-	-	1	-	-	-	2
Other Health Workers									1	-	-	-
Pediatricians	-	-	1	-	-	-	-	2	-	-	-	3
Pharmacist	-	-	-	4	-	-	-	3	1	-	-	3
Pharmacy Assistants	3	1	-	-	19	5	-	-	17	5	-	-
Physiotherapists	-	-	-	1	-	-	1	1	-	-	1	1

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Psychiatrists/Psychologists	-	-	1	-					-	-	2	2
Radiographers	-	-	1	1	-	-	1	1	-	1	1	1
Radiologists	-	-	-	1	-	-	-	1				
Registered Nurse	53	-	38	4	59	-	31	3	74	2	12	4
Registered Nurse Midwife					12	-	-	-	2	1	13	4
Surgeons	-	-	-	2	-	-	-	2	-	-	-	2
Traditional birth attendants	3	-	-	-	1	-	-	-				
K	**129**	**66**	**41**	**17**	**136**	**53**	**37**	**24**	**160**	**63**	**26**	**22**
Admin & Support Staff	74	53	-	-	79	33	1	4	97	50	-	-
Community health workers	4	8	-	-	4	8	-	-	3	9	1	-
Counsellors					-	2	-	-				
Dermatologists									-	-	-	1
Dispenser									4	-	-	-
Enrolled Nurse	20	-	-	-	19	-	-	-	20	-	-	-
Family Health Workers	10	1	-	-	10	1	-	-	8	2	-	-
General Doctors	-	-	4	10	-	-	4	10	1	-	2	10
Health Management	-	2	-	-	-	1	-	-				
Internal medicine (Physicians)									-	-	-	1
Laboratory Scientists	1	-	-	1								
Laboratory technicians/assistants	1	-	-	2	2	-	-	3	2	-	-	3
Pharmacist	1	-	-	1	2	1	1	2	-	-	-	4
Pharmacy Assistants	1	1	-	-	2	6	1	1	8	1	-	-
Registered Nurse	12	1	20	3	13	1	23	2	13	1	17	2
Registered Nurse Midwife	2	-	17	-	2	-	7	2	2	-	6	1
Traditional birth attendants	2	-	-	-	3	-	-	-	1	-	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Traditional medicine practitioners	1	-	-	-					1	-	-	-
L	**185**	**99**	**55**	**40**	**202**	**98**	**48**	**35**	**217**	**112**	**45**	**49**
Admin & Support Staff	84	88	-	-	84	86	-	-	103	95	-	-
Anesthesiologist	-	-	-	1	-	-	1	1	-	-	-	1
Community health workers	9	5	-	-	9	5	-	-	5	5	-	-
Dentists	-	-	-	1	-	-	-	1	-	-	-	2
Dermatologists	-	-	-	1	-	-	-	1	-	-	-	1
Dispenser									12	3	-	-
Enrolled Nurse	41	-	-	-	42	-	-	-	30	-	-	-
Enrolled Nurse Midwife	2	-	-	-	2	-	-	-				
ENT Doctors (Otorhinolaryngologists)	-	-	-	1	-	-	-	1	-	-	-	1
Family Health Workers	13	5	-	-	13	5	-	-	12	5	-	-
General Doctors	-	-	7	12	2	-	10	9	2	-	5	15
Health Management									-	3	-	-
Internal medicine (Physicians)	-	-	1	-	-	-	1	-	-	-	1	-
Laboratory technicians/assistants	4	1	2	4	7	1	1	4	7	1	3	6
Obstetricians and Gynecologists	-	-	1	1	-	-	1	1	-	-	1	2
Ophthalmologists	-	-	-	1	-	-	-	1	-	-	-	1
Orthopedic Doctors	-	-	-	1	-	-	-	1	-	-	-	2
Other Health Workers									1	-	-	-
Pediatricians	-	-	-	1	-	-	-	1	-	-	1	2
Pharmacist	1	-	-	1	1	-	-	1	1	-	-	2
Pharmacy Assistants	3	-	-	-	12	1	-	-	8	-	-	-
Physiotherapists	-	-	1	1	-	-	1	1	-	-	2	-
