Qatar Health Report 2017-2019

Foreword

The Qatar National Health Report 2017-2019 is the second report in the series of Qatar's Health Report aiming to provide updated data on a regular basis of the health profile of Qatar and its associated healthcare system. The report showcases health indicators in Qatar which allow health and government authorities to identify areas that require effective measures and decision-making. They will also serve, in the future, as basis to assess the impact of interventions promoting health and well-being for Qatar's population.

The data included in the report will help develop future National Strategies to improve the health and well-being of the population. It will represent a solid and official set of data that will be shared at an international level to report health status of Qatar's population allowing international comparisons as well as monitoring of Qatar's commitments to promote health.

To improve the health of Qatar's population, a thorough knowledge of the current health status in the country is essential. We need to understand the distribution of the main causes of diseases, the risk factors as well as the resources available in the health system to address them to implement informed policies and interventions based on a comprehensive set of valid and reliable data. This is particularly relevant during an era where a huge amount of interoperable data is being available through secure platforms.

I would like to thank all people who contributed to this report and to the collection and review of the data. In the middle of a data driven period, there is still a lot of work to be done to adopt data analytics, improve the quality of data and create secure, open, and linked platforms. With our motivated and professional team, I am confident that we will be able to grasp all changes happening and use our data more efficiently to create tailored and evidence-based solutions and interventions to improve the health and well-being of Qatar's population.

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Acknowledgments

The report's leadership was provided by the members of the Qatar Health Observatory committee, chaired by Sheikh Dr. Mohammed bin Hamad Al Thani, Director of Public Health Department, Ministry of Public Health and Dr. Roberto Bertollini, Advisor to her Excellency the Minister of Public Health.

Qatar's various healthcare providers and government agencies as well as the different departments at the Ministry of Public Health greatly contributed to this report by providing comprehensive data and information[1].

The report's preparation, drafting and review as well as statistical support and validation were provided by Mr. Shamseldin Khalifa and Mr. Amine Bin Ali Toumi, Health Intelligence and Information Section, Ministry of Public Health.

[1] Not updated data in this report (i.e., STEPwise data, Health financing…) can be found in the last published Qatar Annual Health Report 2014-2016
https://www.moph.gov.qa/_layouts/download.aspx?SourceUrl=/Admin/Lists/PublicationsAttachments/Attachments/110/Qatar%20%20Health%20%20Report%20%202014-2016%20ENG%20v6.pdf

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Acronyms and Abbreviations

UN: United Nation

SDGs: Sustainable Development Goals

PSA: Planning and Statistics Authority

ASMR: Age Specific Mortality Rate

ASFR: Age Specific Fertility Rate

TFR: Total Fertility Rate

ICD-10: International Classification of Diseases, Tenth Revision

GCC: Gulf Cooperation Council

OECD: Organization of Economic Co-operation and Development

EU28: European Union 28 Member States

WHO: World Health Organization

NCD: Non-Communicable Diseases

WHO EMRO: World Health Organization Eastern Mediterranean Regional Office

SBP: Systolic Blood Pressure

DBP: Diastolic Blood Pressure

BMI: Body Mass Index

AMR: Adult Mortality Rate

g/dL: Grams per Deciliter

sq.km: Square Kilometer

GYTS: Global Youth Tobacco Survey

Definitions:[2]

1. **Live Birth:** Live birth is 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 such as: beating of the 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 detached; regardless of gestational age.
2. **Crude Birth Rate:** The number of live births during a particular year per 1000 mid-year total population.
3. **General Fertility Rate:** The number of live births per 1000 mid-year female population of childbearing age (15-49).
4. **Age specific fertility rate:** The annual number of live births per 1000 women of a specified age
5. **Total fertility rate**: It is obtained by summing the age-specific fertility rates for single years of age over the childbearing span and it is computed on a "per woman" basis. It states the total number of children an average woman would bear during her lifetime if she were to bear children throughout her reproductive years at rates specified by the schedule of age-specific fertility rate for the particular year or time interval. It assumes that this hypothetical woman does not die before the end of her childbearing age (i.e. age 50).
6. **Crude Death Rate:** The total number of deaths at a certain area during a specific year (or annual average of an interval period) divided by the mid-year (or mid-period) estimated population living in that area during that year (or period).
7. **Infant Mortality Rate:** Number of infant deaths aged less than one year in a specific year, per 1000 live births during the same year.
8. **Neonatal Mortality Rate:** Number of infant deaths aged less than 28 days in a specific year, per 1000 live births during the same year.
9. **Maternal Mortality Rate:** The annual number of deaths of women from pregnancy related causes divided by the number of births per 100.000 live births.
10. **Child Mortality Rate:** The child mortality rate is the probability of dying per 1,000 live-births) between the first and the fifth birth dates.

[2] For more details refer to the following link (Topics Listing (psa.gov.qa))

11. **Age-Specific Mortality Rate:** Age -specific death rate (ASDRs) can be defined as the rate between number of deaths in a particular age group and total number of population of the age group.

Introduction:

The main purpose of this report is to learn about the health of the population, contributing factors to health risks and outcomes and assessing the available resources to improve the health status of the country. Public health is a complex and multifaceted field that encompasses a wide range of factors influencing the well-being and health outcomes of populations. From the moment of birth to the delivery of essential healthcare services, various determinants play a crucial role in shaping the overall health status of individuals and communities. This report delves into critical aspects of public health, exploring key indicators and trends that shed light on the dynamics of population health. Through a comprehensive examination of birth outcomes, fertility rates, life expectancy, mortality patterns, morbidity profiles, health risk factors, healthcare workforce dynamics, and service delivery mechanisms, this report aims to provide a comprehensive analysis of the factors that contribute to the health and well-being of populations. By delving into these interconnected themes, we seek to gain a deeper understanding of the challenges and opportunities in promoting public health and advancing the overall health outcomes of the population and providing valuable insights and figures for policymakers, healthcare professionals, and stakeholders to improve overall population health and inform evidence-based decision-making.

In the first chapter, the report provides an overall description of the socio-economic factors of the population as well as the demographic characteristics of the citizens and residents in the country.

The second chapter, the report focuses on birth, analyzing birth rates, patterns, and trends within the population. It explores the implications of these factors on population dynamics and provides a foundation for understanding the overall health of the population. Also, it delves into fertility and study their impact on population growth. It explores trends and changes in fertility rates.

Moving forward, the third chapter explores life expectancy and mortality by cause of death. It investigates the factors influencing life expectancy and analyzes mortality rates, providing valuable insights into the health outcomes and challenges faced by the population.

The fourth chapter addresses morbidity, specifically focusing on non-communicable diseases (NCDs) and communicable diseases (CDCs). It examines the prevalence of these diseases within the population and explores the healthcare systems' response to managing and preventing them.

The fifth chapter investigates various health risk factors that impact population health. These factors include low birth weight, breastfeeding practices, anemia, malnutrition, physical inactivity, and tobacco use. By understanding the prevalence and implications of these risk factors, the report aims to identify areas for targeted interventions and policies.

The sixth chapter describes the distribution of the health workforce, analyzing the availability, distribution, and capacity of healthcare professionals. It explores the challenges faced in recruiting and retaining healthcare workers.

Finally, the last chapter examines service delivery, investigating the accessibility and quality of healthcare services within the population. It explores different models of service delivery and highlights innovative approaches to enhance healthcare access and delivery.

Executive Summary:

Accurate and up-to-date population-level health data at the national level are critical to meet the major health priorities of the country. This report provides an overview of the health assessment for Qatar focusing on the following areas:

Population Characteristics: Qatar has a 0% population below the international poverty line. The Qatari population pyramid shows a growing population, while the non-Qatari pyramid has a high percentage of males aged 20-45 due to immigration.

Birth and Fertility Rates: The crude birth rate remained stable from 2017 to 2019 at 10.2 births per 1,000 population. Qatari women have a higher total fertility rate (3.2) compared to non-Qatari women (1.5).

Life Expectancy: Qatar has the highest life expectancy among GCC countries at 81.8 years.

Mortality: The crude death rate declined from 80.2 deaths per 100,000 in 2017 to 74.5 in 2019. Diseases of the circulatory system, external causes of deaths, neoplasms and the diseases of the circulatory system are the leading causes of death.

Under 5- and 1-year mortality: The under-5 mortality rate decreased by 55.7% from 2000 to 2019. The same trend was also observed for infant mortality.

Maternal deaths: Qatar has a very low maternal mortality ratio, meeting the global SDG 3 goal.

Non-Communicable Diseases: Cancer incidence rates increased from 2016 to 2018, with breast cancer being the most common among females and lung cancer among males.

Communicable Diseases: Tuberculosis incidence was 29.3 per 100,000 in 2019. New HIV cases doubled from 2017 to 2019, and Hepatitis B incidence increased from 20 cases in 2017 to 29 cases in 2019.

Risk factors: The proportion of low-birth-weight for infants in Qatar has decreased from 2017 to 2019. The total proportion of exclusively breastfed infants under 6 months of age in Qatar increased from 27.8% in 2017 to 30.9% in 2019. In 2019, 100% of residents had access to improved drinking water and sanitation.

Health workforce and service delivery: The number of healthcare professionals and facilities as well as the number of primary health care facilities increased from 2017 to 2019.

1. Context

1.1 Socio-Economic

Socioeconomic status, a combination of economic and sociological measures is used to compare individuals in a population on the basis of income, education and occupation. It is a widely recognized determinant of health status (Flaskerud & Carol, 2012). Universal education and eradication of poverty are both global priorities under the UN SDGs (United Nations [UN], 2015) (GOAL 1 “No Poverty” and GOAL 4 “Quality Education”).

Literacy rate, net primary school enrolment and percentage of the population below the international poverty line are examples of socioeconomic determinants of a country or population. Literacy rate refers to the number of literate persons in a given age group as a percentage of the total population of its respective age group. Net primary school enrolment corresponds to the number of children enrolled in primary school of a specific age group that officially corresponds to primary schooling, divided by the total population of the same age group. Both these indicators refer to the education level of a particular country as well as access to education (UN, 2009).

In Qatar, in 2019, youth literacy rate (among adolescents and young adults aged 15 to 24 years) was 99.5% and 99.9% for males and females respectively (Table 1.1.1). In 2018, 99.1% of males and 99.8% of the females were literate. Table 1.1.1 also shows the net primary school enrolment among male and female in Qatar for the years 2017 to 2019: In 2017, the overall net primary school enrolment was 96.3 males and 96.5 females per 100 school-age children and was 93.9 males and 93.7 females per 100 school-age children in 2019. (Table 1.1.1).

The population below the international poverty line represents the part of the population living in poverty, defined as having an income of less than 1.90$ a day (World Bank, 2019).

In Qatar, 0% of the population was living below the international poverty line in 2019 (Table 1.1.1).

Socioeconomic factors result in different exposure to risk factors of developing diseases and play a role in determining the health status of a population and of a country. Review of the literature showed that high income and education level have both been linked with increased life expectancy and better health outcomes overall (Flaskerud & Carol, 2012).

Table 1.1.1: Literacy rate ages 15 to 24 years, Net primary school enrolment ratio and Population below the international poverty line, by gender and year, 2017 to 2019

Year	Youth Literacy rate (15-24 years)		Net primary school enrolment (Ratio per 100 school-age children)			Population below the international poverty line
	Male	Female	Male	Female	Both sexes	
2017	98.9%	99.3%	96.3	96.5	96.4	0%
2018	99.1%	99.8%	98.4	96.7	97.6	0%
2019	99.5%	99.9%	93.9	93.7	93.8	0%

Sources: Ministry of Development and Planning Statistics

1.2 Demography

Demographic characteristics of a population impact its health needs and drive the allocation of healthcare resources. Studying the size, age structure, gender ratio, spatial distribution and temporal changes of the population as related to birth, migration, growth, and death are all important determinants for system planning as individuals have varying health needs in the different stages of life (Jahan et al., 2014).

Qatar has had the world's fastest growing population over the 2010-2015 period, according to estimations from the World Population Prospects: the 2017 Revision (UN,2017). In 2017, Qatar's population was 2,724,606 and reached 2,799,202 in 2019 (Table 1.2.1). The growth rate was 1.3% from 2017 to 2018 and 1.4% from 2018 to 2019 (Figure 1.2.8).

In 2018, Qatar's growth rate is the lowest compared to the growth rates of other GCC countries, ranging from 2.0% in UAE to 10.8% in Kuwait (WHO-EM, 2019).

The pyramid of the population of the State of Qatar has a unique shape (Figure 1.2.1, Figure 1.2.2, and Figure 1.2.3). It is largely driven by disproportionate share of working age males in the population with expatriates making up a large proportion of the total population. In 2017, there were 301,109 Qatari nationals (152,959 females and 148,150 males) and 2,423,497 non-Qatari (525,600 females and 1,897,897 males) (PSA, 2017). The population breakdown changed in 2019 with 308,388 Qatari (156,668 females and 151,720 males) and 2,451,782 non-Qatari (555,296 females and 1,896,486 males) (PSA, 2019).

The Qatari population pyramid (Figure 1.2.4) shows a growing population pyramid with a large percentage of people in younger age groups. The expatriate population pyramid (Figure 1.2.5) reflects a high proportion of non-Qatari male, mainly aged 20 to 50.

A similar population pyramid shape is found in other countries in the GCC such as UAE and Oman (UN,2017).

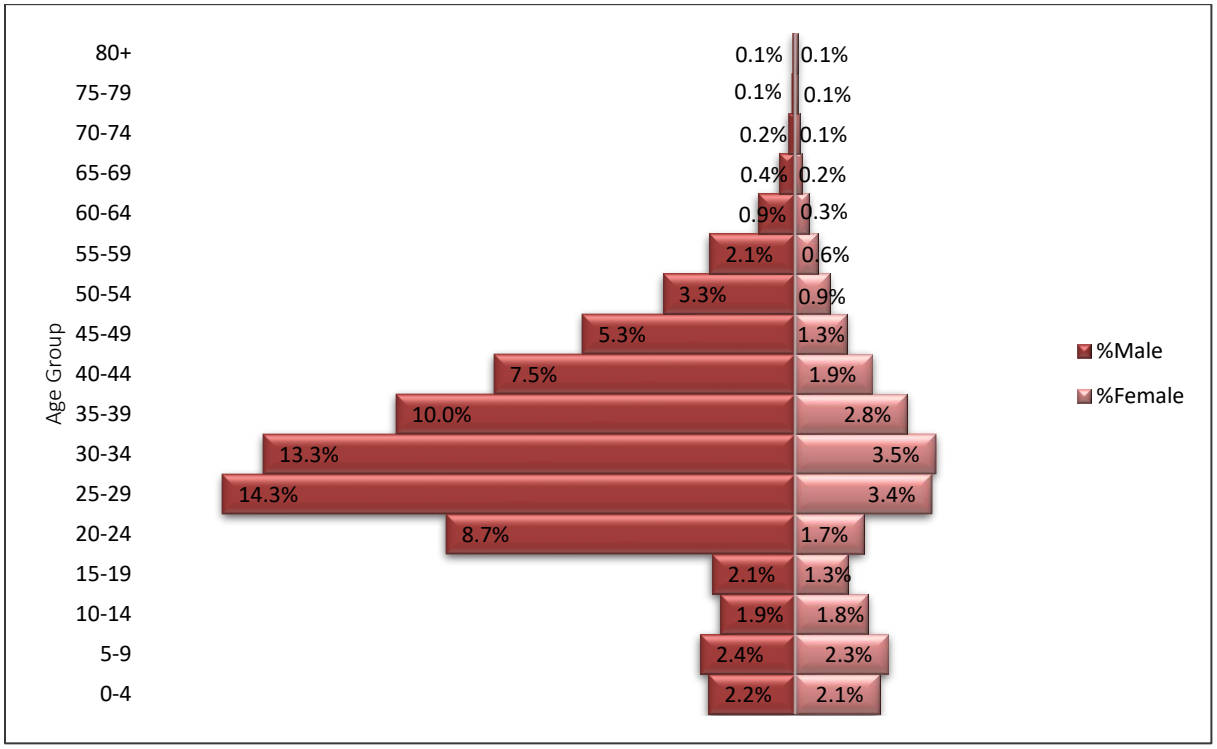
Qatar's population pyramid is the result of a large influx of working-age expatriates combined with a high fertility rate among Qatari female population (3.5 births per Qatari woman in 2017 which changed slightly to 3.2 births in 2019, Table 2.3.1). In 2019, Qatar's demographics profile showed that 14.23% of the population was aged 15 or less and 85.2% of the population was aged 15-64 and 1.16% of the population was aged 65 and above (Figure 1.2.6, Figure 1.2.7).

Table 1.2.1: Total population, by age group, gender, and year, 2017 to 2019

Age	2017			2018			2019		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0	13,992	13,561	27,553	14,333	13,740	28,073	14,186	13,409	27,595
1-4	58,875	57,445	116,320	58,753	56,656	115,409	60,716	58,315	119,031
5-9	64,510	63,477	127,987	69,207	67,058	136,265	71,614	69,267	140,881
10-14	50,830	49,670	100,500	53,858	51,614	105,472	56,637	54,291	110,928
15-19	56,516	36,041	92,557	47,656	37,500	85,156	47,897	38,313	86,210
20-24	237,357	47,023	284,380	219,454	45,170	264,624	205,862	44,382	250,244
25-29	389,213	92,780	481,993	363,316	90,412	453,728	352,616	92,515	445,131
30-34	361,510	95,603	457,113	387,278	104,314	491,592	393,644	109,435	503,079
35-39	271,350	76,365	347,715	308,830	85,790	394,620	319,713	89,034	408,747
40-44	204,770	52,592	257,362	202,986	59,944	262,930	211,372	62,490	273,862
45-49	144,520	34,966	179,486	142,201	38,105	180,306	145,216	39,577	184,793
50-54	89,760	23,409	113,169	83,950	24,445	108,395	86,415	25,298	111,713
55-59	58,221	15,351	73,572	51,161	15,903	67,064	51,306	16,530	67,836
60-64	25,299	9,169	34,468	25,684	9,377	35,061	26,902	9,875	36,777
65-69	10,862	4,708	15,570	9,997	4,991	14,988	10,744	5,365	16,109
70-74	4,452	2,984	7,436	4,677	3,048	7,725	4,905	3,154	8,059
75-79	2,141	1,639	3,780	2,576	1,987	4,563	2,703	2,031	4,734
80+	1,869	1,776	3,645	2,289	1,910	4,199	1,828	1,645	3,473
Total	**2,046,047**	**678,559**	**2,724,606**	**2,048,206**	**711,964**	**2,760,170**	**2,064,276**	**734,926**	**2,799,202**

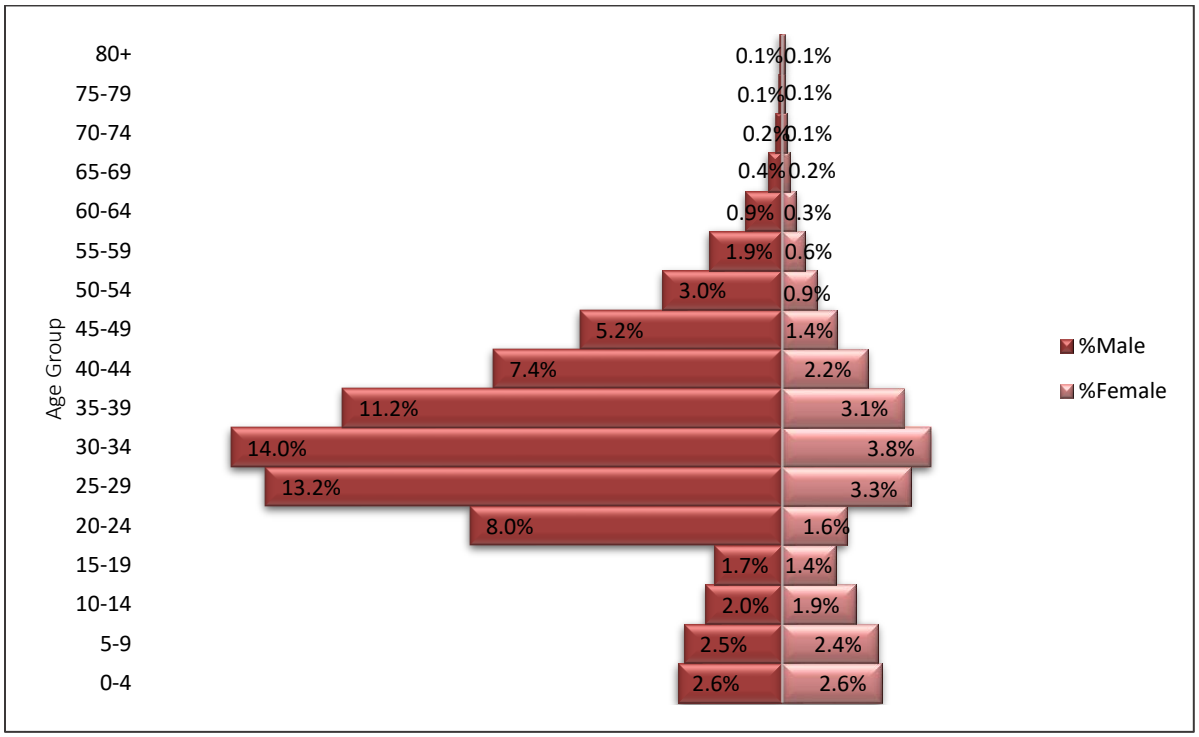
Source: Planning and Statistics Authority