Psychiatrists/Psychologists									-	-	-	2

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Radiographers	-	-	1	1	-	-	1	1	-	-	1	2
Registered Nurse	26	-	31	10	28	-	21	8	33	-	26	6
Registered Nurse Midwife	2	-	11	1	2	-	11	1	3	-	5	2
Surgeons	-	-	-	2	-	-	-	2	-	-	-	2
Lh	**108**	**51**	**21**	**31**	**116**	**44**	**19**	**35**	**125**	**49**	**19**	**35**
Admin & Support Staff	68	43	-	-	73	38	-	-	73	41	-	-
Anesthesiologist	-	-	-	1	-	-	-	1	-	-	-	1
Community health workers	3	2	-	-	3	2	-	-	4	2	-	-
Dentists					-	-	-	1	-	-	-	1
Dispenser									4	1	-	-
Enrolled Nurse	10	-	-	-	11	-	-	-	8	-	-	-
Enrolled Nurse Midwife	1	-	-	-	1	-	-	-	4	-	-	-
Family Health Workers	4	2	-	-	4	2	-	-	4	2	-	-
General Doctors	-	-	3	5	-	-	1	8	1	-	1	7
Health Management	-	3	-	-					1	3	-	-
Internal medicine (Physicians)					-	-	-	1	-	-	-	1
Laboratory technicians/assistants	3	1	-	3	2	1	1	3	2	-	2	3
Obstetricians and Gynecologists	-	-	-	2	-	-	-	2	-	-	-	2
Orthopedic Doctors	-	-	-	1	-	-	-	1	-	-	-	1
Pediatricians	-	-	1	-	-	-	-	1	-	-	-	1
Pharmacist	-	-	-	7	-	-	-	7	-	-	1	7
Pharmacy Assistants	2	-	-	-	4	1	-	-	3	-	-	-
Physiotherapists	1	-	-	-	1	-	-	-	1	-	-	-
Radiographers	-	-	-	2	-	-	-	2	-	-	-	2
Registered Nurse	13	-	-	-	13	-	-	-	15	-	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Registered Nurse Midwife	-	-	17	9	1	-	17	7	2	-	15	8
Surgeons	-	-	-	1	-	-	-	1	-	-	-	1
Traditional birth attendants	3	-	-	-	3	-	-	-	3	-	-	-
M	**96**	**51**	**25**	**25**	**97**	**52**	**25**	**26**	**91**	**57**	**22**	**23**
Admin & Support Staff	41	42	-	-	41	43	-	-	35	46	-	-
Anesthesiologist	-	-	-	1	-	-	-	1	-	-	-	1
Community health workers	3	4	-	-	3	4	-	-	4	6	-	-
Dentists	-	-	-	1	-	-	-	1	-	-	-	1
Dispenser									3	-	-	-
Enrolled Nurse	20	-	-	-	16	-	-	-	19	-	-	-
Enrolled Nurse Midwife	1	-	-	-	1	-	-	-				
Family Health Workers	11	1	-	-	11	1	-	-	10	1	-	-
General Doctors	-	-	2	10	-	-	1	11	-	-	1	10
Health Management	-	2	-	-	-	2	-	-	-	2	-	-
Laboratory technicians/assistants	-	-	2	4	-	-	2	4	-	-	2	4
Medical assistants	1	1	-	-	1	1	-	-	-	1	-	-
Obstetricians and Gynecologists	-	-	-	1	-	-	-	1	-	-	-	1
Pediatricians	-	-	-	1	-	-	-	1	-	-	-	1
Personal Care Workers	1	-	-	-	1	-	-	-	1	-	-	-
Pharmacist									-	-	-	1
Pharmacy Assistants	7	-	-	-	12	-	-	-	6	-	-	-
Physiotherapists	-	-	-	2	-	-	-	2	-	-	-	2
Radiographers	-	1	1	-	-	1	1	-	-	1	1	-
Registered Nurse	9	-	15	3	9	-	16	3	10	-	9	-
Registered Nurse Midwife	-	-	5	1	-	-	5	1	1	-	9	1

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Surgeons	-	-	-	1	-	-	-	1	-	-	-	1
Traditional birth attendants	2	-	-	-	2	-	-	-	2	-	-	-
Male'	**1,509**	**425**	**557**	**747**	**1,851**	**465**	**480**	**879**	**2,258**	**733**	**728**	**1,015**
Admin & Support Staff	442	232	2	219	524	255	3	129	741	449	13	292
Anesthesiologist	4	2	4	13	5	1	5	16	4	2	6	20
Cardiologists	1	6	-	3	1	5	-	2	-	6	-	3
Cardiothoracic & vascular surgeon	-	1	-	-	-	1	-	1				
Community health workers	6	1	-	-	7	1	-	-	7	1	-	-
Counsellors	5	-	-	-	4	2	-	-	6	-	-	-
Counsellors									2	-	-	-
Dental technicians/assistants	33	6	-	4	32	2	-	6	16	2	-	2
Dental Technicians/Assistants									18	2	-	1
Dentists	8	4	1	9	8	4	2	11	3	1	3	11
Dentists					1	1	1	-	10	2	2	1
Dermatologists	6	4	-	-	8	4	-	-	10	4	2	-
Dispenser									36	6	-	-
Emergency Medicine									1	1	-	-
Endocrinologists	-	-	-	2	-	-	-	1				
Enrolled Nurse	94	1	1	-	91	1	-	-	83	7	1	-
Enrolled Nurse Midwife	9	-	-	-	9	-	1	-	8	-	-	-
ENT Doctors (Otorhinolaryngologists)	-	-	1	9	-	2	2	10	2	3	2	12
Environmental and public health workers									-	-	-	1
Environmental and Public Health Workers									-	-	-	1
Gastroenterologist	-	-	-	1	-	-	-	1				
General Doctors	60	28	34	73	88	35	26	64	129	47	32	73

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Health Management	20	25	1	3	29	29	7	7	39	38	3	19
Internal medicine (Physicians)	4	18	-	10	4	22	-	12	5	22	-	13
Laboratory Scientists	-	1	1	1	2	1	1	1	2	-	2	7
Laboratory Scientists									7	1	4	9
Laboratory technicians/assistants	96	14	19	32	103	13	16	33	55	9	14	27
Laboratory Technicians/Assistants									64	8	3	5
Medical assistants	130	18	-	-	92	17	2	5	56	10	-	-
Nephrologist	-	1	-	-	-	1	-	1	-	1	-	2
Neurosurgeons/Neurologists	-	3	-	3	-	3	-	4	-	4	-	9
Nurse interns					137	-	-	-	-	2	-	-
Obstetricians and Gynecologists	16	2	5	3	18	2	7	3	22	4	8	2
Oncologists	-	-	-	1	-	-	-	1	-	-	-	1
Onco-surgeons					-	1	-	-	-	1	-	-
Ophthalmologists	5	1	1	6	5	1	3	5	5	2	4	4
Oral & Maxillo Facial Surgery									-	1	-	1
Orthodontist									1	-	-	-
Orthopedic Doctors	-	11	-	9	-	9	1	10	1	9	1	12
Other Health Workers	4	2	4	2	5	3	2	6	24	7	9	7
Pathologist	2	-	3	1	2	-	2	1	2	-	1	1
Pediatric Cardiology									1	-	-	-
Pediatricians	11	4	1	9	12	4	3	10	14	5	8	15
Pharmacist	9	2	7	140	14	2	14	152	27	5	31	163
Pharmacy Assistants	66	11	-	1	92	22	1	-	158	23	2	-
Physiotherapists	6	3	4	11	6	3	8	15	1	2	3	10
Physiotherapists									2	5	5	11

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Psychiatrists/Psychologists	3	2	1	3	4	1	2	2	6	3	3	4
Pulmonologists	-	3	-	1	-	3	-	2	-	3	-	3
Radiographers	6	4	5	32	4	4	11	33	3	7	17	13
Radiographers									1	-	6	20
Radiologists	7	1	4	3	7	-	1	7	7	-	1	9
Registered Nurse	346	3	4	4	427	2	70	40	558	13	487	196