Figure 1.2.1: Population pyramid, by age group and gender, 2017



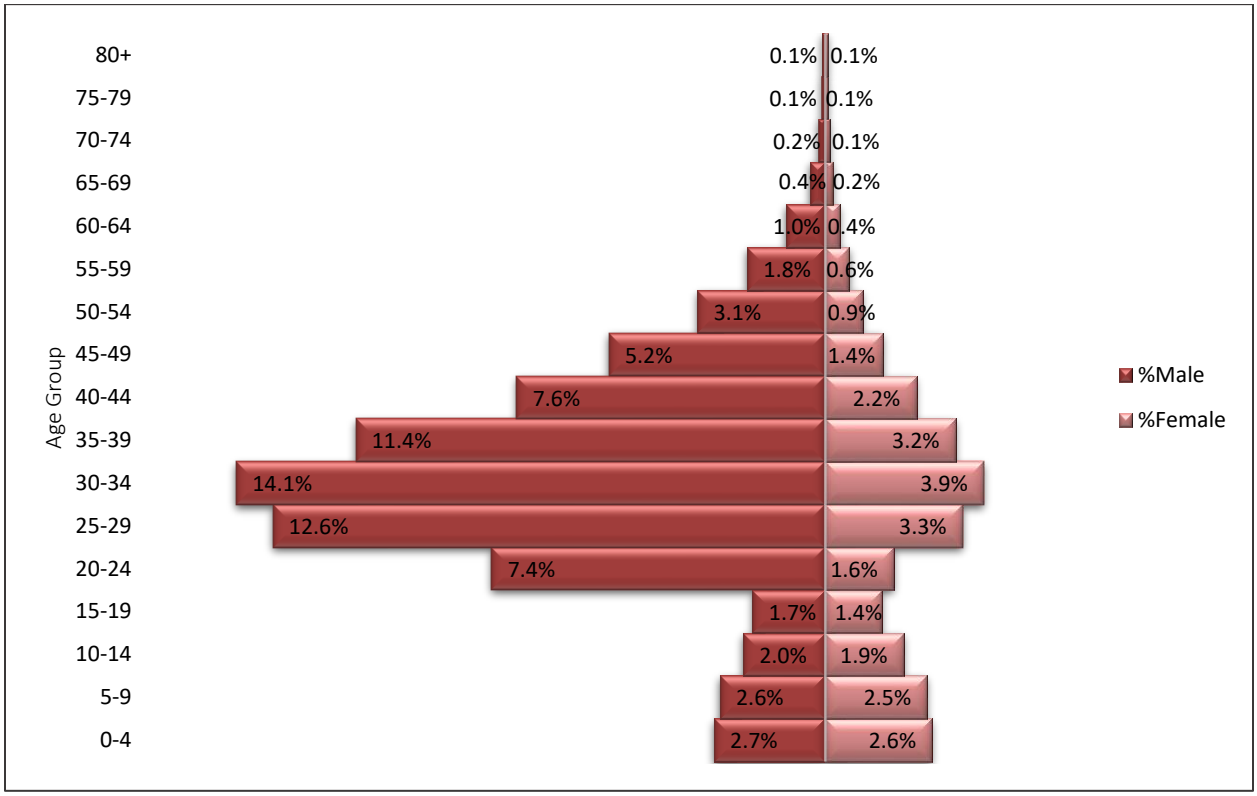
Source: Planning and Statistics Authority

Figure 1.2.2: Population pyramid, by age group and gender, 2018



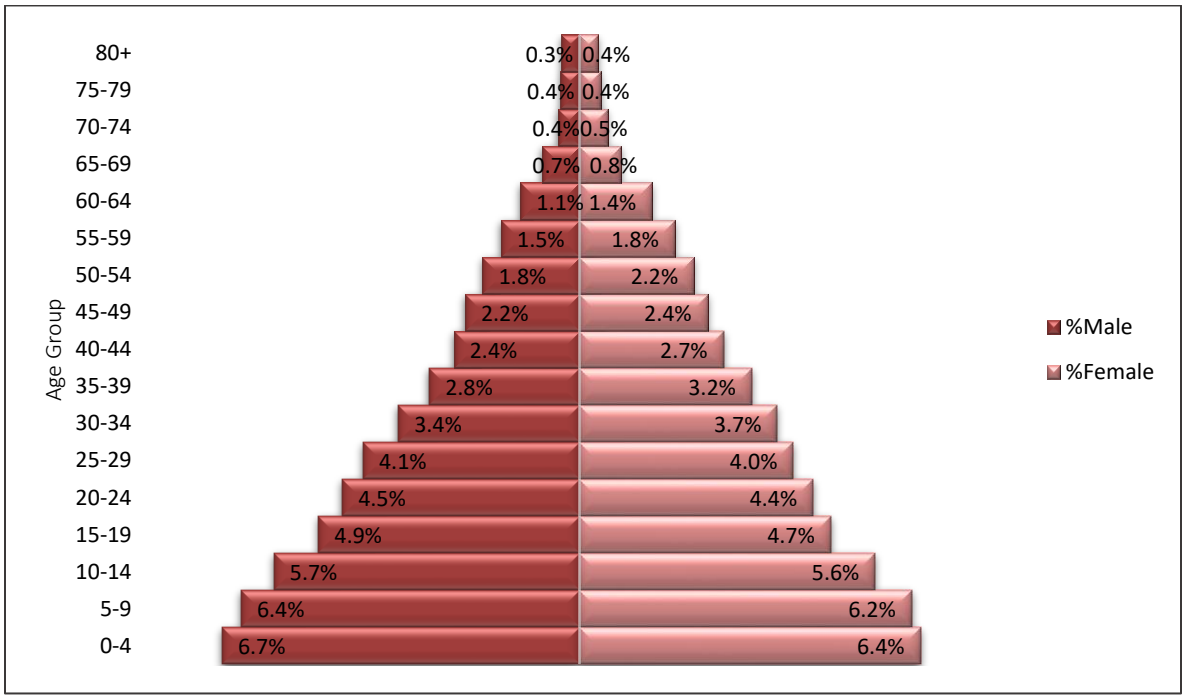
Source: Planning and Statistics Authority

Figure 1.2.3: Population pyramid, by age group and gender, 2019



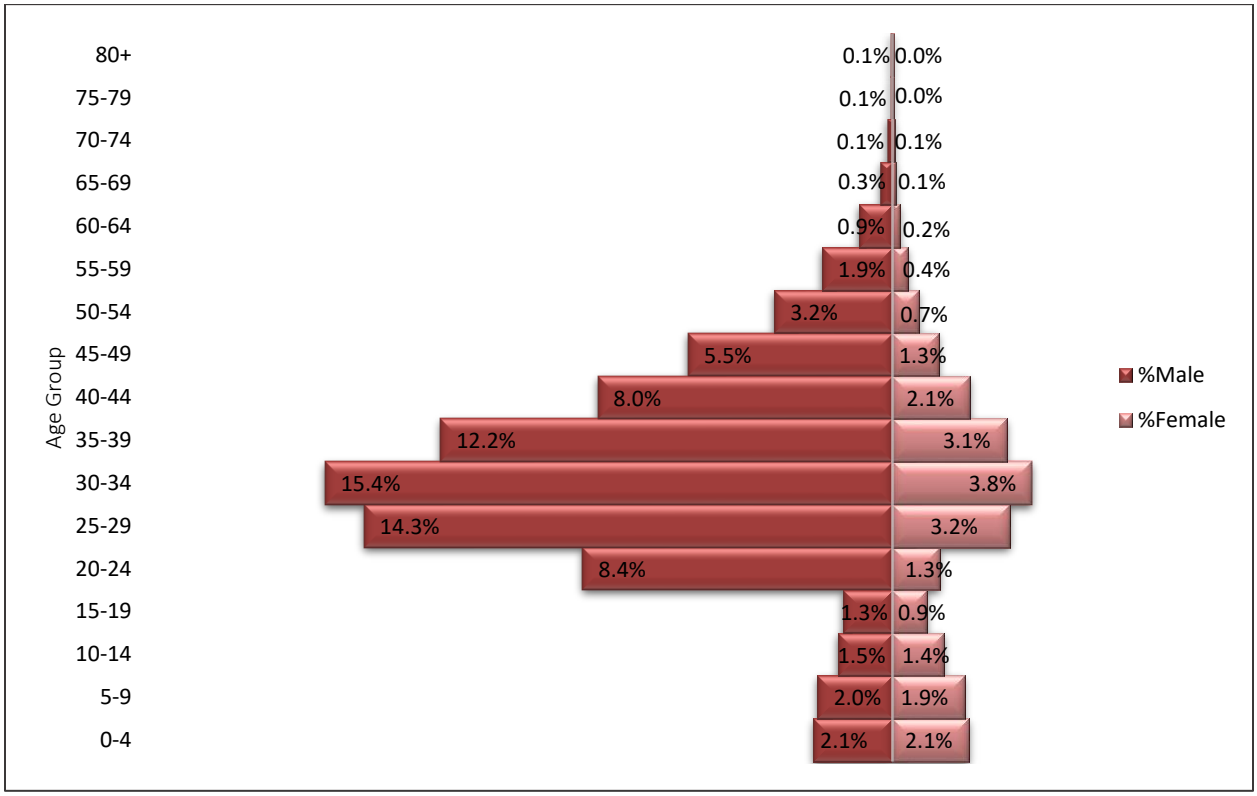
Source: Planning and Statistics Authority

Figure 1.2.4: Population pyramid of Qatari nationals, by age group and gender, 2019



Source: Planning and Statistics Authority

Figure 1.2.5: Population pyramid of non-Qatari residents, by age group and gender, 2019

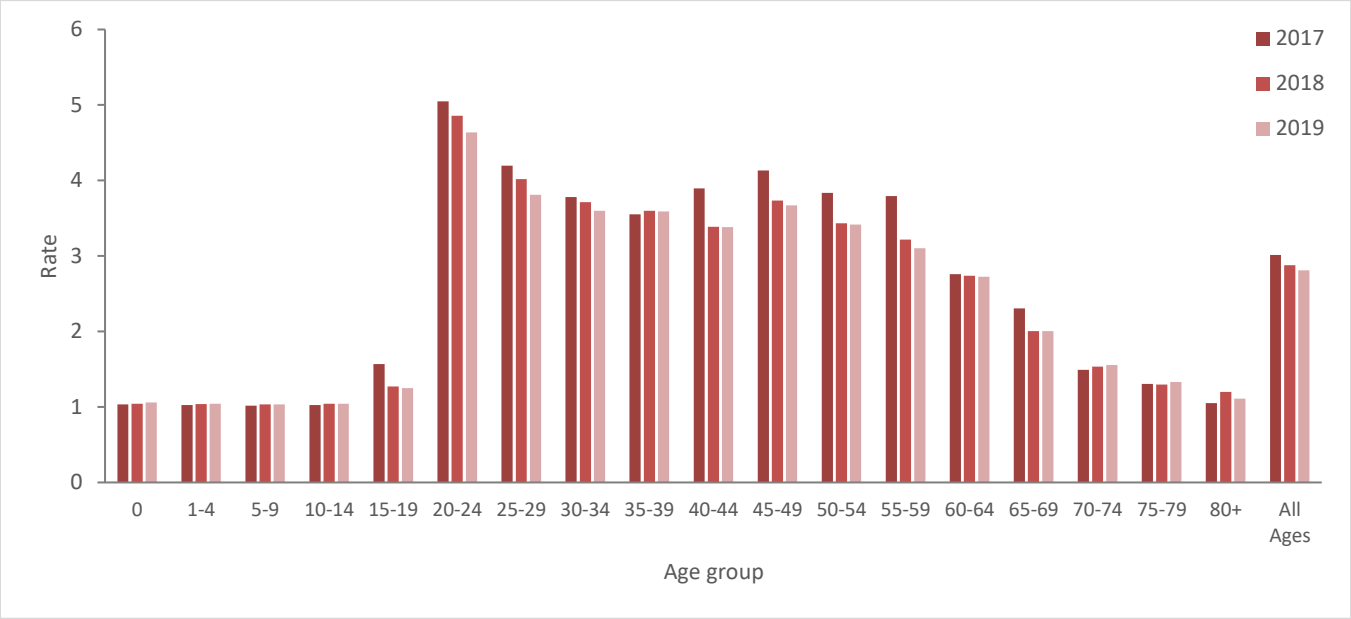


Source: Planning and Statistics Authority

The population gender ratio (number of males per 100 females) is a useful indicator for assessing health needs, the prevalence of gender related behaviors and other determinants (Phillips, 2011). Certain behaviors are more prominent in one gender compared to the other such, for instance dangerous driving of young males leading to road traffic injuries (Croisant, Haque Laz, Rahman & Berenson, 2013).

In 2019, Qatar's gender ratio (M/F) was high in the 20-69 years age group with values ranging between 2 and 4.6 over the past 3 years period (Figure 1.2.5). Qatar is estimated to have the highest gender ratio in the world and this is mainly due to the high proportion of non-Qatari working-age males (UN, 2017). In fact, all the countries of the GCC are estimated to have the 6 highest gender ratio worldwide (UN,2017).

Figure 1.2.5: Gender ratio, by age group and year, 2017 to 2019



Source: Planning and Statistics Authority

Note: Ratio is males to females. For example, X males to 1 female.

Dependency ratio is a measure of the pressure on the working population (defined as people aged 15 to 64 years), to support the dependent population (defined as people aged less than 15 years and aged 65 and above). Higher dependency ratio refers to more financial stress on the "productive" group of people whereas low dependency ratio is interpreted as having sufficient working people providing economic support to the dependent population (OECD, 2007).

Table 1.2.2 shows the total dependency ratio, calculated by dividing the number of dependents over the number of the working population group. It shows a steady increase in the dependency ratio from 17.35% in 2017 to 17.78% in 2018 to 18.19% of the workforce in Qatar in 2019. These values are explained by the disproportional increase of the working group population 15-64 years over the 3 years compared to the dependent groups (group of people aged less than 15 years and the group of people aged above 65 years) (Table 1.2.3). In fact, in Qatar, from 2017 to 2019, the number of child/young dependents increased by 26,075 (from 372,360 to 398,435) and the number of elderly dependents by 1,944 (from 30,431 to 32,375). When looking at the 15-64 age group of working people, there was an increase of 46,577 (from 2,321,815 to 2,368,392) in the respective population group over the 3-year given period.

Table 1.2.2: Dependency ratio, by year, 2017-2019

Years	2017	2018	2019
Total Dependency ratio	17.35%	17.78%	18.19%

Source: Planning and Statistics Authority

Table 1.2.3: Dependent (<15 years and >65 Years) and non-dependent (15 to 64 years) age groups of the State of Qatar population, by year, 2017 to 2019

Age / *Years*	2017	2018	2019
Less than 15	372,360	385,219	398,435
15-64 years	2,321,815	234,3476	2,368,392
65 years and above	30,431	31,475	32,375

Source: Planning and Statistics Authority

The total dependency ratio can be separated further into child dependency ratio and aged dependency ratio.

In Qatar, in 2019, Qatari children (making 36.65% of the Qatari population) dependency ratio was 61.73% of the workforce whereas the non-Qatari children (making 11.38% of the non-Qatari population) dependency ratio was 12.96% of the workforce (Table 1.2.4, Figure 1.2.6 and 1.2.7). The total child dependency ratio was 16.82% with the age group of children aged less than 15 years of age making 14.23% of the total population of the State of Qatar (Table 1.2.4, Figure 1.2.6 and 1.2.7).

In Qatar, in 2019, Qatari elderly (making 3.98% of the Qatari population) dependency ratio was 6.71% of the workforce as opposed to the non-Qatari elderly (making 0.8% of the non-Qatari population) dependency ratio was 0.91% of the workforce (Table 1.2.4, Figure 1.2.6 and 1.2.7). The total aged dependency ratio was 1.37% with the age group of elderly above 65 years of age making 1.16% of the total population of the State of Qatar (Table 1.2.4, Figure 1.2.6 and 1.2.7).

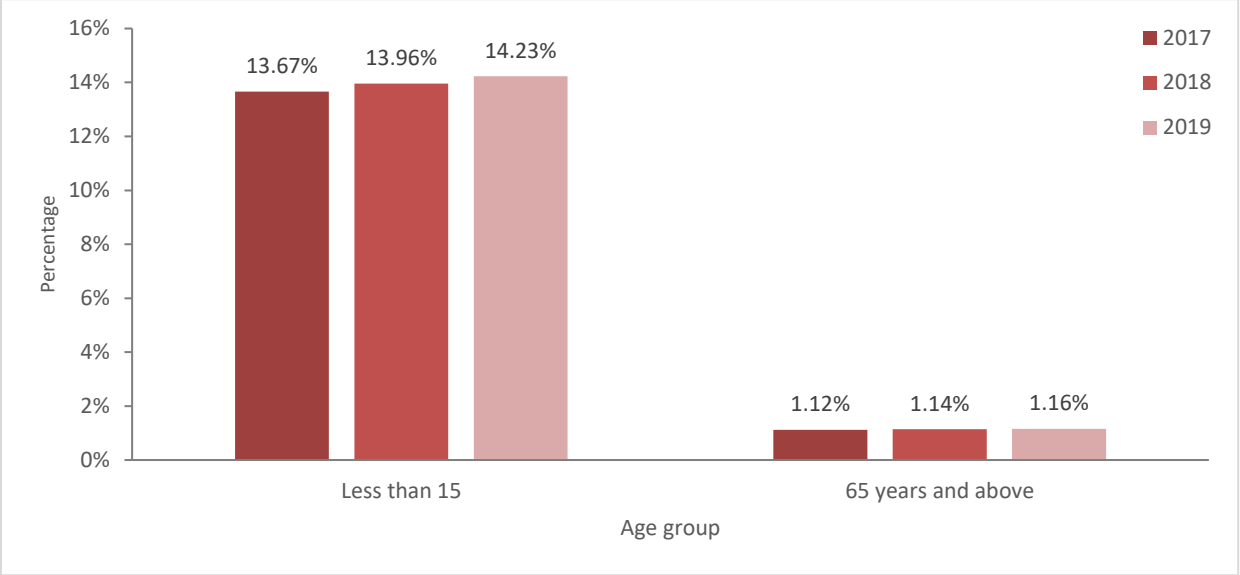
The World Bank estimates a global dependency ratio of 54.5% of the workforce population in 2019 (World Bank, 2019). The relatively low dependency ratio of Qatar (18.19% in 2019) is explained by the influx of young working-age expatriates making the large proportion of young adults, as previously shown in the population pyramid of non-Qatari citizens in Figure 1.2.5. However, among Qatari, in the age group less than 15 years, the child dependency ratio was 61.73% of the workforce population. It is significantly higher than the Qatar total dependency ratio and high compared to the elderly dependency ratio and the non-Qatari child dependency ratio.

Table 1.2.4: Population proportion and dependency ratio for age groups <15 and 65+ years, by nationality, 2019

Age	Qatari		Non-Qatari		Total	
	Population proportion	**Dependency Ratio**	**Population proportion**	**Dependency Ratio**	**Population proportion**	**Dependency Ratio**
Less than 15 years	36.65	61.73	11.38	12.96	14.23	16.82
65 years and above	3.98	6.71	0.80	0.91	1.16	1.37

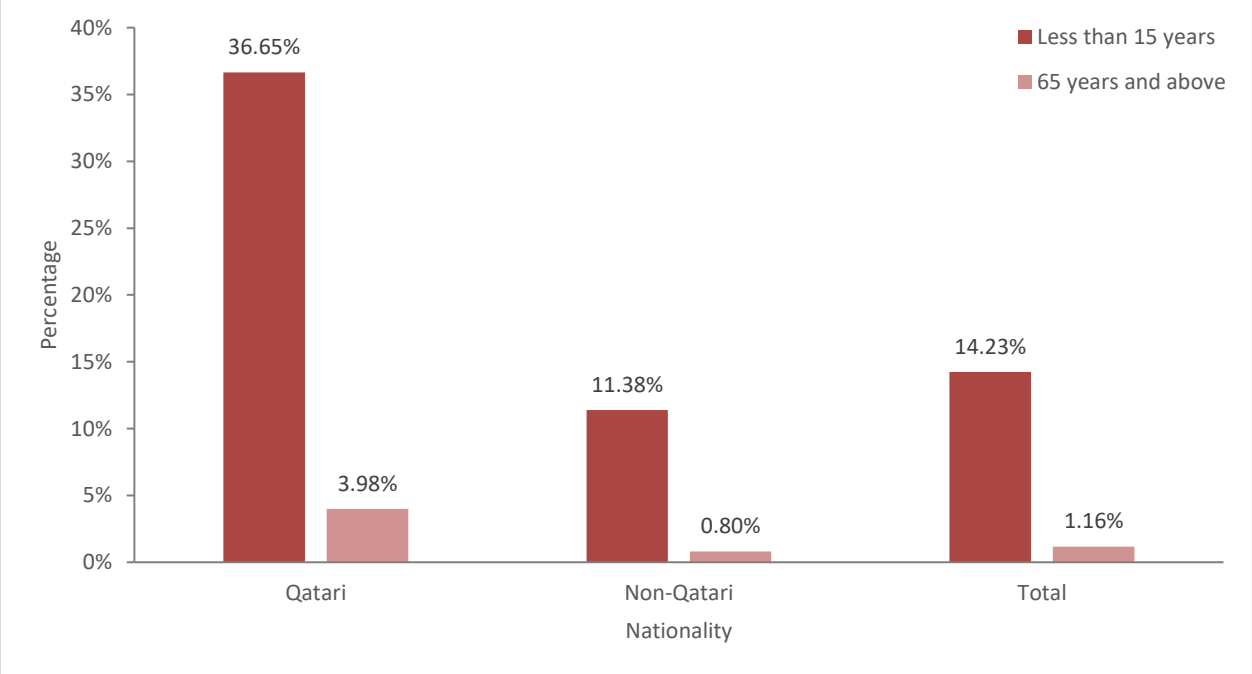
Source: Planning and Statistics Authority

Figure 1.2.6: Percent of population in the age groups of 15 years and under and 65 years and over in the State of Qatar, by year, 2017 to 2019



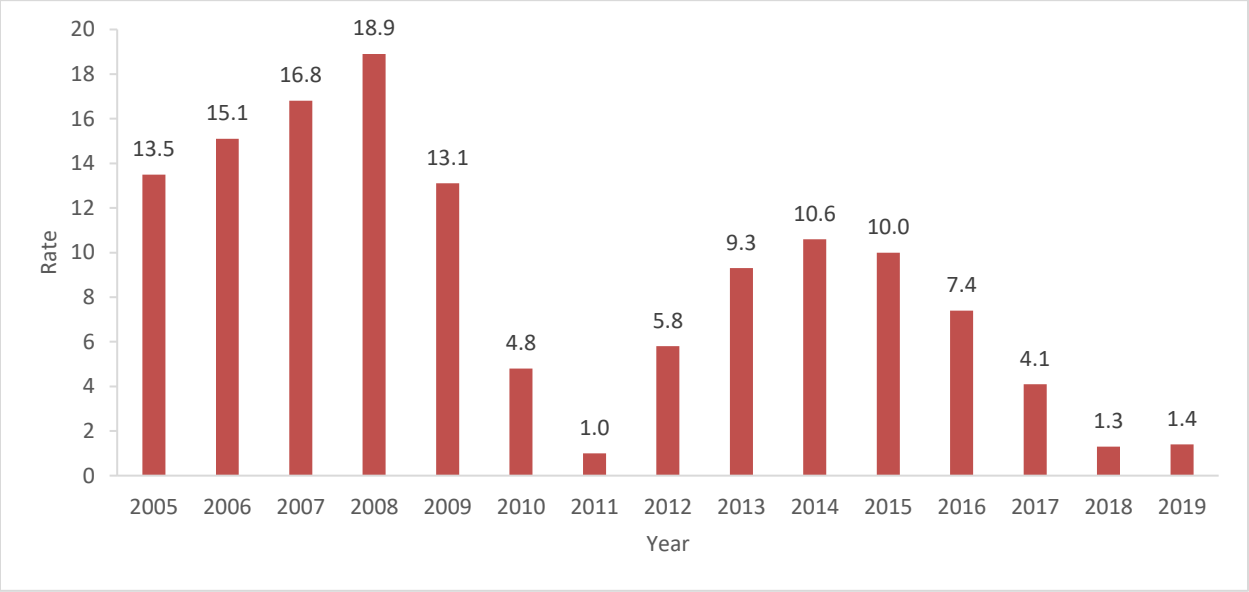
Source: Planning and Statistics Authority

Figure 1.2.7: Percentage of population in the 15 years and under and 65 years and over age groups, by nationality, 2019



Source: Planning and Statistics Authority

Figure 1.2.8: Annual population growth rate, by year, 2005 to 2019



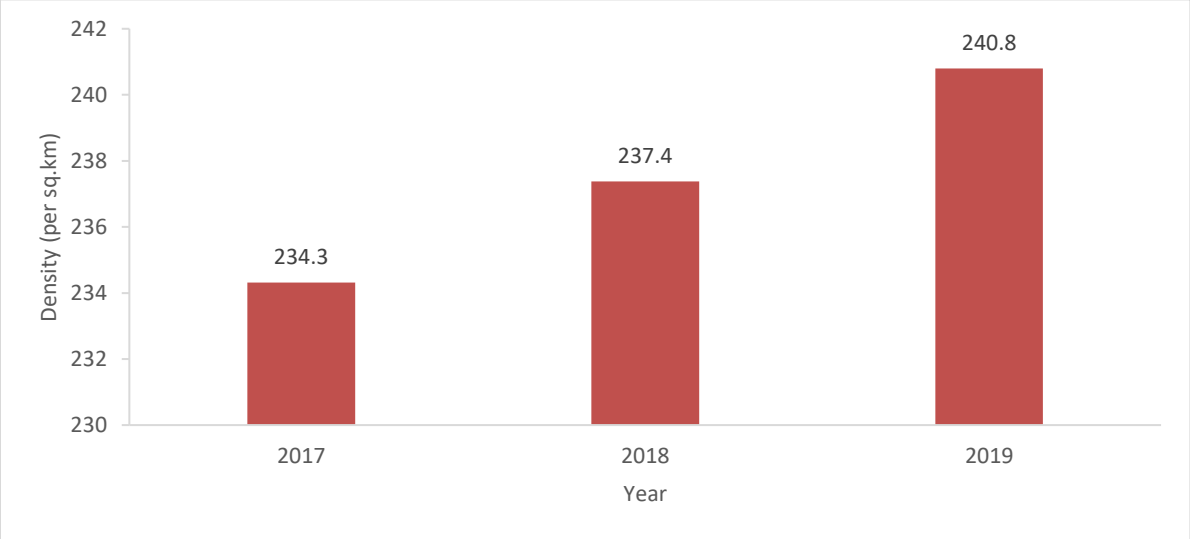
Source: *Qatar Social Statistics 2005-2019,* Planning and Statistics Authority, 2017

1.3 Population Density

Population density refers to the number of people living in a unit of area such as square kilometer.

In Qatar, the population density has been on the rise. Figure 1.3.1 shows a population density of 234.3 individuals per sq.km in 2017, 237.4 individuals per sq.km in 2018 to finally reach 240.8 individuals per sq.km in 2019.

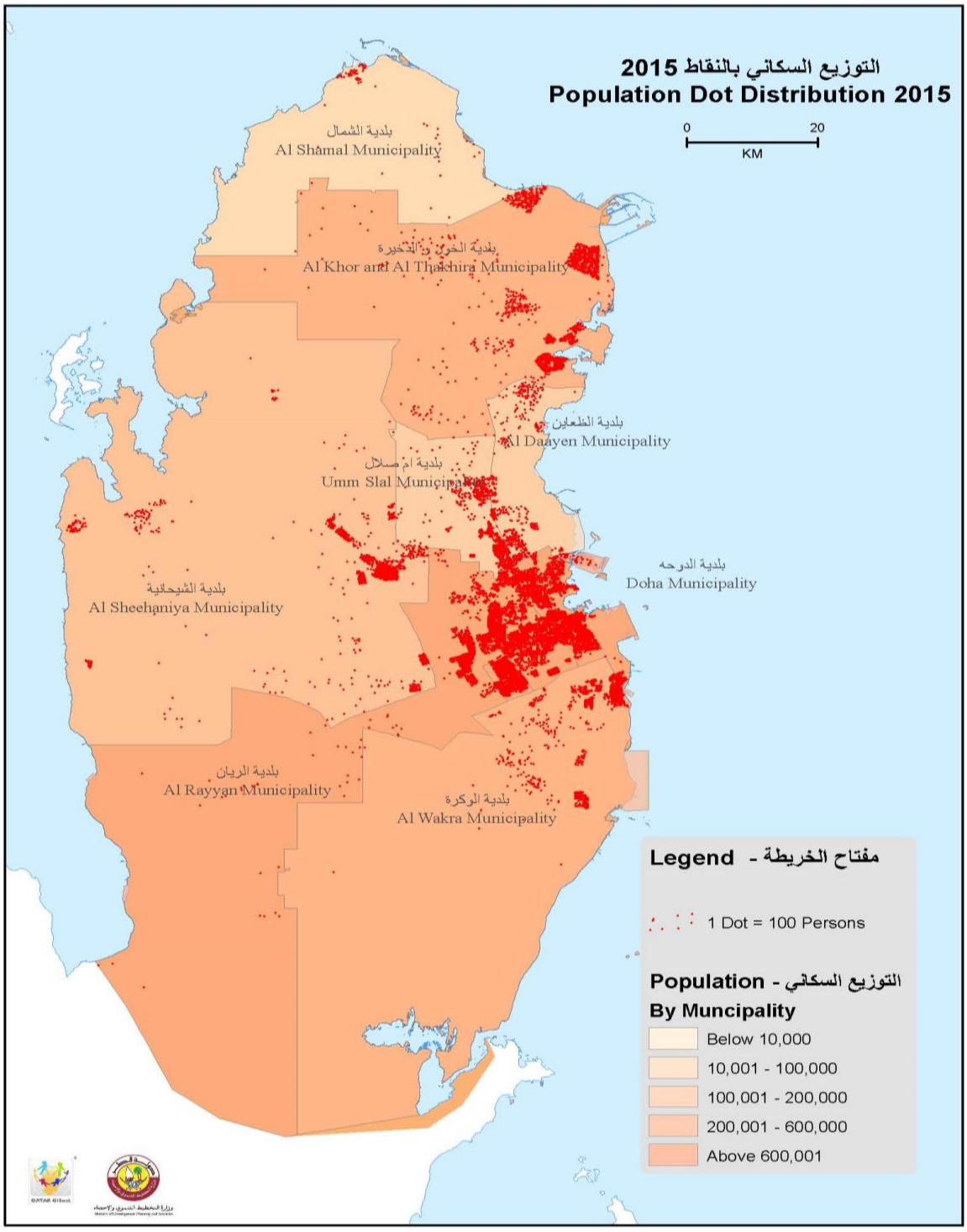
Figure 1.3.1: Population Density per square kilometer, by year, 2017 to 2019



Source: Planning and Statistics Authority

It is clearly shown that the Doha municipality and surrounding zone is the densest area with zones reaching densities of 10,001 to 39,662 persons per sq.km (Figure 1.3.2 and 1.3.3).

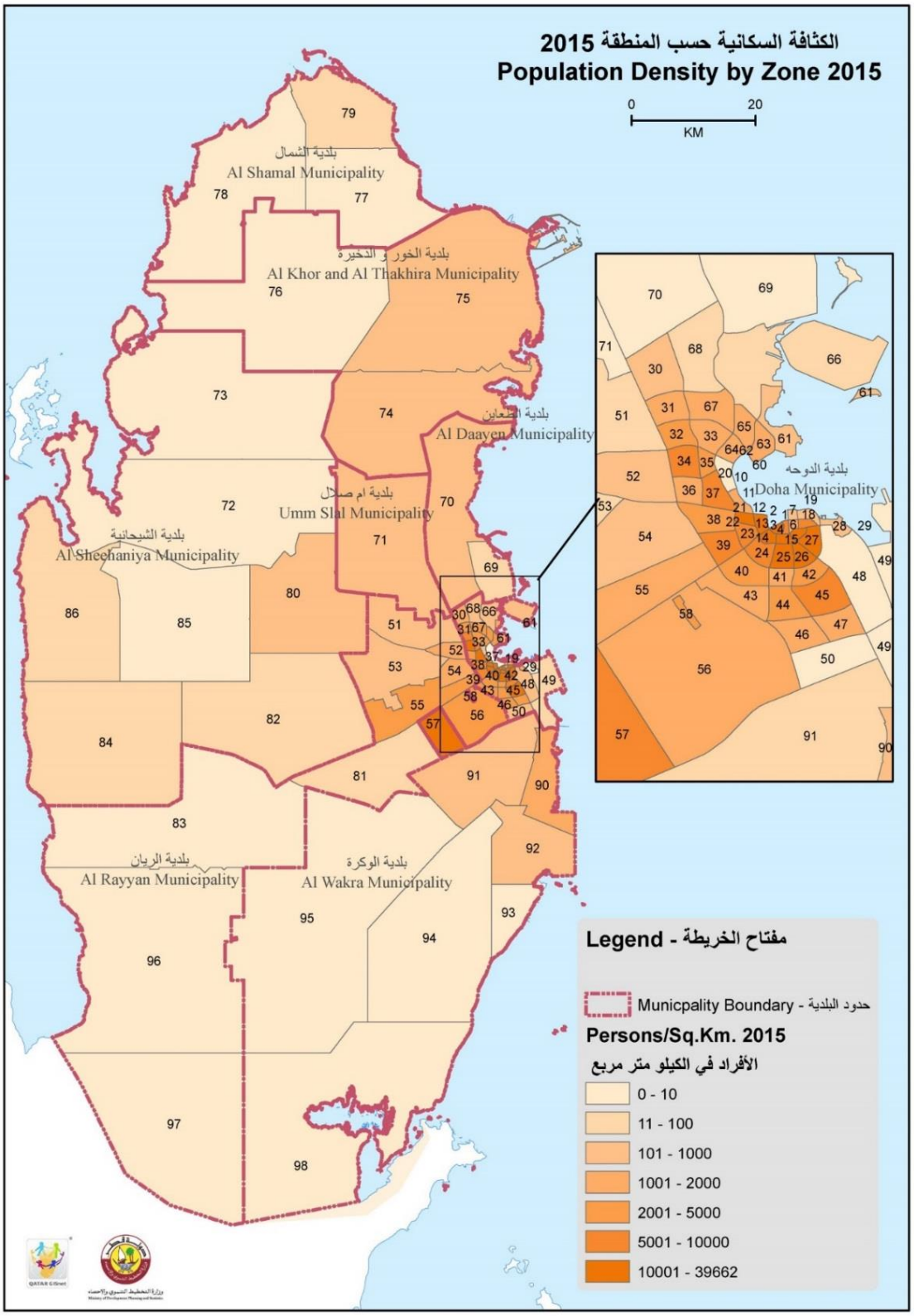
Figure 1.3.2: Population density map by municipality and population dot distribution, 2015



Source: Planning and Statistics Authority

Note: 2020 census data not available at the time of publication

Figure 1.3.3: Population density map by zone, 2015



Source: Planning and Statistics Authority

Note: 2020 census data not available at the time of publication

2. Births and fertility

2.1 Births

Live Births and crude birth rate are commonly used parameters in describing a country's fertility, rate of natural increase and reflect the needs for maternal and child services.

The State of Qatar has seen a slow increase in number of live births over the 3-year period, from 2017 to 2019 (Table 2.1.1). It has increased from 27,906 in 2017 to 28,069 in 2018 before reaching 28,412 births in 2019. The number of non-Qatari live births increased from 19,962 to 20,916 births over the 3 years period whereas Qatari live births decreased slightly with 7,944 live births in 2017 and 7,496 in 2020. Among Qatari, there were 4,086 male and 3,858 female live births in 2017, 3,949 male and 3,854 female live births in 2018, and 3,796 male and 3,700 female live births in 2019. Among non-Qatari, there was 10,203 male and 9,759 female live births in 2017, 10,234 male and 10,032 female live births in 2018, 10,759 male and 10,157 female live births in 2019 (Table 2.1.1). The numbers of live births have more than doubled in Qatar since 2004, increasing from 13,190 live births in 2004 to 28,412 live births in 2019. (Figure 2.1.1)

While the absolute number of live births increased slightly during this period, with 10.2 births per 1000, the overall crude birth rate has remained stable over the three years period (Table 2.1.2, Figure 2.1.2). Qatari appear to have a significant higher crude birth rate compared to the non-Qatari. In 2017, crude birth rate for Qatari was 26.4 births per 1000. It decreased to 25.3 births per 1000 Qatari in 2018 and then further decreased to 23.7 births per 1000 Qatari in the year 2019. Non-Qatari's crude birth rate has remained relatively stable with 8.2, 8.3 and 8.4 births per 1000 non-Qatari in 2017, 2018 and 2019 respectively (Table 2.1.2, Figure 2.1.2)

Table 2.1.1: Number of live births, by gender, nationality, and year, 2017 to 2019

Year	Male			Female			Both sexes		
	Qatari	Non-Qatari	Total	Qatari	Non-Qatari	Total	Qatari	Non-Qatari	Total
2017	4,086	10,203	14,289	3,858	9,759	13,617	7,944	19,962	27,906
2018	3,949	10,234	14,183	3,854	10,032	13,886	7,803	20,266	28,069
2019	3,796	10,759	14,555	3,700	10,157	13,857	7,496	20,916	28,412

Source: Ministry of Public Health and Planning and Statistics Authority

In Qatar, the overall sex ratio among live births has also been relatively constant with 104 boys to 100 girls in 2017, 102.1 boys to 100 girls in 2018 and finally to 105.0 boys to 100 girls in 2019 girls in 2019 (Table 2.1.2). Among Qatari, there was a decrease in sex ratio from 105.9 boys per 100 girls in 2017, to 102.5 per 100 girls in 2018 before a miniscule increase to 102.6 per 100 girls in 2019. Among non-Qatari, sex ratio over the three years period has slightly increased from 104.9 boys per 100 girls in 2017 to 105.9 boys per 100 girls in 2019 (Table 2.1.2).