Registered Nurse Midwife	108	-	454	128	105	-	285	273	113	1	53	20
Social Workers									2	-	-	-
Speech Pathologists	2	-	-	-	3	-	2	1	1	-	-	1
Speech Pathologists									2	1	1	-
Surgeons	-	10	-	8	2	6	2	10	3	11	1	10
Urologists	-	1	-	3	-	2	-	4	-	2	-	4
N	**119**	**72**	**45**	**32**	**129**	**80**	**40**	**32**	**132**	**91**	**40**	**35**
Admin & Support Staff	67	55	-	-	72	63	-	-	73	68	-	-
Anesthesiologist	-	-	-	1	-	-	-	1	-	-	-	1
Community health workers	5	7	-	-	6	7	-	-	6	6	1	-
Dispenser									9	1	-	-
Enrolled Nurse	10	-	-	-	12	-	-	-	10	-	-	-
Enrolled Nurse Midwife									1	-	-	-
Family Health Workers	8	3	1	-	9	3	-	-	8	3	-	-
General Doctors	-	-	4	15	-	-	2	15	-	1	1	15
Health Management	-	2	-	-	-	2	-	-	-	8	-	-
Internal medicine (Physicians)									-	-	-	1
Laboratory technicians/assistants	-	2	-	5	-	2	-	5	1	3	-	5
Medical assistants	1	-	-	-	1	-	-	-	1	-	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Obstetricians and Gynecologists	-	-	1	-	-	-	-	1	-	-	-	1
Pediatricians	-	-	-	1	-	-	-	1	-	-	-	1
Pharmacist	1	-	-	2	1	-	-	1	1	-	-	1
Pharmacy Assistants	14	2	-	-	15	2	-	-	6	1	-	-
Radiographers	-	1	-	-	-	1	-	-	-	-	-	1
Registered Nurse	13	-	16	2	13	-	15	2	14	-	35	8
Registered Nurse Midwife	-	-	23	5	-	-	23	5	-	-	3	-
Surgeons	-	-	-	1	-	-	-	1	-	-	-	1
Traditional birth attendants									2	-	-	-
R	**162**	**76**	**80**	**69**	**182**	**79**	**74**	**63**	**208**	**112**	**62**	**65**
Admin & Support Staff	55	42	-	-	59	52	-	-	90	81	-	-
Anesthesiologist	-	-	-	1	-	-	1	1				
Community health workers	9	9	1	1	10	11	-	-	11	10	-	-
Dentists	-	-	1	1	-	-	1	1	-	-	-	2
Dermatologists	-	-	-	1	-	-	-	1	-	-	-	1
Dispenser									8	1	-	-
Enrolled Nurse	18	4	1	-	18	1	-	1	19	1	-	-
Enrolled Nurse Midwife	4	1	1	-	4	-	2	-	4	-	-	-
ENT Doctors (Otorhinolaryngologists)					-	-	1	-	-	-	1	-
Environmental and public health workers	-	-	2	-								
Family Health Workers	16	3	-	-	17	3	-	-	14	4	1	-
General Doctors	1	-	2	19	-	-	4	18	1	-	4	19
Health Management	1	2	6	10	-	1	10	-	-	5	-	-
Internal medicine (Physicians)	-	-	-	2	-	-	-	2	-	-	1	1
Laboratory Scientists									2	-	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Laboratory technicians/assistants	4	2	3	6	3	-	3	7	1	-	3	7
Medical assistants	15	5	-	-	14	5	2	-	10	5	-	-
Obstetricians and Gynecologists	-	-	1	1	-	-	-	2	-	-	1	2
Ophthalmologists	-	-	-	1	-	-	-	1	-	-	-	1
Orthopedic Doctors	-	-	-	1	-	-	-	1	-	-	-	2
Pediatricians	-	-	-	1	-	-	1	1	-	-	-	2
Personal Care Workers	3	-	-	-	3	-	-	-				
Pharmacist	3	1	-	3	3	3	-	5	2	1	-	3
Pharmacy Assistants	6	1	-	-	11	2	-	-	5	1	-	-
Physiotherapists	-	-	-	2	-	-	-	2	-	-	1	1
Psychiatrists/Psychologists	-	-	-	1	-	-	-	1	-	-	-	1
Radiographers	1	-	-	2	1	1	-	2	1	-	-	2
Registered Nurse	22	5	28	6	33	-	25	5	35	3	23	8
Registered Nurse Midwife	1	1	34	9	3	-	24	10	2	-	27	11
Surgeons	-	-	-	1	-	-	-	2	-	-	-	2
Traditional birth attendants	3	-	-	-	3	-	-	-	3	-	-	-
S	**244**	**48**	**27**	**53**	**189**	**41**	**24**	**48**	**302**	**70**	**32**	**68**
Admin & Support Staff	90	39	-	7	60	33	-	1	130	62	-	1
Anesthesiologist	-	-	-	3	-	-	-	3	-	-	-	3
Community health workers	2	2	-	-	-	2	-	-	2	3	-	-
Dental technicians/assistants	1	-	-	-	-	-	1	-				
Dental Technicians/Assistants									1	-	-	-
Dentists	-	-	2	1	1	-	1	-	1	-	2	-
Dentists									-	-	1	-
Dermatologists	-	-	1	1	-	-	-	1	-	-	-	2

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Dispenser									6	-	-	-
Enrolled Nurse	46	-	-	-	30	-	-	-	39	-	-	-
Enrolled Nurse Midwife	6	-	-	-	7	-	-	-	6	-	-	-
ENT Doctors (Otorhinolaryngologists)	1	-	-	-					1	-	-	1
Family Health Workers	13	-	-	-	3	-	-	-	12	-	-	-
General Doctors	2	1	1	11	2	-	1	13	2	-	4	15
Health Management	-	1	-	-	-	1	-	-				
Internal medicine (Physicians)	-	-	-	1	-	-	-	1	-	-	1	1
Laboratory Scientists	-	-	-	2	-	-	-	2				
Laboratory Scientists									-	-	-	2
Laboratory technicians/assistants	10	2	-	1	7	1	1	-	11	2	3	6
Obstetricians and Gynecologists	-	-	2	1	-	-	1	2	-	-	2	1
Ophthalmologists	-	-	-	1	-	-	-	1	-	-	-	2
Orthopedic Doctors	-	-	-	1	-	-	-	1				
Pediatricians	-	-	-	3	1	-	1	1	1	-	1	2
Pharmacist	2	1	1	8	2	1	1	11	1	1	1	12
Pharmacy Assistants	11	2	-	-	28	3	-	-	18	2	-	-
Physiotherapists	-	-	-	2	-	-	-	3	-	-	-	2
Physiotherapists									-	-	-	1
Psychiatrists/Psychologists					-	-	-	1	-	-	-	2
Radiographers	-	-	1	2	1	-	-	2	1	-	-	2
Radiographers									-	-	-	1
Registered Nurse	36	-	12	4	30	-	6	2	51	-	13	9
Registered Nurse Midwife	19	-	6	3	12	-	10	3	14	-	4	-
Surgeons	-	-	1	1	-	-	1	-	-	-	-	3

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Traditional birth attendants	5	-	-	-	5	-	-	-	5	-	-	-
Sh	**195**	**120**	**38**	**36**	**218**	**123**	**38**	**36**	**218**	**107**	**28**	**37**
Admin & Support Staff	105	100	-	-	114	102	-	-	97	86	-	-
Anesthesiologist	-	-	-	1	-	-	-	1	-	-	-	1
Community health workers	4	10	-	-	4	10	-	-	3	9	-	-
Dispenser									18	1	-	-
Enrolled Nurse	26	1	-	-	26	1	-	-	19	1	-	-
Enrolled Nurse Midwife									6	-	-	-
Family Health Workers	16	5	-	-	16	5	-	-	16	5	-	-
General Doctors	-	-	2	18	-	-	2	18	1	-	4	18
Health Management									-	1	-	-
Laboratory technicians/assistants	2	3	1	7	2	3	1	7	3	3	2	5
Obstetricians and Gynecologists	-	-	-	2	-	-	-	2	-	-	-	2