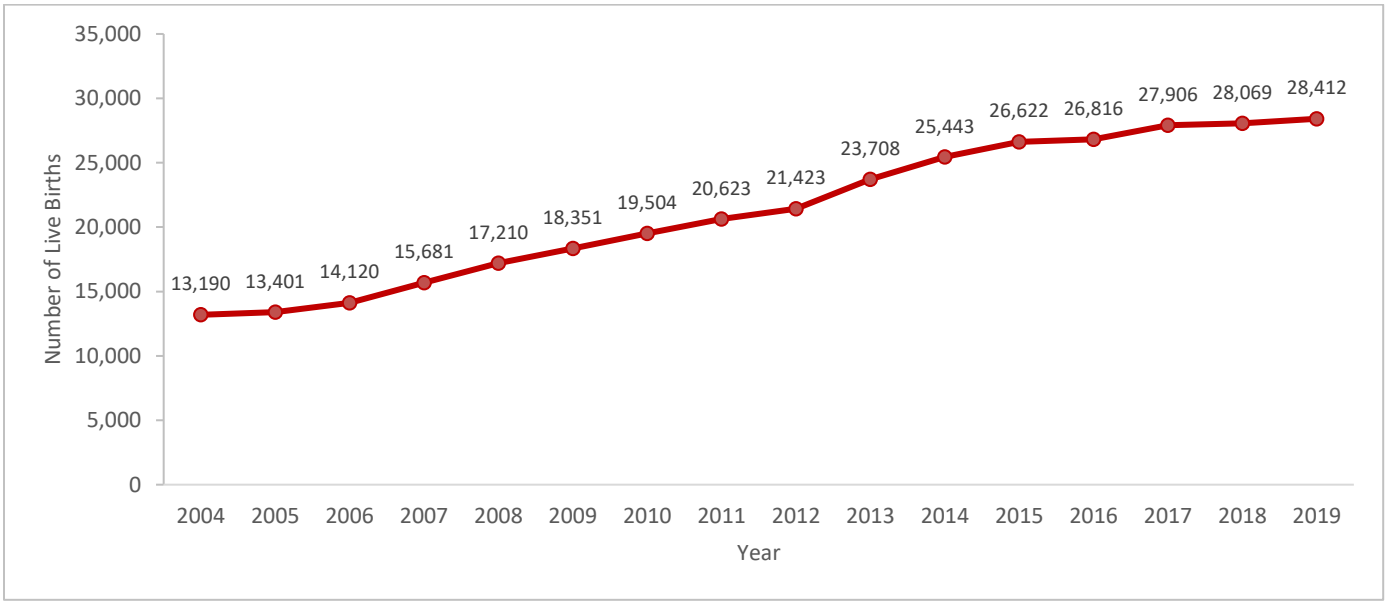
Table 2.1.2: Sex ratio of live births and crude birth rate per 1,000, by nationality and year, 2017 to 2019

Year	Sex ratio			Crude Birth Rate		
	Qatari	Non-Qatari	Total	Qatari	Non-Qatari	Total
2017	105.9	104.5	104.9	26.4	8.2	10.2
2018	102.5	102.0	102.1	25.3	8.3	10.2
2019	102.6	105.9	105.0	23.7	8.4	10.2

Source: Ministry of Public Health and Planning and Statistics Authority

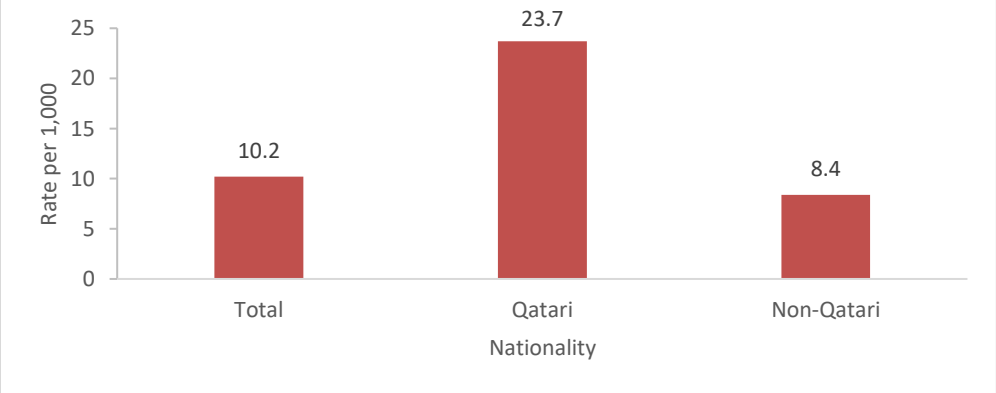
Note: Sex ratio is males to females per 100 population (M/F * 100); Crude birth rate is per 1,000 population (Number of births/total population * 1,000)

Figure 2.1.1: Number of live births, by year, 2004 to 2019



Source: Ministry of Public Health and Planning and Statistics Authority

Figure 2.1.2: Crude birth rate per 1,000 population, by nationality, 2019



Source: Ministry of Public Health and Planning and Statistics Authority

2.2 Maternal age at birth

Maternal age distribution provides an important information for health services planning. For instance, the prevalence of advanced maternal age, defined as woman who is 35 years of age or older at time of delivery, is important when considering planning of prenatal screening and at-risk pregnancies services. Teenage pregnancies are also a significant issue requiring specific health policy responses (Saloojee &Coovadia, 2015).

In Qatar, the majority of births occurred in pregnant women of the age groups 25-29 and 30-34 years of age over the 3-year period, from 2017 to 2019 (Table 2.2.1).

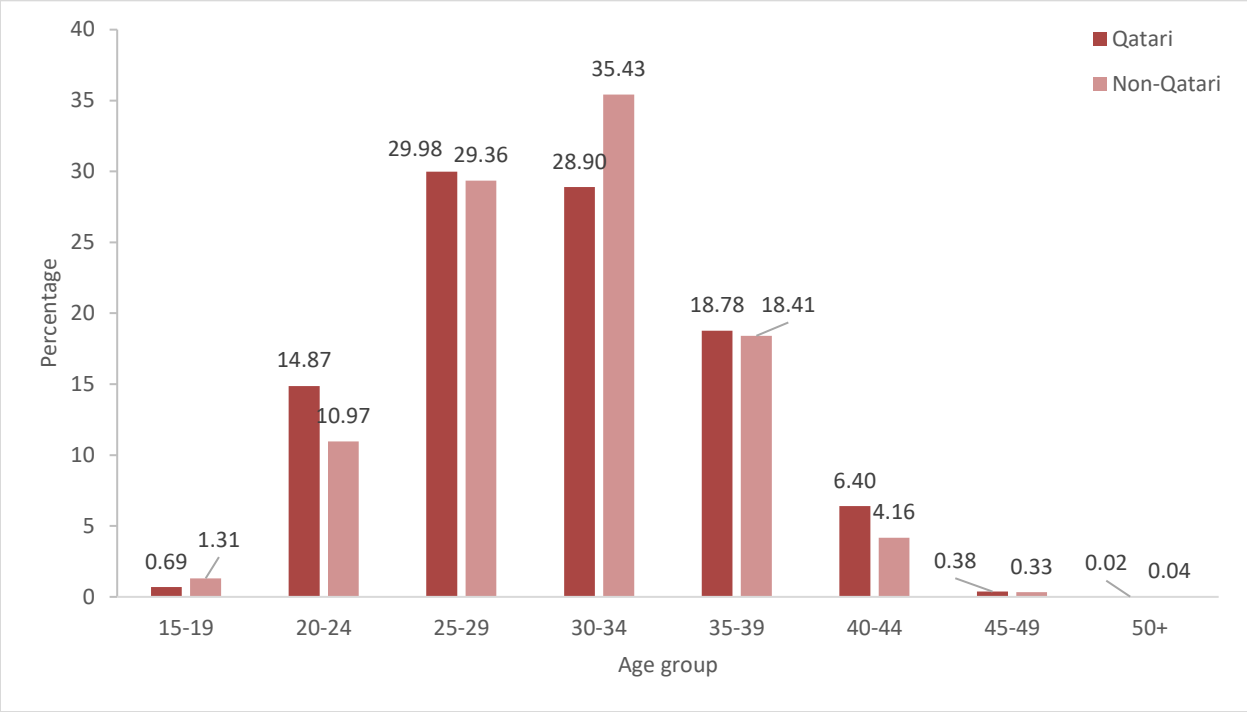
Figure 2.2.1 shows that almost 59% of Qatari births occur in 25–34-year-old women whereas about 65% of non-Qatari births occurred in women within the same age group in 2019. Among Qatari, there is a higher proportion of births in the 20-24 age group compared to non-Qatari: 14.87% of births in contrast to 10.97% of births in the same age group among non-Qatari women (Figure 2.2.1). This difference is reversed at relatively older age group (30-34 years) where 35.43% of births occur in pregnant non-Qatari women compared to 28.90% of births occurring in Qatari women. This may indicate an earlier start of the reproduction among Qatari women. At the extreme of ages, the percentages of births are quite low. Teenage pregnancies account for 0.7% of Qatari and 1.3% of non-Qatari births in 2019. At the other end of the spectrum of reproductive age (age 35+) the proportion of births is slightly higher for Qatari women, with 25.58% of births occurring in this age group as compared to 22.94% among non-Qatari. This difference is 2.64% in favor of Qatari women, 2.24% of which is in the 40-44 years old age group.

Table 2.2.1: Number of births by maternal age at birth, by age group and year, 2017 to 2019

Age of Mother	2017		2018		2019	
	Births	Population in age group	Births	Population in age group	Births	Population in age group
15-19	353	36,041	319	37,500	334	38,313
20-24	3726	47,023	3420	45,170	3355	44,382
25-29	8687	92,780	8417	90,412	8379	92,515
30-34	8993	95,603	9574	104,314	9666	109,435
34-39	4742	76,365	4944	85,790	5253	89,034
40-44	1298	52,592	1283	59,944	1320	62,490
45-49	93	34,966	103	38,105	96	39,577
50-54	14	23,409	9	24,445	9	25,298

Source: Ministry of Public Health and Planning and Statistics Authority

Figure 2.2.1: Percentage of births by women of maternal age, by age group and nationality, 2019



Source: Ministry of Public Health and Planning and Statistics Authority

2.3 Fertility rates

Age specific fertility rates (ASFR) and total fertility rates (TFR) are important maternal health indicators of a country. By considering the age structure of the population, these parameters offer a standardized way to analyze and compare fertility levels across countries and population groups over time (Payne, 2004).

In 2017, TFR among Qatari was 3.5 births per 1000 women aged 15 to 49 higher than the non-Qatari TFR of 1.6 live births per 1000 women in the same age group (Table 2.3.1). Similarly, in 2019, Qatari TFR was also substantially higher than non-Qatari TFR, with 3.2 births per Qatari woman compared to 1.5 births per non-Qatari woman. Overall, total fertility rate was relatively constant in Qatar from 2017 (1.8 births per 1000 women) to 2019 (1.7 births per 1000 women) (Table 2.3.1).

The comparison of age specific fertility rates over the years of observation, show similar patterns in the 25-44 age groups among Qatari and non-Qatari women with a constant decrease of fertility between 2017 and 2019. The only exception is the age specific fertility rate in the 20-24 years age group where from the year 2017 to 2019, there was a decrease in rates for the Qatari women (i.e., from 104.8 to 85.1 births per 1000 women) but in the non-Qatari women the rates increased from 69.0 to 71.4 births per 1000 non-Qatari women. (Table 2.3.1).

For teenage pregnancies, the proportion of births among Qatari women is also decreasing over time while there is a minor increase among non-Qatari women in the same age group. The latter pattern is also observed for women aged 45 to 49 years. (Table 2.3.1)

According to the World Bank, the total fertility rate globally was estimated to be 2.4 births per woman in 2019 (World Bank, 2019). This value is higher than the 2019 Qatar's total fertility rate of 1.7 births per woman but lower than the 2019 total fertility rate of 3.2 births per woman among Qatari.

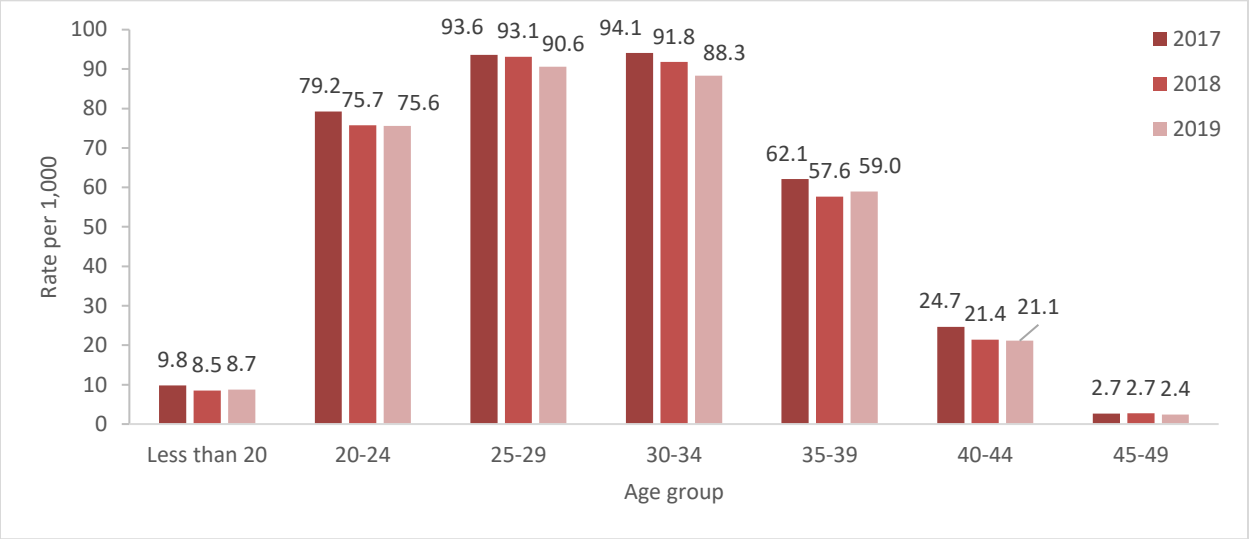
Table 2.3.1: Age specific fertility rates for women of maternal age, by age groups, nationality and year, 2017 to 2019

Unit	Age	Qatari			Non-Qatari			Total		
		2017	**2018**	**2019**	**2017**	**2018**	**2019**	**2017**	**2018**	**2019**
Number of births per 1,000 women	15-19	7.2	5.6	4.1	11.5	10.4	11.7	9.8	8.5	8.7
	20-24	104.8	92.6	85.1	69.0	68.5	71.4	79.2	75.7	75.6
	25-29	207.0	197.5	184.4	76.7	76.5	75.6	93.6	93.1	90.6
	30-34	184.9	189.2	181.9	81.9	79.7	77.1	94.1	91.8	88.3
	34-39	138.0	138.5	128.0	51.1	47.0	49.8	62.1	57.6	59.0
	40-44	58.6	51.7	50.7	18.5	16.5	16.4	24.7	21.4	21.1
	45-49	5.0	4.2	3.2	2.1	2.3	2.2	2.7	2.7	2.4
	Total Fertility Rate (15 to 49 years)	**3.5**	**3.4**	**3.2**	**1.6**	**1.5**	**1.5**	**1.8**	**1.8**	**1.7**

Source: Ministry of Public Health and Planning and Statistics Authority

There are many factors which could influence the fertility rate of a population. Social determinants generally associated with increased fertility include maternal support, socioeconomic status as well as social norms among others (Schaffnit & Sear, 2014) (Payne, 2004).

Figure 2.3.1: Age specific fertility rates for women of maternal age, by age groups and year, 2017 to 2019



Source: Ministry of Public Health and Planning and Statistics Authority

3. Life expectancy and mortality

3.1 Life expectancy

Life expectancy is a widely accepted indicator used to estimate the average number of years a person is expected to live and reflects the overall health status of a population over time (OECD, 2017).

Total life expectancy at birth among Qatari nationals was highest in 2019 with a value of 79.9 years. Life expectancy was 77.1, 77.0 and 78.3 years in 2017, 2018 and 2019 respectively for Qatari males. Life expectancy was higher among Qatari females with values of 81.2, 81.5, and 81.5 in 2017, 2018 and 2019 respectively (Table 3.1.1). In 2019, life expectancy at 65 was found to be 18.0 years for males and 18.7 years for females (Table 3.1.2)

According to the World Bank, over the past decades, GCC countries have achieved remarkable improvement in the life expectancy at birth (World Bank, 2019). Qatar has the highest life expectancy among the GCC countries and is significantly above the world average life expectancy at birth of 72.7 years (World bank, 2019). Life expectancy at birth in EU28 countries was 81 in 2019 which is comparable to the life expectancy of the State of Qatar in the same year (OECD/EU, 2018).

Many factors play a role in determining a country's life expectancy. Life expectancy at birth is believed to be the result of complex interactions between the social determinants of health and socioeconomic conditions, including socioeconomic status, education level, access to clean water and improvement in sanitation (OECD/EU, 2018). It is also related to access to health services and effectiveness of public health action as well as the progress of medical science in

different domain, including the availability and coverage of vaccination programs (Centers for Disease Control and Prevention [CDC], 1999).

Table 3.1.1: Life Expectancy at Birth by nationality, gender, and year, 2017 to 2019

Year	Qatari			Non-Qatari			Total		
	Male	Female	All	Male	Female	All	Male	Female	All
2017	77.1	81.2	79.2	83.8	82.4	83.2	82	81.9	81.9
2018	77	81.5	79.3	82.7	82	82.5	81.3	82	81.6
2019	78.3	81.5	79.9	83.3	81.2	82.6	82.1	81.4	81.8

Source: Ministry of Public Health

Table 3.1.2: Life Expectancy at 65, by nationality, gender, and year, 2017 to 2019

Year	Qatari			Non-Qatari			Total		
	Male	Female	All	Male	Female	All	Male	Female	All
2017	17.8	18.5	18.1	21.3	19.5	20.5	19.7	19	19.4
2018	17.3	19.4	18.4	20.2	18.9	19.7	19	19.1	19.1
2019	18	18.7	18.3	20.5	18.3	19.8	19.6	18.5	19.1

Source: Ministry of Public Health

3.2 Mortality

3.2.1 Descriptive analysis for mortality

Mortality data and causes of deaths specific to the population of Qatar can provide insight on Qatar's disease profile and drive evidence-based policy making and public health interventions. Many indicators of mortality are widely used and recognized in public health policy development (OECD, 2017).

In Qatar, the number of deaths for all causes has been relatively stable over the past 3 years, with 2,185 deaths in 2017 and 2,086 deaths in 2019. (Table 3.2.1). The number of overall deaths has also shown similar stable trends when looking by gender and nationality. Table 3.2.2 shows the number of deaths by gender in every age group occurred in Qatar.

It is worthwhile to note that the mortality data published in this document is taken from the database of the Qatar Ministry of Public Health (Table 3.2.1). MoPH collects and reports deaths of people who died within the State of Qatar. The number of deaths reported by the Qatar Ministry of Development and Statistics also include deaths of Qatari nationals occurring outside the State of Qatar. For instance, in 2019, PSA recorded a total of 691 Qatari deaths, (396 Qatari male and 295 Qatari female) as compared to 583 reported to the Ministry of Public Health.

The crude death rate has been steadily declining over the past 3 years from 80.2 deaths per 100,000 in 2017 to 74.5 deaths per 100,000 in 2019 in Qatar. (Figure 3.2.1 and Figure 3.2.2). During the past decade, there has been a consistent decrease in the crude mortality rate from 198.3 deaths per 100,000 in 2006 to the current value of 74.5 deaths per 100,000 in 2019.

The crude mortality rate is a very broad indicator of a country's health status. Its interpretation is largely limited by the age distribution of the population that, as in the case of Qatar, is dynamic and relatively young. For instance, for comparative purposes, the crude death rate in the EU in 2019 with a very different population age distribution, has been estimated to be around 1000 per 100,000 (World Bank, 2019).

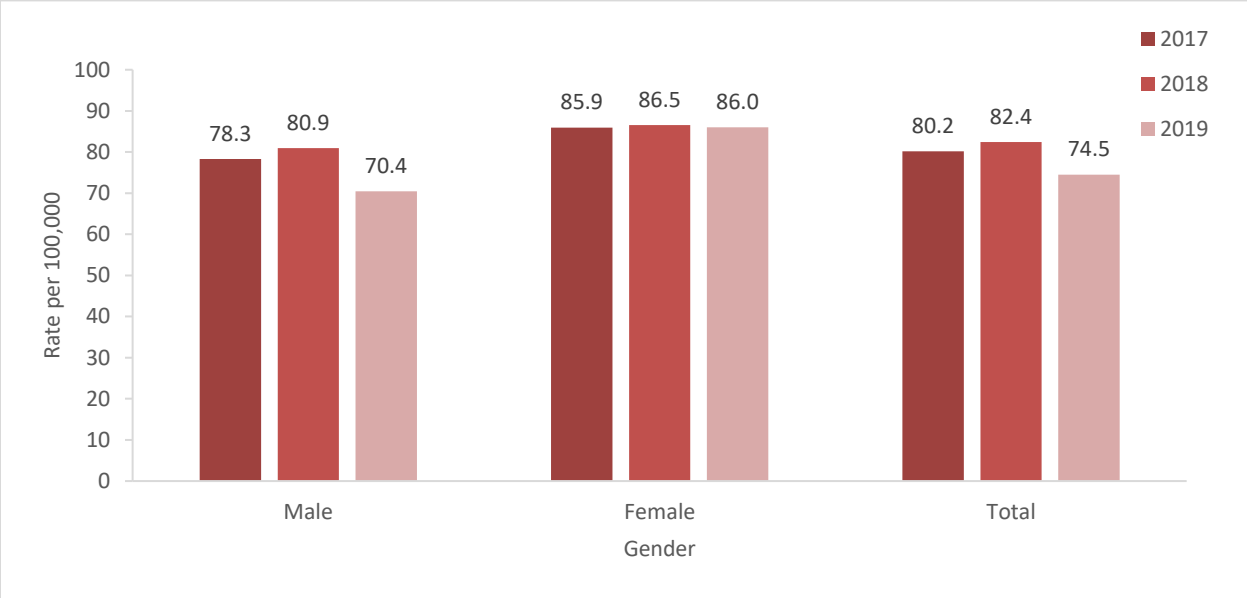
Table 3.2.1: Number of deaths for all causes, by gender, nationality, and year, 2017 to 2019

Year	Male			Female			Both sexes		
	Qatari	Non-Qatari	Total	Qatari	Non-Qatari	Total	Qatari	Non-Qatari	Total
2017	360	1242	1602	238	345	583	598	1587	2185
2018	388	1270	1658	257	359	616	645	1629	2274
2019	337	1117	1454	246	386	632	583	1503	2086

Source: Ministry of Public Health

Note: Deaths of Qatari citizens and residents outside of the State of Qatar are not included.

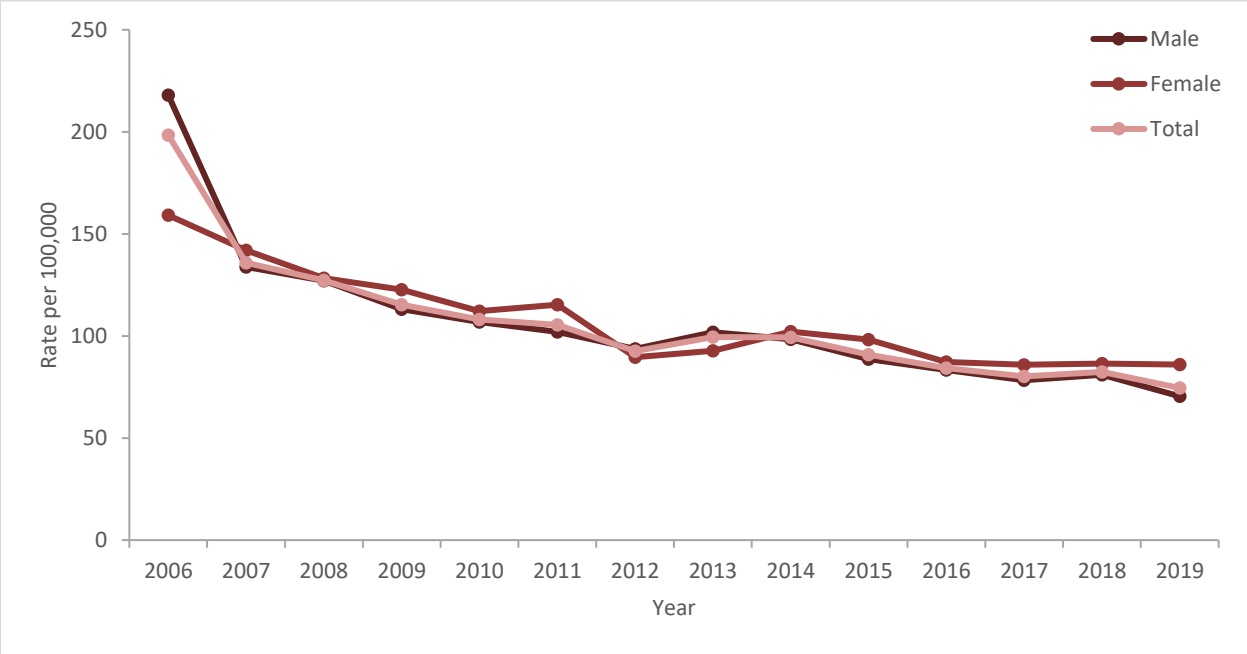
Figure 3.2.1: Crude death rates per 100,000, by year and gender, 2017 to 2019



Source: Ministry of Public Health

Note: Deaths of Qatari citizens and residents outside of the State of Qatar are not included.

Figure 3.2.2: Crude death rates per 100,000, by gender and year, 2006 to 2019



Source: Ministry of Public Health

Note: Deaths of Qatari citizens and residents outside of the State of Qatar are not included.

Table 3.2.2: Deaths from all causes, by gender, age group, and year, 2017 to 2019

Age	2017			2018			2019		
	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
0	83	68	151	82	89	171	67	70	137
1-4	19	13	32	27	14	41	14	14	28
5-9	10	6	16	3	3	6	16	11	27
10-14	11	3	14	8	11	19	9	5	14
15-19	36	2	38	45	5	50	33	9	42
20-24	78	3	81	79	10	89	67	9	76
25-29	133	9	142	115	14	129	83	8	91
30-34	127	9	136	142	17	159	112	19	131
35-39	138	14	152	125	17	142	105	14	119
40-44	120	22	142	143	14	157	116	18	134
45-49	117	23	140	135	22	157	125	28	153
50-54	113	38	151	122	36	158	128	22	150
55-59	148	38	186	130	34	164	96	37	133
60-64	115	44	159	109	41	150	110	48	158
65-69	96	65	161	92	57	149	86	58	144

70-74	76	46	122	74	53	127	77	68	145
75-79	66	56	122	73	61	134	70	79	149
80+	116	124	240	152	118	270	140	115	255
Missing				2					
Total	1,602	583	2,185	1,658	616	2,274	1,454	632	2,086

Source: Ministry of Public Health

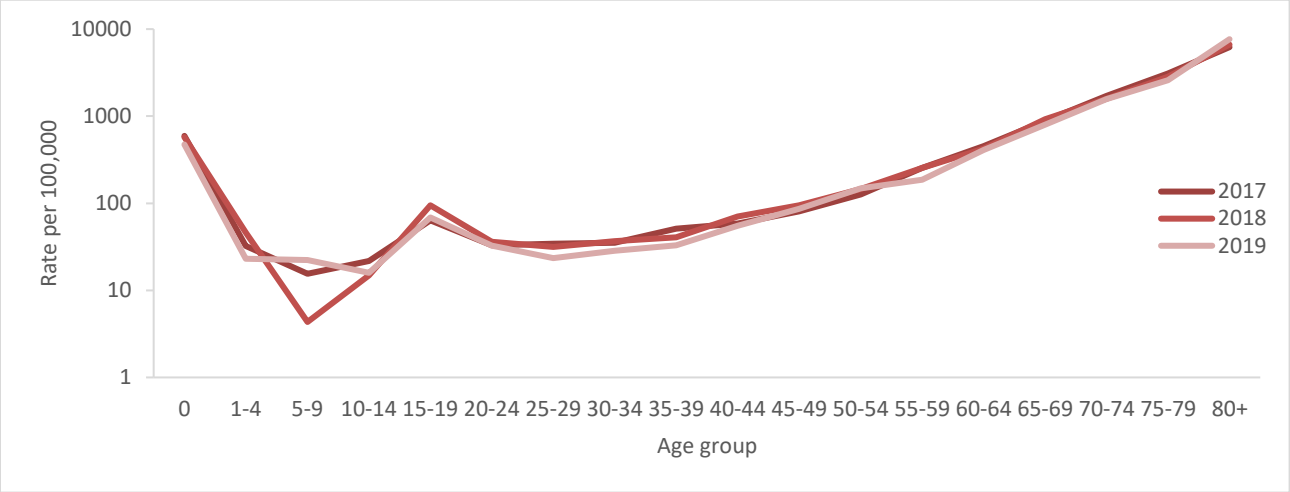
Age specific mortality rate (ASMR) allows for a more meaningful interpretation of mortality patterns within and across populations. Some types of age-specific mortality rates, such as infant mortality rate (Figure 3.4.3) are indicators used internationally to compare the effectiveness of the healthcare and public health system across nations (OECD, 2017).

ASMR per 100,000 among males and females follow the same trend over the 3 years period 2017-2019, with increased age specific mortality rate at the extreme of ages (0-1 and 65+), illustrated by the J-shaped curve of age specific mortality rates (Figure 3.2.3, Figure 3.2.4). Even when stratifying by nationality, there is the same tendency of increased age specific mortality rate at the extremes of age and a similar J-shaped curve (Figure 3.2.5, Figure 3.2.6).

In Figure 3.2.5, showing the ASMR for the year 2019 for 10 years old and above, other than the age bracket of 35-39 years, Qatari males have a higher ASMR compared to non-Qatari across all the 5-years age groups. This finding could potentially be explained by the “healthy worker” effect where workers would have lower overall death rates compared to the general population, especially in the young and middle age classes. On the other hand, ASMR for non-Qatari males are higher than their Qatari counterpart in the age groups 1-4, 5-9 and 35-39. (Figure 3.2.5). This finding is also seen in non-Qatari females exhibiting a higher ASMR in the age group 0-9 compared to Qatari females in the same age group in 2019. The latter findings are worth additional analysis.

Age specific mortality rate in the male working age groups is generally higher when compared to their female counterpart (Figure 3.2.3, Figure 3.2.4, Figure 3.2.5, Figure 3.2.6). For example, in 2019, in the age group 35-39, age specific mortality rate for male was 32.9 deaths per 100,000 compared to 15.7 deaths per 100,000 for female. Also, we observe a high ASMR for male in the age group 15-19.

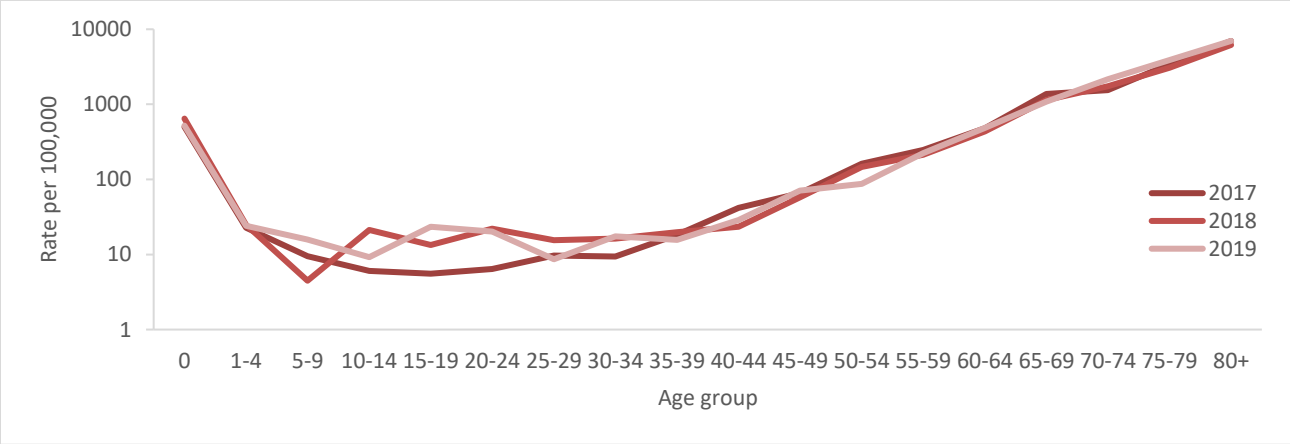
Figure 3.2.3: Age specific mortality rates per 100,000 among males, by age group and year, 2017 to 2019



Source: Ministry of Public Health

Note: Figure in logarithmic scale - The logarithmic scale base 10 on the y-axis was used to better illustrate the significant variations in mortality rates between age groups.

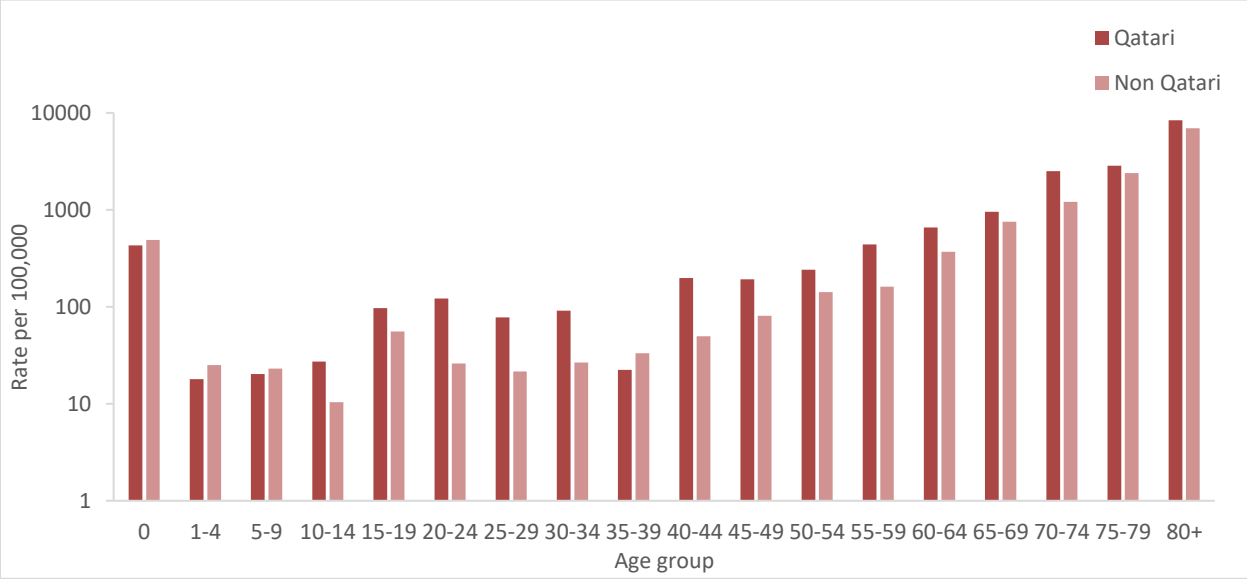
Figure 3.2.4: Age specific mortality rates per 100,000 among females, by age group and year, 2017 to 2019



Source: Ministry of Public Health

Note: Figure in logarithmic scale - The logarithmic scale base 10 on the y-axis was used to better illustrate the significant variations in mortality rates between age groups.

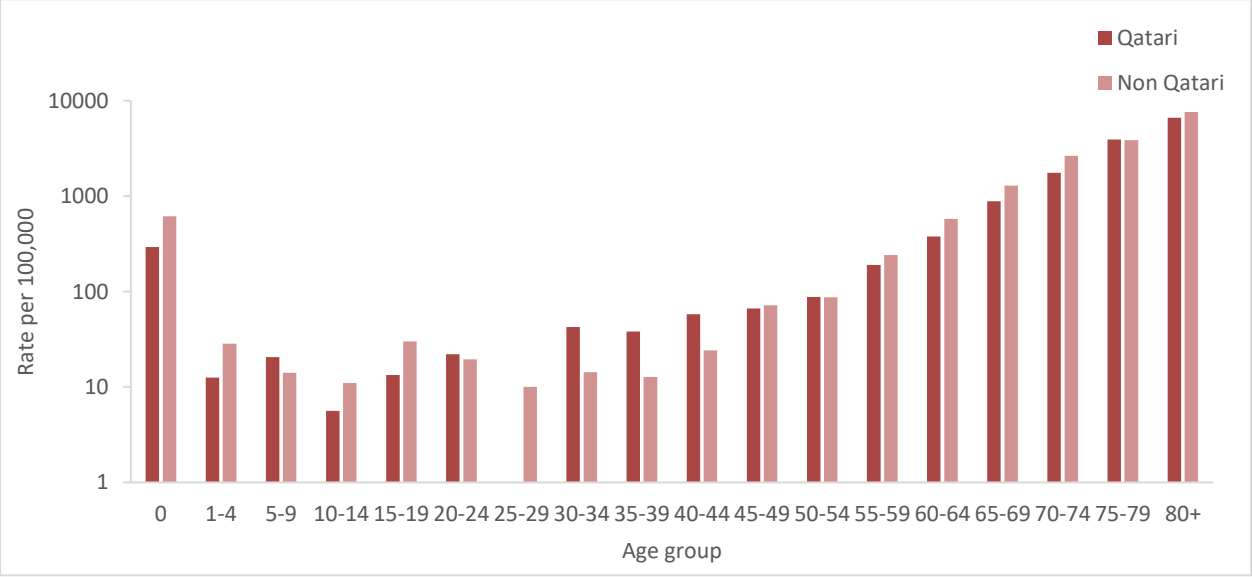
Figure 3.2.5: Age specific mortality rates per 100,000 among males, by age group and nationality, 2019



Source: Ministry of Public Health

Note: Figure in logarithmic scale - The logarithmic scale base 10 on the y -axis was used to better illustrate the significant variations in mortality rates between age groups.

Figure 3.2.6: Age specific mortality rates per 100,000 among females, by age group and nationality, 2019



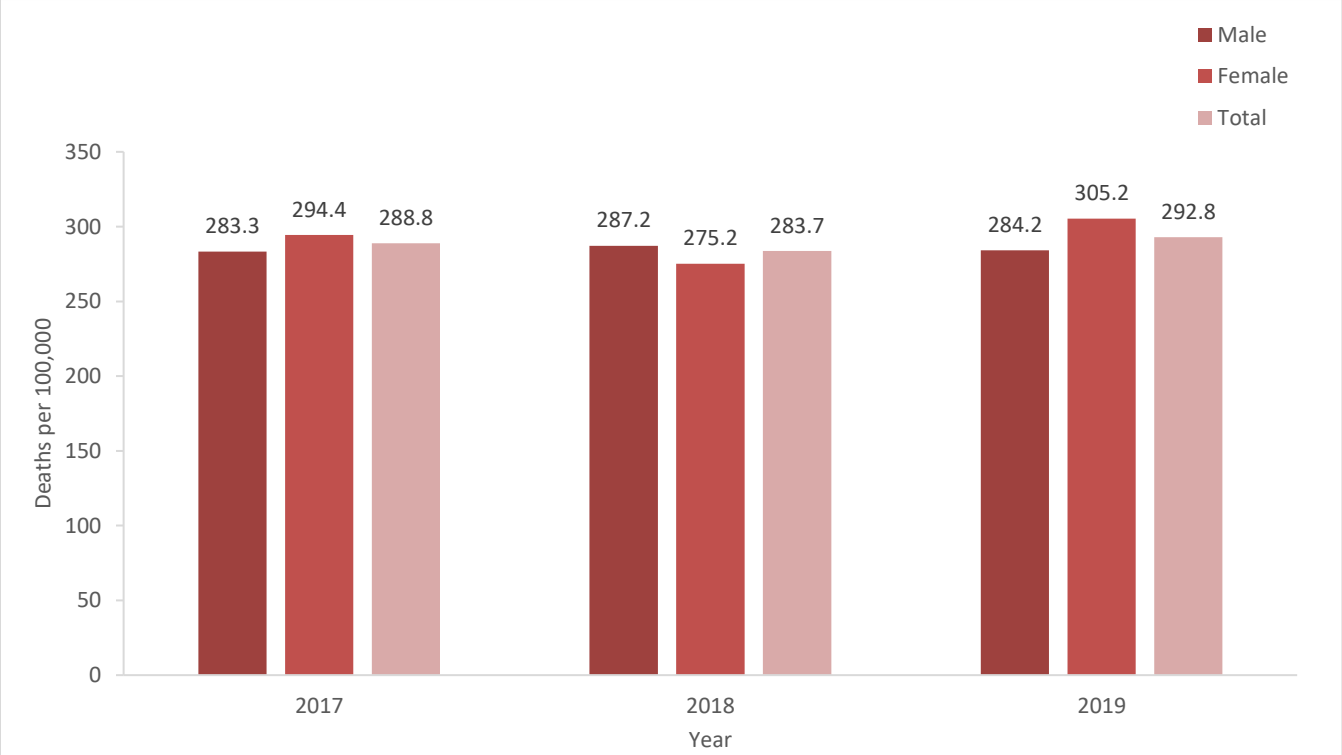
Source: Ministry of Public Health

Note: Figure in logarithmic scale - The logarithmic scale base 10 on the y -axis was used to better illustrate the significant variations in mortality rates between age groups. There was 0 ASMR for Qatari in the age group 25-29.

Standardized mortality rates. Comparison with region (EMRO) and other developed countries
The standardized mortality rate (SMR) is the death rate of a population adjusted to a standard age distribution. The SMR is used to eliminate the distortion caused by different underlying age distributions in different populations and SMR thus facilitates comparison between countries. In this report, we used the new WHO World Population Standard which is especially defined to reflect the average age structure of the world's population expected from the year 2000 to 2025 (https://www.who.int/healthinfo/paper31.pdf).