Pediatricians	-	-	-	2	-	-	-	2	-	-	-	2
Pharmacist	-	-	-	1	1	-	-	1	3	-	-	1
Pharmacy Assistants	6	1	-	-	19	2	-	-	10	-	-	-
Radiographers	-	-	-	1	-	-	-	1	-	-	-	1
Registered Nurse	30	-	-	-	30	-	-	-	38	1	21	5
Registered Nurse Midwife	1	-	35	3	1	-	35	3	3	-	1	1
Surgeons	-	-	-	1	-	-	-	1	-	-	-	1
Traditional birth attendants	5	-	-	-	5	-	-	-	1	-	-	-
Th	**275**	**121**	**44**	**31**	**242**	**117**	**43**	**28**	**201**	**115**	**53**	**38**
Admin & Support Staff	119	101	-	-	108	87	-	-	77	90	15	7
Anesthesiologist	-	-	-	1	-	-	-	1	-	-	-	1
Community health workers	13	3	-	-	12	3	-	-	10	3	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Dentists									-	-	1	-
Dispenser									9	2	-	-
Enrolled Nurse	18	-	-	-	18	-	-	-	13	-	-	-
Environmental and public health workers	33	5	-	-	31	7	-	-	11	1	-	-
Family Health Workers	15	2	-	-	14	2	-	-	14	1	-	-
General Doctors	-	-	3	17	-	-	1	16	-	2	3	13
Health Management	-	1	-	-					-	1	-	-
Internal medicine (Physicians)					-	-	-	1	-	-	-	1
Laboratory Scientists									-	-	1	-
Laboratory technicians/assistants	3	3	2	4	3	3	2	2	3	3	1	5
Medical assistants	41	4	-	-	16	10	-	-	23	9	-	-
Obstetricians and Gynecologists	-	-	1	-	-	-	-	1	-	-	-	1
Pediatricians	-	-	-	1	-	-	1	-	-	-	-	1
Pharmacist	-	-	-	1	-	-	1	-				
Pharmacy Assistants	5	2	-	-	15	5	-	-	13	3	-	-
Psychiatrists/Psychologists	-	-	1	-								
Radiographers	1	-	-	1	1	-	-	-	-	-	-	1
Registered Nurse	16	-	-	-					11	-	15	2
Registered Nurse Midwife	4	-	37	5	17	-	38	6	14	-	17	5
Surgeons	-	-	-	1	-	-	-	1	-	-	-	1
Traditional birth attendants	7	-	-	-	7	-	-	-	3	-	-	-
V	**44**	**15**	**13**	**11**	**49**	**15**	**16**	**10**	**47**	**16**	**19**	**7**
Admin & Support Staff	32	11	-	-	32	11	-	-	34	11	-	-
Community health workers	1	2	-	-	1	2	-	-	-	2	-	-
Dispenser									2	-	-	-

	2017				2018				2019			
	Local		Expat		Local		Expat		Local		Expat	
Year	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Enrolled Nurse	2	-	-	-	2	-	-	-	2	-	-	-
Family Health Workers	2	1	-	-	2	1	-	-	2	1	-	-
General Doctors	-	-	1	7	-	-	1	6	-	1	2	3
Health Management	-	1	-	-	-	1	-	-	-	1	-	-
Laboratory technicians/assistants	1	-	-	1	1	-	-	1	1	-	1	1
Obstetricians and Gynecologists	-	-	-	1	-	-	-	1	-	-	-	1
Pediatricians					-	-	1	-	-	-	1	-
Pharmacy Assistants					5	-	-	-	3	-	-	-
Radiographers	-	-	-	1	-	-	-	1	-	-	-	1
Registered Nurse	3	-	11	1	3	-	14	1	3	-	14	1
Registered Nurse Midwife	1	-	1	-	1	-	-	-	-	-	1	-
Traditional birth attendants	2	-	-	-	2	-	-	-				
Total	4,502	1,886	1,275	1,452	5,022	1,853	1,165	1,552	5,673	2,264	1,354	1,736

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