In Qatar, in 2017, the SMR was 283.3 for male and 294.4 per 100,000 for female. In total, the SMR was 288.8 per 100,000. The same pattern was seen in 2019. The SMR was higher for female compared to male. However, in 2018, the SMR was higher for male with 287.2 and 275.2 for female.

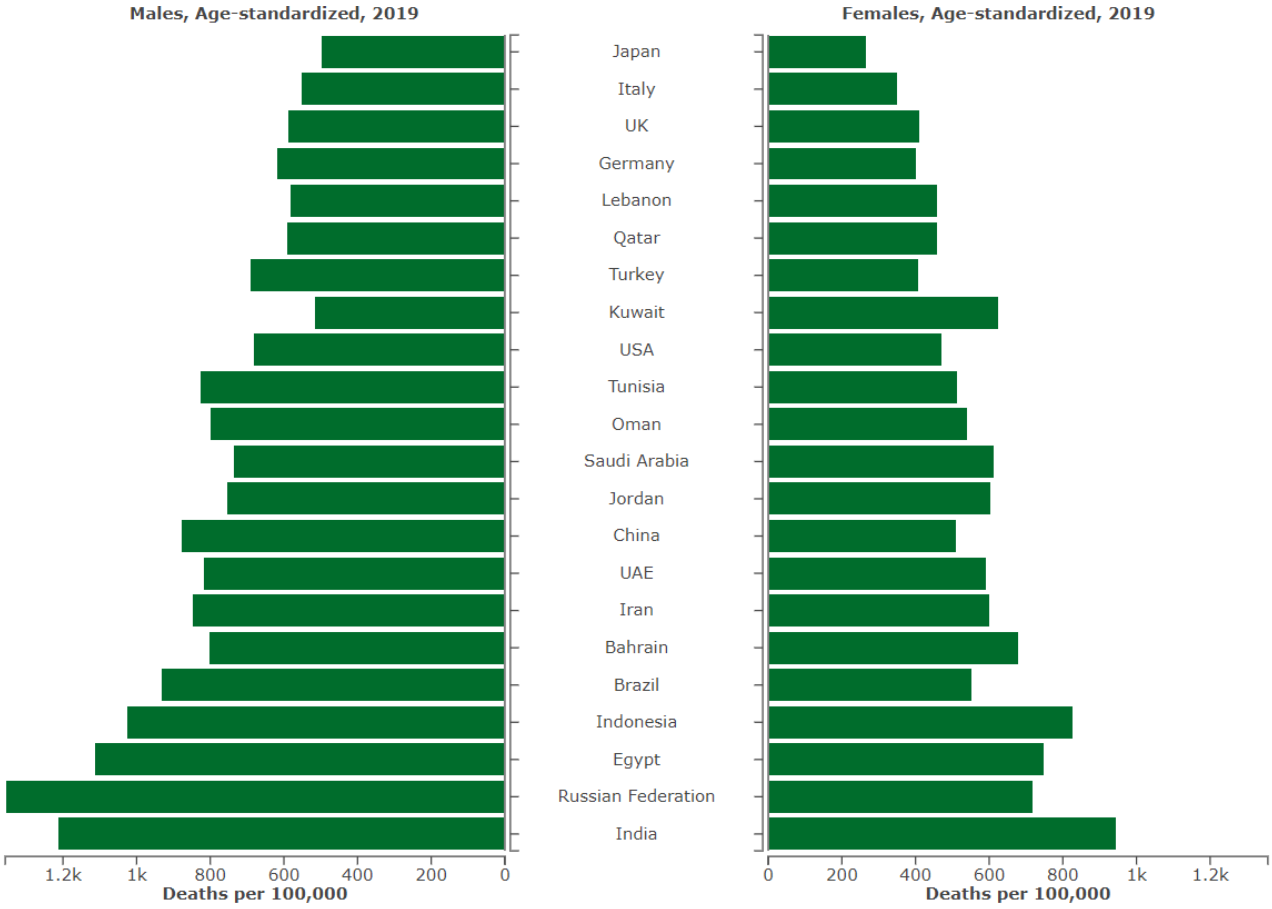
Figure 3.2.7: Standardized mortality rates by gender, 2017-2019



Source: Ministry of Public Health

According to the Institute for Health Metrics and Evaluation and in comparison to the EMRO region and the developed countries for the year 2019, Qatar was from the countries with a low SMR and the lowest among the gulf countries. Figure 3.2.8 shows the gender specific distribution of SMR ratio across many countries.

Figure 3.2.8: Standardized mortality rates by gender and country in 2019



3.2.2 Mortality by causes

Table 3.3.1 enumerates the number of deaths classified according to the ICD-10 chapters of diseases. In Qatar, diseases of the circulatory system (such as ischemic heart diseases, strokes, and other circulatory diseases) were the main cause of mortality from 2017-2019 among males (Table 3.3.1). This was followed by external causes of morbidity and mortality, and then by neoplasms as second and third contributors to the number of deaths across the 3-year period. For females, in 2019, deaths from neoplasms were the main cause of death and this was closely followed by the diseases of the circulatory system whereas the diseases of the respiratory system were the third most common cause of death. Across the 3-year period these causes

contributed as the top three causes of deaths among the females in Qatar (Table 3.3.1). In the OECD countries and overall, at the global level, diseases of the circulatory system remain the main cause of death followed by cancer (OECD, 2017).

Over the three years period the number of deaths in males from diseases of the circulatory system slightly increased from the year 2017 to 2018 (i.e., from 562 deaths to 583 deaths) but with 511 deaths this figure decreased between the years 2018 to 2019. In parallel, male deaths from unknown causes ("Signs and abnormal clinical and laboratory findings, not elsewhere classified") decreased gradually over the three years period with 10 deaths in 2019 as compared to 22 deaths in 2017. This marked change is attributable to the improvement of death registration and cause of death classification carried out since 2016 in the Ministry of Public Health. The same numbers have but increased in female causes of deaths for the year 2019 and need to be explored further. Additional work is being carried out to further improve cause of death classification in the coming years.

Table 3.3.1: Number of deaths, by underlying cause of death chapter (ICD-10), gender and year, 2017 to 2019

Chapter	Cause of death chapter	Males			Females		
		2017	2018	2019	2017	2018	2019
I	Certain infectious and parasitic diseases	25	37	33	15	15	19
II	Neoplasms	169	189	158	130	135	130
III	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	8	13	10	8	6	7
IV	Endocrine, nutritional, and metabolic diseases	99	82	73	49	48	55
V	Mental and behavioral disorders	*	*	*	*	*	*
VI	Diseases of the nervous system	19	31	22	8	11	20
VII	Diseases of the eye and adnexa	0	0	0	0	0	0
VIII	Diseases of the ear and mastoid process	0	0	0	0	0	0
IX	Diseases of the circulatory system	562	583	511	150	173	127
X	Diseases of the respiratory system	159	201	146	61	58	61
XI	Diseases of the digestive system	39	38	37	18	24	25
XII	Diseases of the skin and subcutaneous tissue	1	3	1	2	2	3
XIII	Diseases of the musculoskeletal system and connective tissue	0	0	6	2	2	0
XIV	Diseases of the genitourinary system	66	30	52	47	27	47
XV	Pregnancy, childbirth, and the puerperium	n/a	n/a	n/a	0	1	1

XVI	**Certain conditions originating in the perinatal period**	37	32	35	30	39	27
XVII	**Congenital malformations, deformations, and chromosomal abnormalities**	42	45	30	30	42	37
XVIII	**Symptoms, signs, and abnormal clinical and laboratory findings, not elsewhere classified**	22	3	10	9	8	35
XX	**External causes of morbidity and mortality**	354	370	330	24	25	38
	Total deaths	**1,602**	**1,658**	**1,454**	**583**	**616**	**632**

Source: Ministry of Public Health

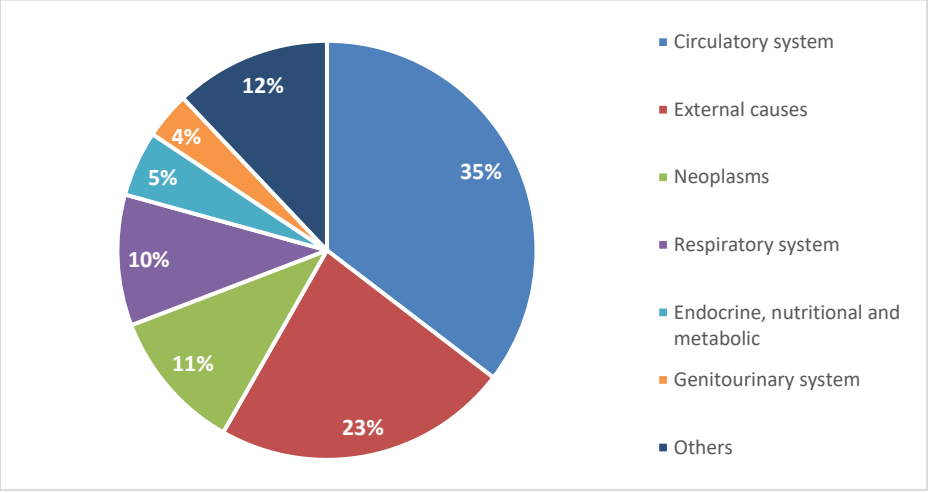
Chapters 'XIX Injury, poisoning and certain other consequences of external causes', 'XXI Factors influencing health status and contact with health services' and 'XXII Codes for special purposes' have not been included, as they either relate to causes of morbidity or non-mortality based events.

* There are no deaths recorded in Chapter 'V Mental and behavioral disorders', as all deaths due to suicide are recorded in 'XX External causes or morbidity and mortality'. Please refer to Figure 3.7.9: Number of deaths from intentional self-harm, by nationality and gender, 2019 for data presenting deaths due to suicide.

n/a - not applicable

Figure 3.3.1 summarizes the most common causes of death in 2019 among males in decreasing order. As mentioned earlier, diseases of the circulatory system represent 35% of all deaths, external causes of morbidity and mortality 23% and mortality due to cancer and diseases of the respiratory system contributed to 11.0% and 10% of the overall deaths respectively.

Figure 3.3.1. Percentage of deaths in males, by the top six chapters of cause of death, 2019

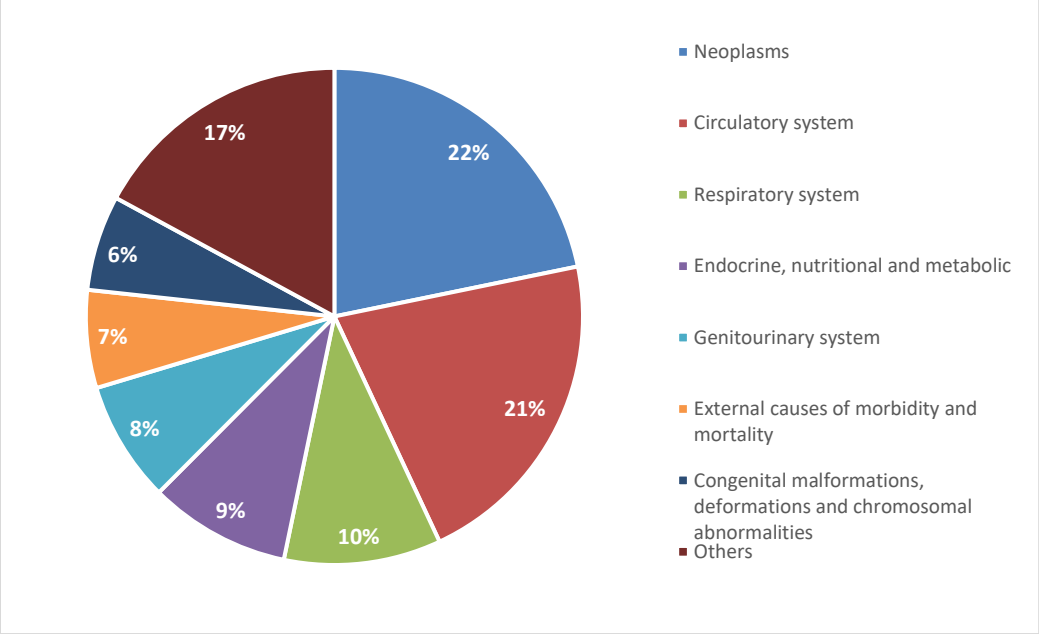


Source: Ministry of Public Health

Notes: N=1,444; Excludes unknown causes

In 2019, the most common causes of death among females were in decreasing order: neoplasms (22.0%), diseases of the circulatory system (21.0%), and diseases of the respiratory system (10.0%) (Figure 3.3.2).

Figure 3.3.2: Percentage of deaths in females, by the top six chapters of cause of death, 2019



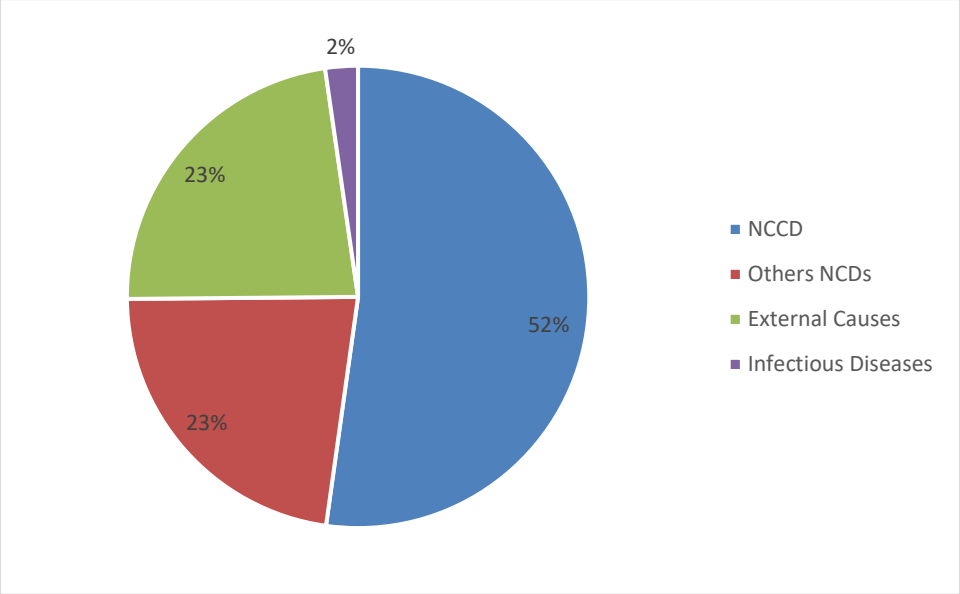
Source: Ministry of Public Health

Notes: N=597; Excludes unknown causes

In 2019, the main four NCDs (cardiovascular diseases, neoplasms, diabetes, respiratory diseases) remain the main contributors of death among males (52.0%) and females (53.0%) (Figure 3.3.3 and 3.3.4). Infectious diseases make up a small proportion of deaths among males (2%) and females (3.0%).

In 2019, deaths due to other NCDs and external causes were the combined second contributor of deaths among males (23.0%). In females, the other NCDs were the second contributors of deaths (38.0%), followed by external causes (6.0%). The highest mortality rate from road traffic accidents among males is a major explanatory factor of this differences between the males and females. (Table 3.7.5 and Figure 3.7.6)

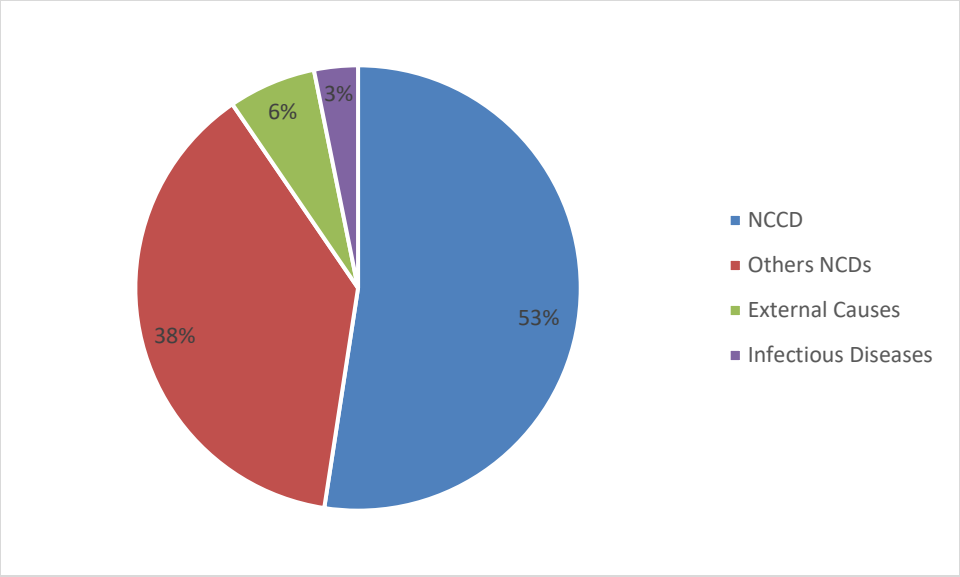
Figure 3.3.3: Percentage of deaths in males by non-communicable chronic diseases, infectious diseases and external causes, 2019



Source: Ministry of Public Health

Notes: Non-communicable chronic diseases based on cardiovascular disease (I00-I99), cancers (C00-C97), diabetes (E10-E14), chronic respiratory disease (J30-J98); Excludes unknown causes

Figure 3.3.4: Percentage of deaths in females by non-communicable chronic diseases, infectious diseases, and external causes, 2019



Source: Ministry of Public Health

Notes: Non-communicable chronic diseases based on cardiovascular disease (I00-I99), cancers (C00-C97), diabetes (E10-E14), chronic respiratory disease (J30-J98); Excludes unknown causes

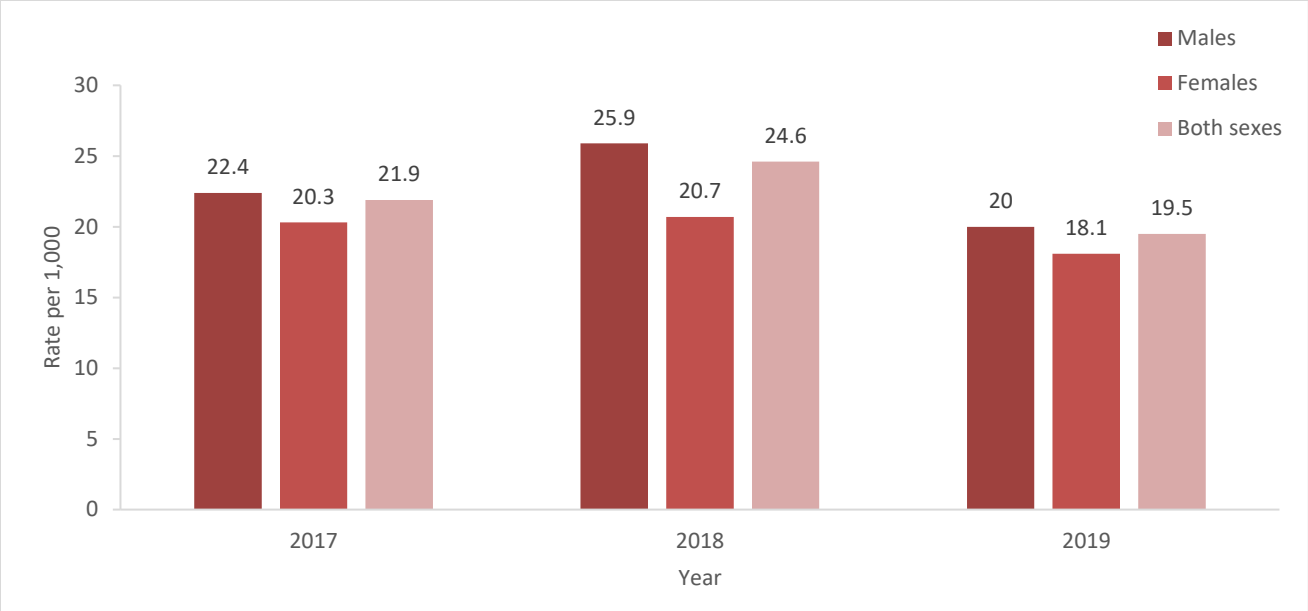
3.2.3 Mortality by age groups

Adult mortality between 15 and 60 years of age (probability of dying between 15 and 60 years per 1000 population) is a widely used indicator to assess the burden of disease (mainly NCD) in the most economically productive age group (Wang et al., 2017).

In Qatar, across the 3 years, there was a mixed trend in adult mortality rate (AMR) which increased from 2017 to 2018 but then decreased the next year for a net decrease of 2.4 deaths per 1,000 between 2017 and 2019 (Figure 3.4.1). In males, AMR increased from 22.4 deaths in 2017 to 25.9 deaths in 2018 and finally decreased to 20 deaths per 1,000 in 2019. Similarly, among females, with a change of 20.3 deaths to 20.7 deaths per 1,000 between 2017 and 2018, AMR initially showed a minor increase before declining to 18.1 deaths per 1,000 in 2019. Overall, the total and the gender specific AMR values declined between 2017 and 2019.

According to the World Bank, globally, male adult mortality rate was 40.1 per 1000 and female adult mortality rate was 31.5 per 1000 in 2019 (World Bank, 2019)

Figure 3.4.1: Adult mortality rate per 1,000 between 15 and 60 years old, by gender and year, 2017 to 2019



Source: Ministry of Public Health

Under-5 and infant mortality reflect the effect of socioeconomic conditions on the health of mothers and newborns, as well as the effectiveness of health systems, particularly in addressing any life-threatening problem during the neonatal period (i.e., during the first four weeks). This indicator is internationally recognized as an overall measure of the health status of a population and of the effectiveness of health services (OECD/EU, 2018).

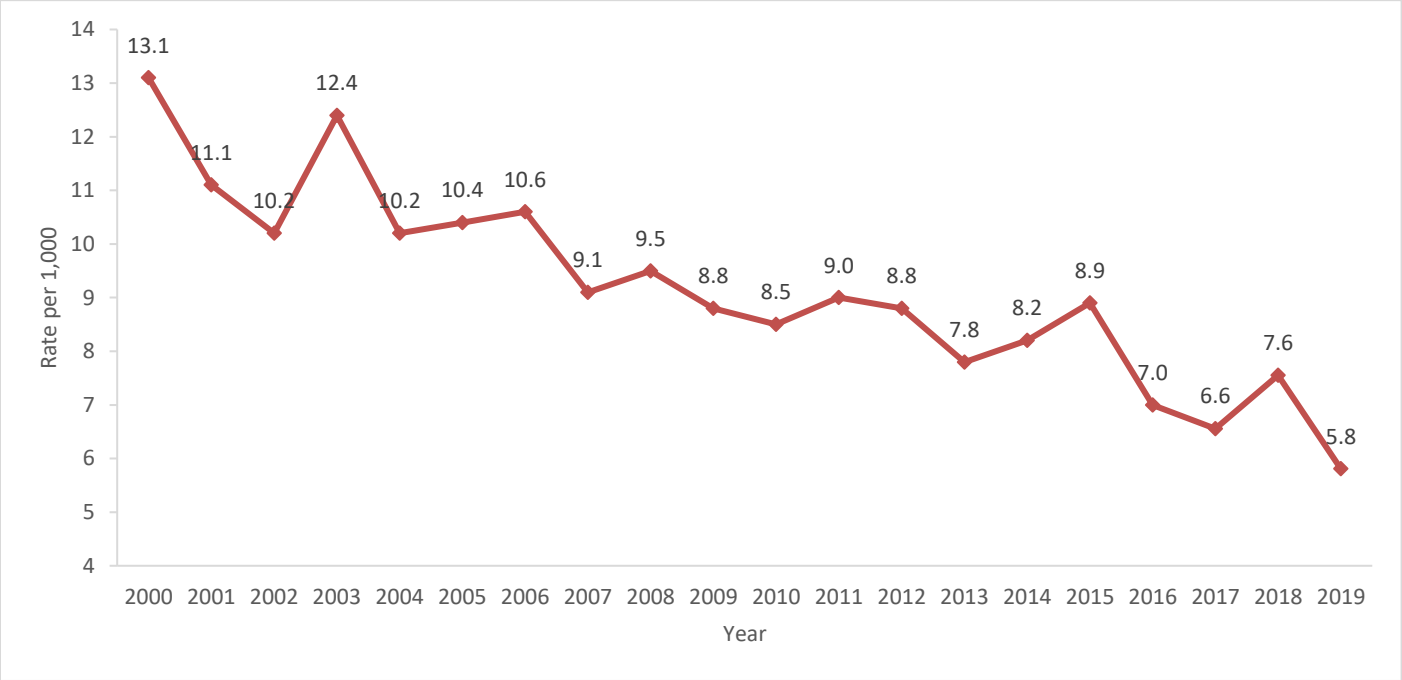
Table 3.4.1: Number of deaths for children under 5 years of age, by age at death, gender, and year, 2017 to 2019

Age	2017			2018			2019		
	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
Early Neonatal (0-6 days)	50	31	81	39	40	79	41	33	74
Late Neonatal (7-27 days)	13	13	26	15	14	29	8	12	20
Post Neonatal (28 days-1 year)	20	24	44	28	35	63	18	25	43
Total Infant Mortality	*83*	*68*	*151*	*82*	*89*	*171*	*67*	*70*	*137*
1-4 years	19	13	32	27	14	41	14	14	28
Total Under 5 Mortality	*102*	*81*	*183*	*109*	*103*	*212*	*81*	*84*	*165*

Source: Ministry of Public Health

Under 5 mortality rates is low in Qatar with a value of 5.8 deaths per 1000 live births in 2019 (Figure 3.4.2). The Qatar data from 2000 shows a consistent and significant decreasing trend from an under 5 mortality rates of 13.1 deaths per 1000 down to 8.5 deaths per 1000 in 2010 to the current value of 5.8 deaths per 1000, an overall decrease of about 55.7%.

Figure 3.4.2: Under 5 mortality rates per 1,000 live births, by year, 2000 to 2019



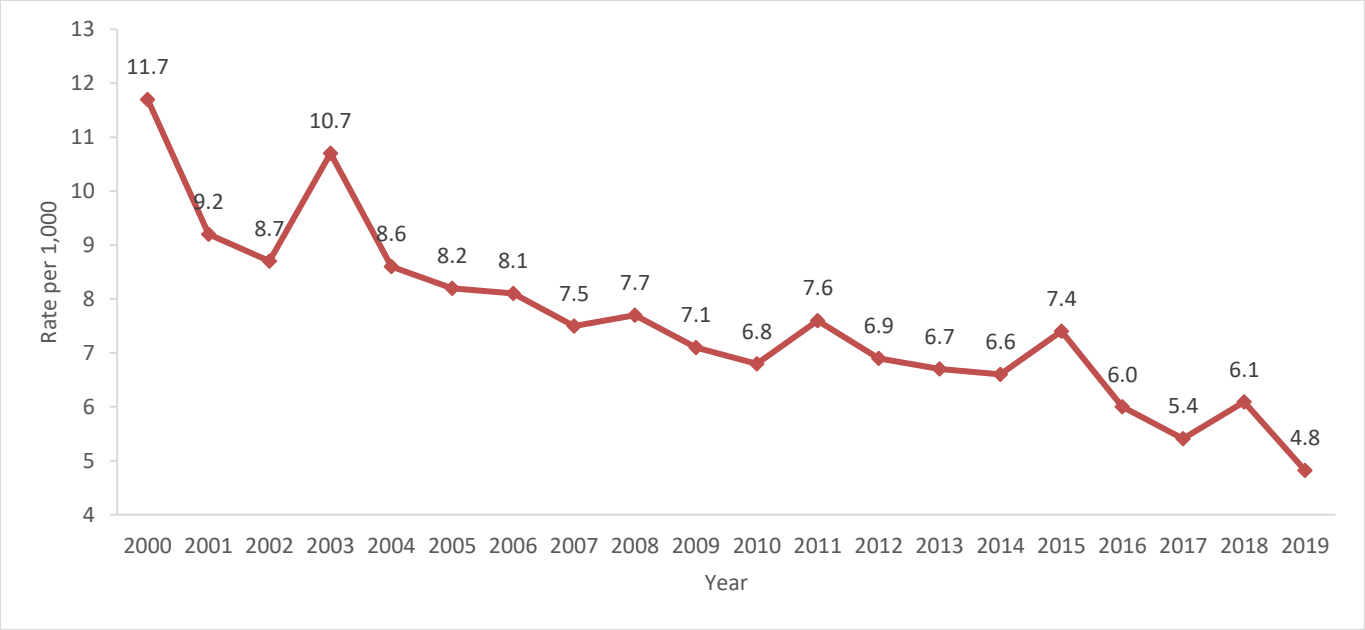
Source: Ministry of Public Health

Infant mortality rate is also low in Qatar with a value of 4.8 infant deaths for 1,000 live births in 2019 (Figure 3.4.3). The Qatar data from 2000 shows a consistent and significant decreasing trend from 11.7 per 1000 infant mortality down to the current value of 4.8 per 1,000, an overall decrease of about 59%.

A number of countries, including GCC and European countries have achieved notable progress in reducing infant mortality rates over the past few decades (World Bank, 2019). For instance, the EU average went down from over 10 deaths per 1,000 live births in 1990 to 3.3 deaths in 2019. However, the downward trend in infant mortality has halted in recent years, at least partly because of increasing numbers of low-birth-weight infants (OECD/EU, 2018).

Qatar's infant mortality rate is one of the lowest values in the WHO EMRO region and comparable to those observed in the GCC countries ranging from 5 in Bahrein to 13 in Saudi Arabia (WHO EMRO, 2017).

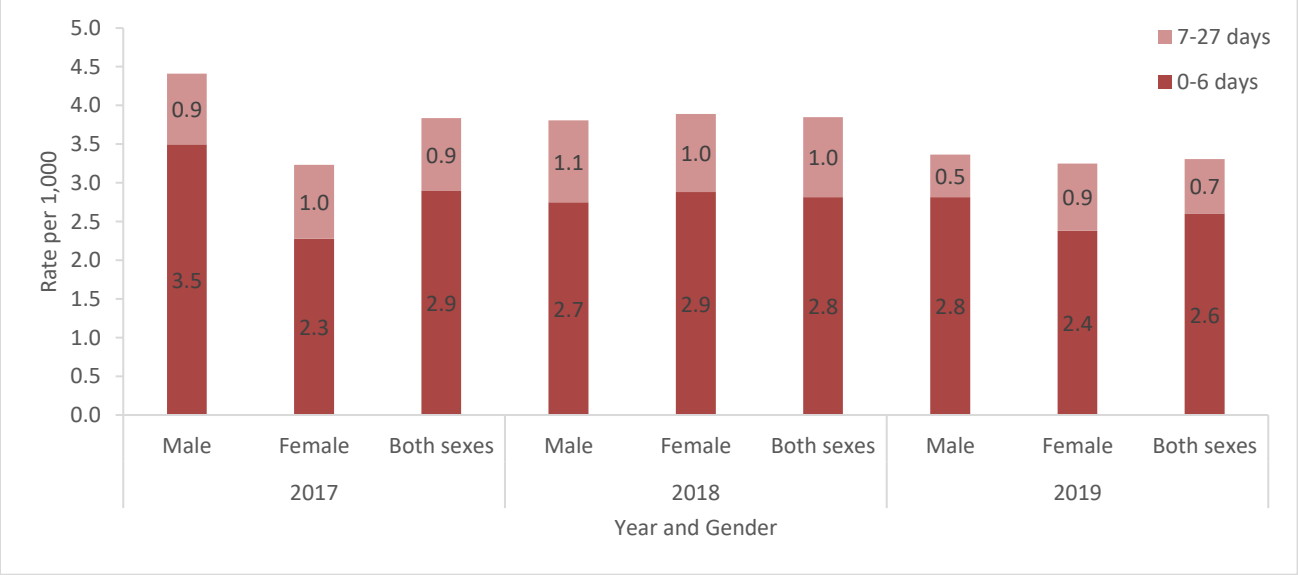
Figure 3.4.3: Infant mortality rate per 1,000 live births, by year, 2000 to 2019



Source: Ministry of Public Health

Around half of the deaths during the first year of life occur during the first month (i.e. neonatal mortality) (Table 3.4.1 and Figure 3.4.4). This compares to a ratio of two thirds in most EU countries. The main causes of death during the first month are congenital anomalies, prematurity and other conditions arising during pregnancy. For deaths beyond one month (post neonatal mortality), there tends to be a greater range of causes – the most common being sudden infant death syndrome (SIDS), birth defects, infections, and accidents (OECD/EU, 2018).

Figure 3.4.4: Early neonatal (0 to 6 days) and late neonatal (7 to 27 days) mortality rates per 1,000 live births, by gender and year, 2017 to 2019



Source: Ministry of Public Health

3.2.4 Stillbirths

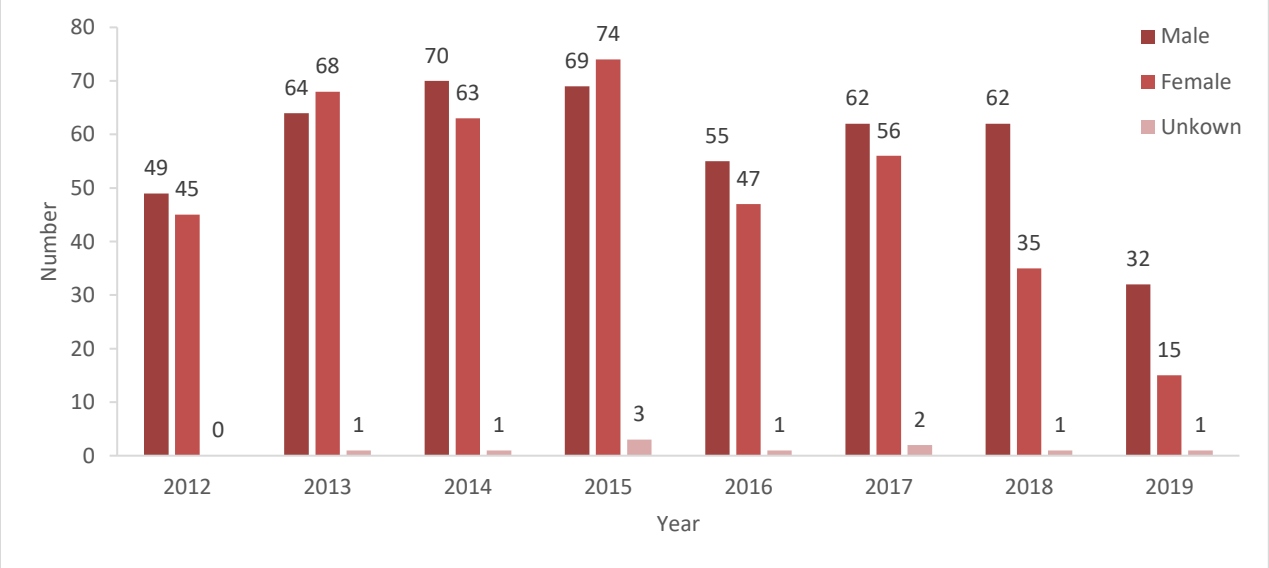
The term stillbirths refer to the loss of a baby before or during delivery. Based on the WHO definition used for international comparison, a stillbirth represents a newborn with no signs of life after the 28th week of gestation (WHO, 2006). Improved health systems and advanced prenatal care are effective ways to prevent stillbirths from occurring. The stillbirth rate is influenced by both prenatal conditions (such as congenital anomalies) and the quality of care before and during pregnancy (WHO, 2006).

In Qatar, there is a consistent higher number of male stillbirths as compared to female stillbirths over the past 8 years. The only exception lies in the year 2015 where a higher number of female stillbirths (74) was found as compared to male stillbirths (69) (Figure 3.5.1).

In Qatar, there was a mixed trend in still birth rate from 2004 (4.9 stillbirths per 1000) to 2017 (4.3 stillbirths per 1000) with a peak still birth rate of 10.7 per 1000 in the year 2011. Since 2017 there has been a steady decrease reaching 1.7 stillbirths per 1000 in 2019. The current value is the lowest Qatar has seen over the past 15 years (Figure 3.5.2). Qatar has already met the World Health Assembly target of 12 or fewer stillbirths per 1000 births in 2030. Worldwide, stillbirth rate was estimated to be 18.4 per 1000 total births in 2015 (Lawn et al., 2016).

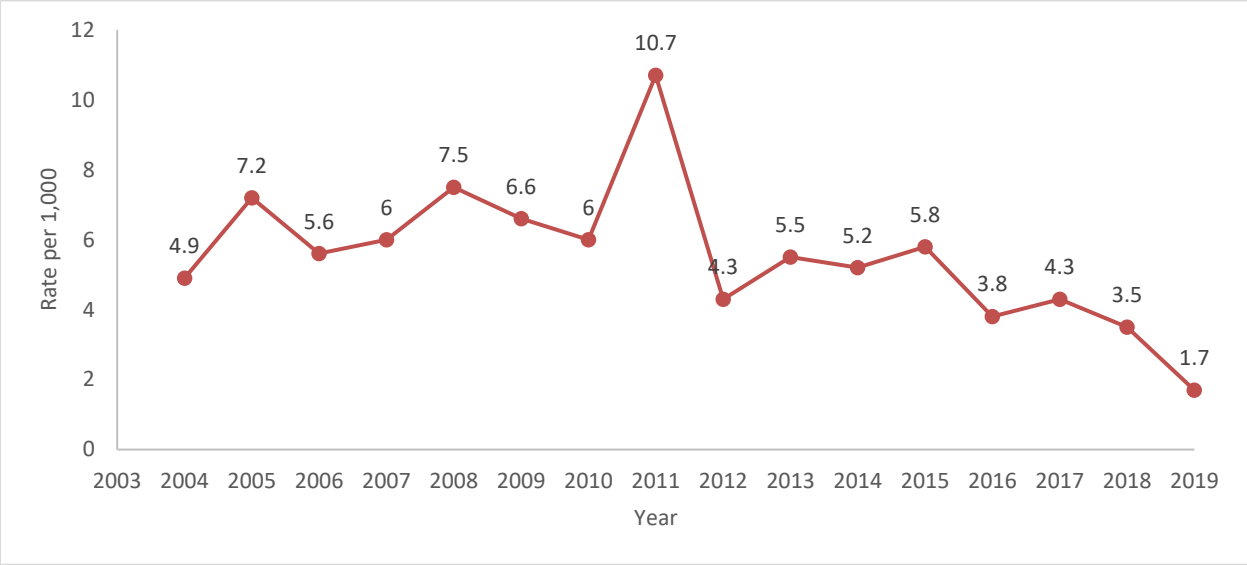
Stillbirth rates have been on the decrease worldwide. Improved antenatal care and public health interventions targeted to promote health behaviors contributed to the decrease in stillbirths worldwide (Frøen et al., 2016) (Lawn et al., 2016). Known risk factors for stillbirths include placental problems, hypertension during pregnancy (preeclampsia or pregnancy induced hypertension), smoking (Lawn et al., 2016).

Figure 3.5.1: Number of still births, by gender and year, 2012 to 2019



Source: Ministry of Public Health

Figure 3.5.2: Still birth rate per 1,000 live births, by year, 2004 to 2019



Source: Ministry of Public Health

3.2.5 Maternal mortality

Maternal mortality is defined by the WHO as a female death occurring during pregnancy or by 6 weeks (42 days) after end of pregnancy and due to any cause related to the pregnancy or its management (excluding accidental causes) (Khan, Wojdyla, Say, Gulmezoglu &Van Look, 2006). Like many indicators of mortality, maternal mortality is an important indicator of health system performance.

Number of maternal deaths are very low in Qatar with only 1 death in 2019 (Table 3.6.1)

Table 3.6.1: Number of maternal deaths, by nationality and year, 2017 to 2019

Year	Number of maternal deaths - Qatari	Number of maternal deaths - non-Qatari	Total number of maternal deaths	Number of Live births - Qatari	Number of Live births non-Qatari	Total number of live births
2017	0	0	0	7,944	19,962	27,906
2018	0	1	1	7,803	20,266	28,069
2019	0	1	1	7,496	20,916	28,412

Source: Ministry of Public Health, Ministry of Development and Planning

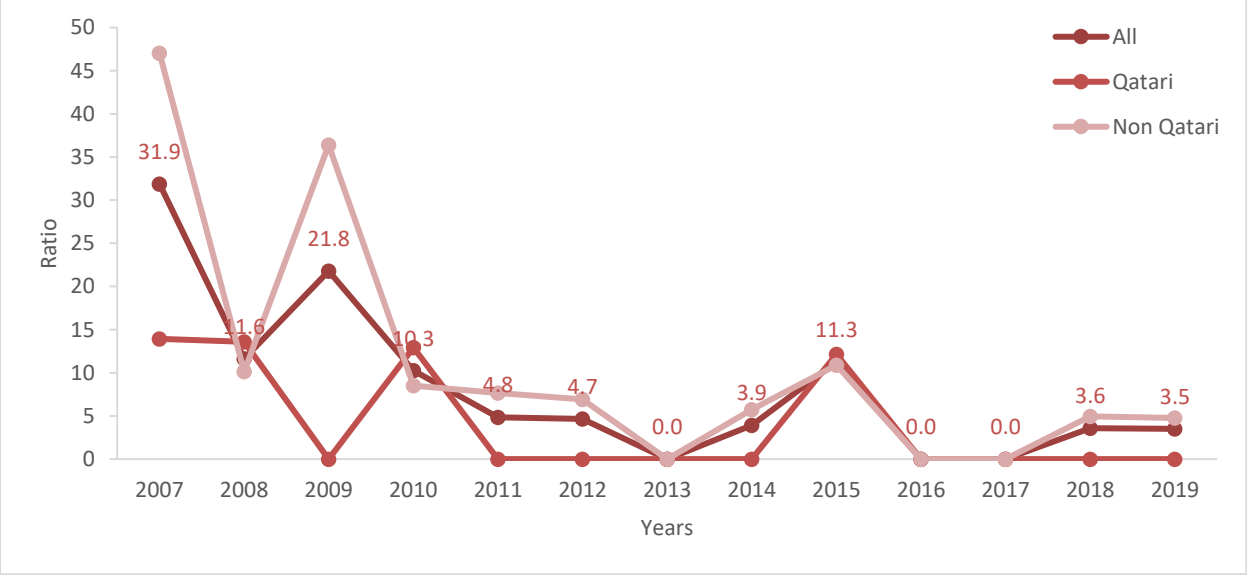
Qatar has a very low maternal mortality ratio and has already met the global SDG 3 goal 3.1 of reducing the maternal mortality ratio to less than 70 per 100,000 live births by 2030. The global maternal mortality ratio in 2015 has been estimated to be 216 deaths per 100,000 (World Bank, 2019).

Overall, in Qatar there has been a decreasing trend of maternal mortality ratio from 2007 (31.9 maternal deaths per 100,000 live births in 2007) to 3.5 deaths per 100,000 live births in 2019 (Figure 3.6.1). Because of the rarity of the event, the ratio can fluctuate over time even for small changes in the number of deaths (Figure 3.6.1).

In order to compensate for yearly fluctuation and stabilize the yearly rate a three-year moving average of maternal mortality ratio was used to improve data analysis and interpretation. Over the past decade, there has been a significant decrease in the 3-year moving average of maternal mortality ratio, from 14.6 deaths per 100,000 in 2009 to 2.4 deaths per 100,000 in 2019. This pattern followed an increasing trend from 1993 to 2008, where the moving average went from 3.2 deaths per 100,000 (1993) to 21.8 deaths per 100,000 (2008). (Figure 3.6.2)

The low mortality ratio seen in Qatar is largely attributed to the advances in its healthcare system and improvement in maternal health, antenatal care, neonatal and postnatal care services and to the public health interventions targeted at promoting healthy behaviors and healthy habits before and during pregnancy.

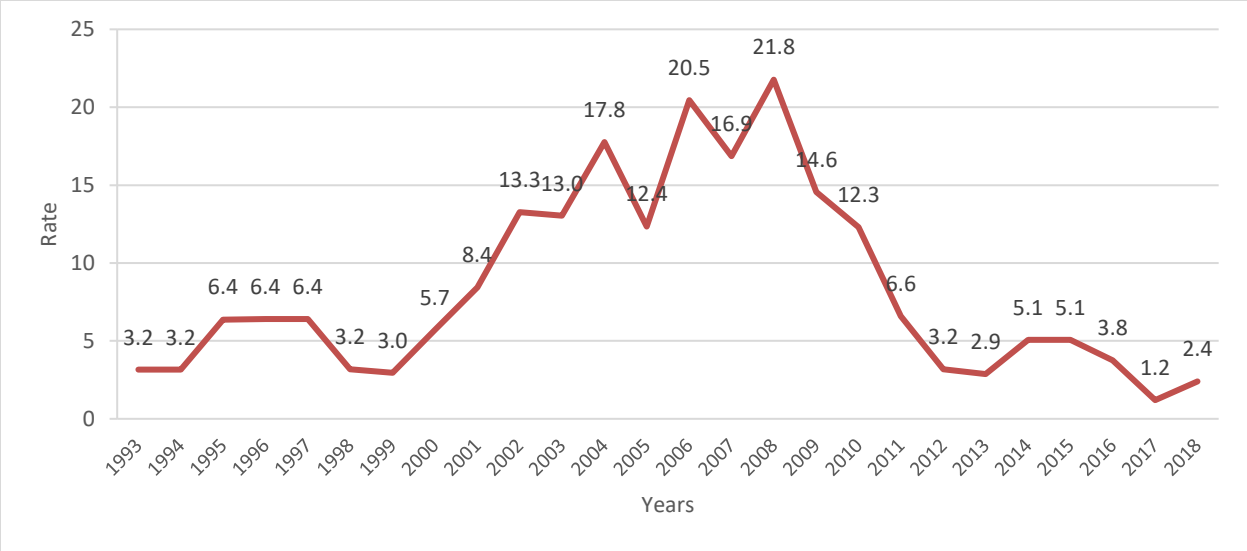
Figure 3.6.1: Maternal mortality ratio, by nationality and year, 2007 to 2019



Source: Ministry of Public Health

Note: Ratio calculation

Figure 3.6.2: Three year moving average of maternal mortality ratio, by year, 1993 to 2018



Source: Ministry of Public Health

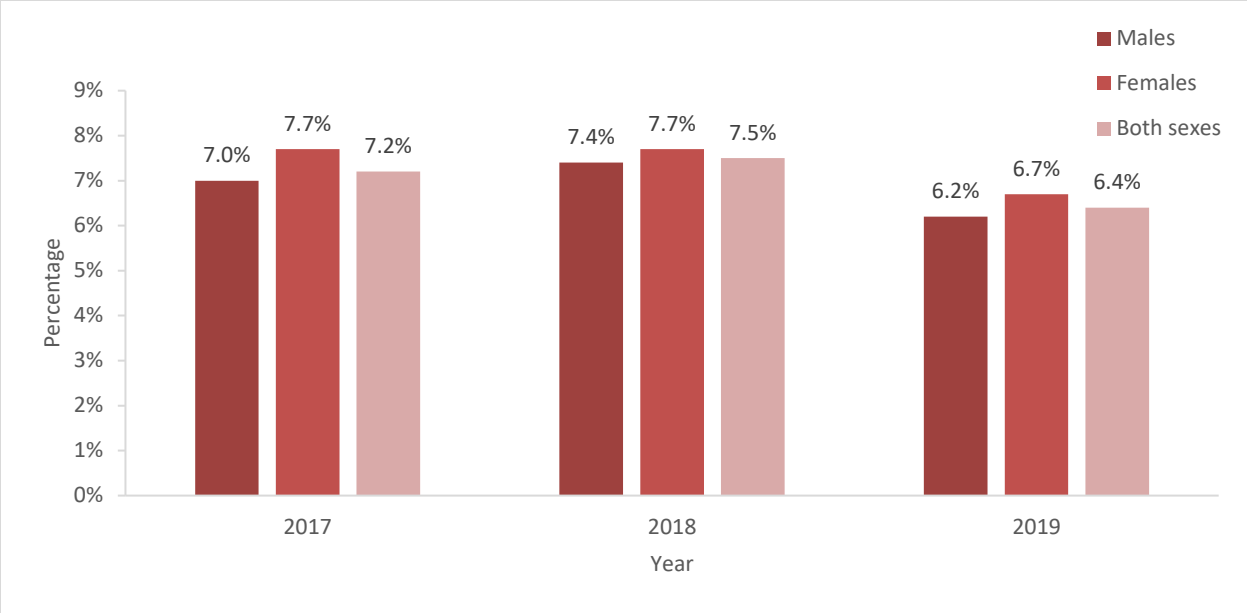
Note: Three year moving average calculation – Year B = (Year A + Year B + Year C)/3

3.2.6 Mortality by main cause and age

Probability of dying between 30 and 70 years of age from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases refers to the probability that a 30-year-old individual will die before reaching age 70 from the 4 main NCDs. It relates to the contribution of the 4 NCDs on the burden of mortality in an economically productive and working population (WHO, 2018).

In Qatar, from 2017 to 2019, the probability of dying between the ages of 30 to 70 from the four major NCDs has remained relatively stable. Females were at higher risk of dying from the top four NCDs in the 30-70 age group as compared to males (Figure 3.7.1). Overall, the probability of dying from the four NCDs was 7.2% in 2017 and 6.4% in 2019.

Figure 3.7.1: Probability of dying between 30 and 70 years of age from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases, by year, 2017-2019



Source: Ministry of Public Health

3.2.6.1 Mortality due to cardiovascular disease

Table 3.7.1 shows the number of cardiovascular disease deaths among males and females. As previously mentioned, there is a substantial higher number of deaths from cardiovascular diseases among males compared to females among all adult age groups. This is attributable both to the high risk of these diseases in men as well as the disproportionate number of men in the middle age groups. (Table 3.7.1)

Table 3.7.1: Number of cardiovascular disease related deaths (Chapter IX), by gender and age group, 2019

Age groups	Male	Female	Both sexes
0 - 4		1	1
5 - 9	1	1	2
10 - 14		1	1
15 - 19	3		3
20 - 24	3	1	4
25 - 29	22	3	25
30 - 34	22	5	27
35 - 39	41	3	44
40 - 44	51	6	57
45 - 49	71	5	76
50 - 54	67	4	71
55 - 59	46	9	55
60 - 64	54	14	68
65 - 69	34	12	46
70 - 74	21	13	34
75 - 79	28	21	49
80 +	46	29	75

Total	**511**	**127**	**638**

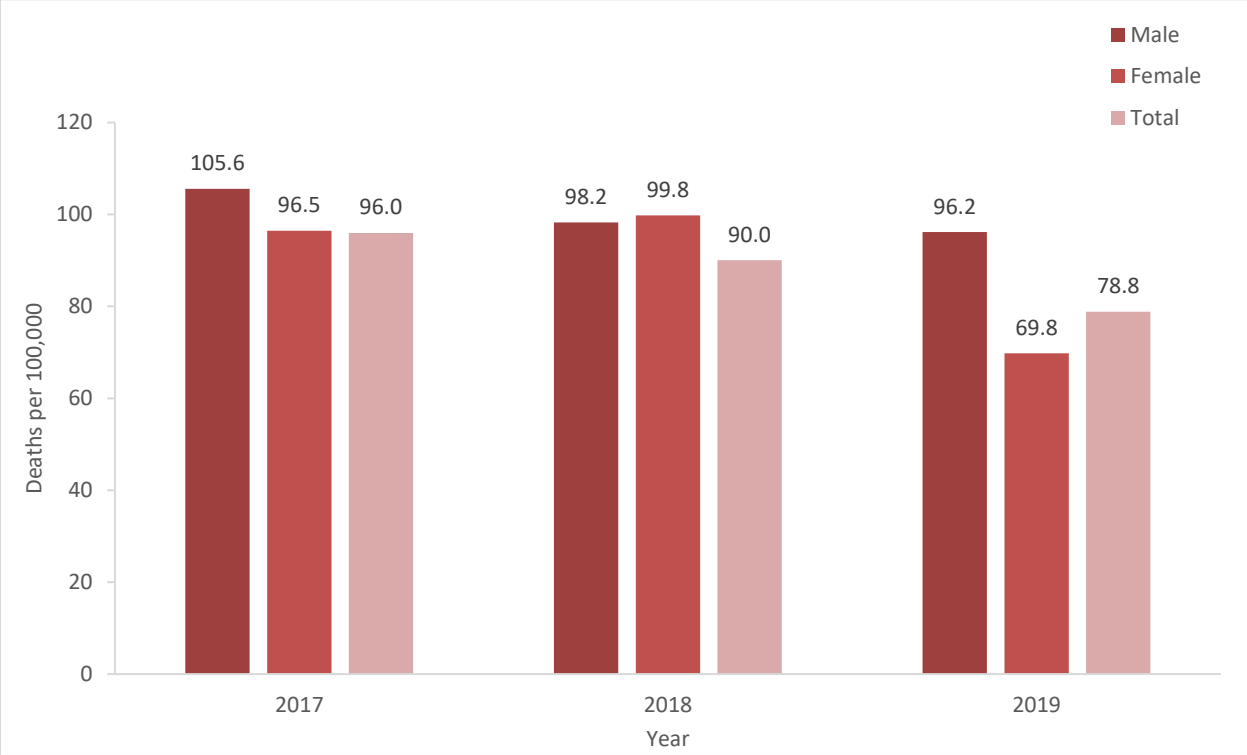
Source: Ministry of Public Health

Standardized rates for ischemic heart disease and stroke. Comparison with region (EMRO) and other developed countries

A decreased trend of standardized mortality rate for ischemic heart disease was observed from 2017 to 2019. In fact, for all population, the SMR for ischemic heart disease decreased from 96.0 in 2017 to 78.8 per 100,000 in 2019. Also, the same decrease was observed for male which decreased from 105.6 in 2017 to 96.2 per 100,000 in 2019. However, for female, the SMR for ischemic heart disease increased from 96.5 to 99.8 per 100,000 between 2017 and 2018 followed by a sharp decrease from 2018 to 2019 in which the SMR reached 69.8 per 100,000 (Figure 3.7.2).

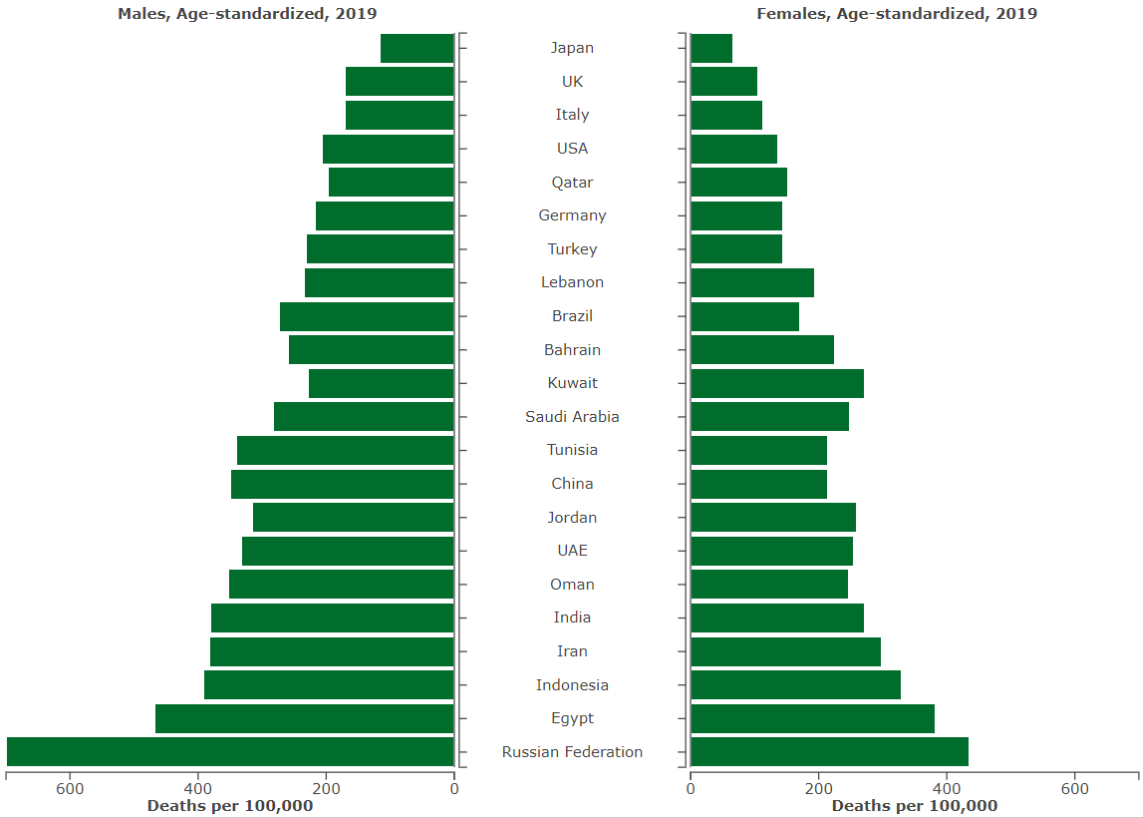
Figure 3.7.3 shows that in 2019, within the developed countries and the EMRO region, Qatar was amongst the countries with a low SMR for ischemic heart disease and had the lowest rate in the gulf and EMRO region.

Figure 3.7.2: Standardized mortality rates for ischemic heart disease by gender, 2017-2019



Source: Ministry of Public Health

Figure 3.7.3: Standardized mortality rates for ischemic heart disease among EMRO region and developed countries by gender in 2019



3.2.6.2 Mortality due to cancer

Cancer related mortality reveals a mixed trend among males and females. The risk of developing and dying from the majority of cancers increase with age. This trend is seen among both males and females. (Table 3.7.2)

Table 3.7.2: Cancer related mortality, by gender and age group, 2019

Age groups	Males	Females	Both sexes
0-4	1	1	2
5-9	5	3	8
10-14	1	2	3
15-19	3		3
20-24	3		3
25-29	5	1	6
30-34	3	2	5
35-39	5	3	8
40-44	16	2	18

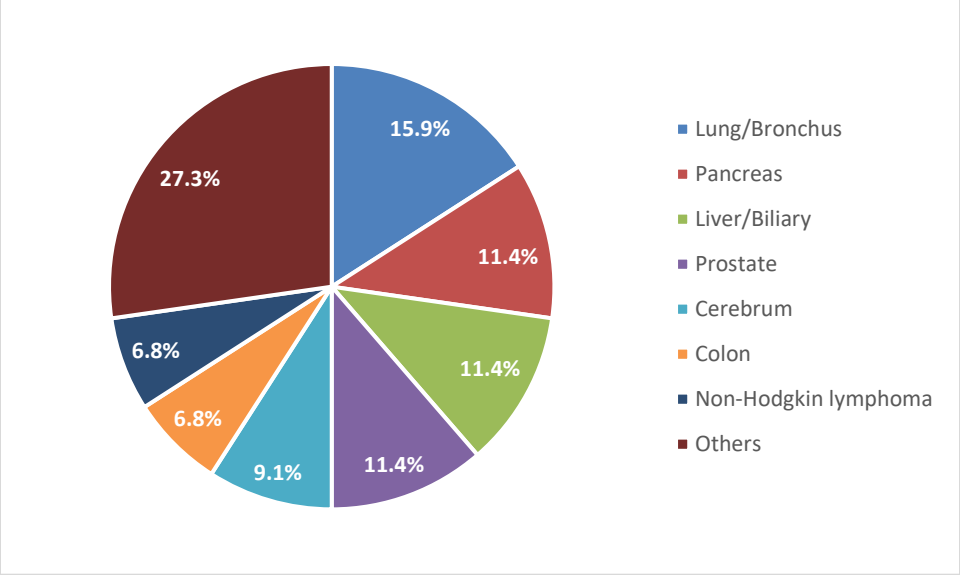
45-49	8	15	23
50-54	18	10	28
55-59	10	16	26
60-64	21	18	39
65-69	17	17	34
70-74	16	16	32
75-79	9	13	22
80+	17	11	28
Total	**158**	**130**	**288**

Source: Ministry of Public Health

The main contributors of cancer-related deaths among Qatari males in 2019 were Lung/Bronchus cancer (16.0%), followed by cancer of Pancreas (12.0%), liver/biliary cancers (11.0%) and prostate cancer (11.0%) (Figure 3.7.2, Table 3.7.3). The main causes of cancer mortality among non-Qatari males in 2019 were lung/bronchus cancer (15.0%), liver/biliary cancer (8.0%), cancers of pancreas and that of stomach (8.0% each) and brain cancer (7.0%) (Figure 3.7.3, Table 3.7.3).

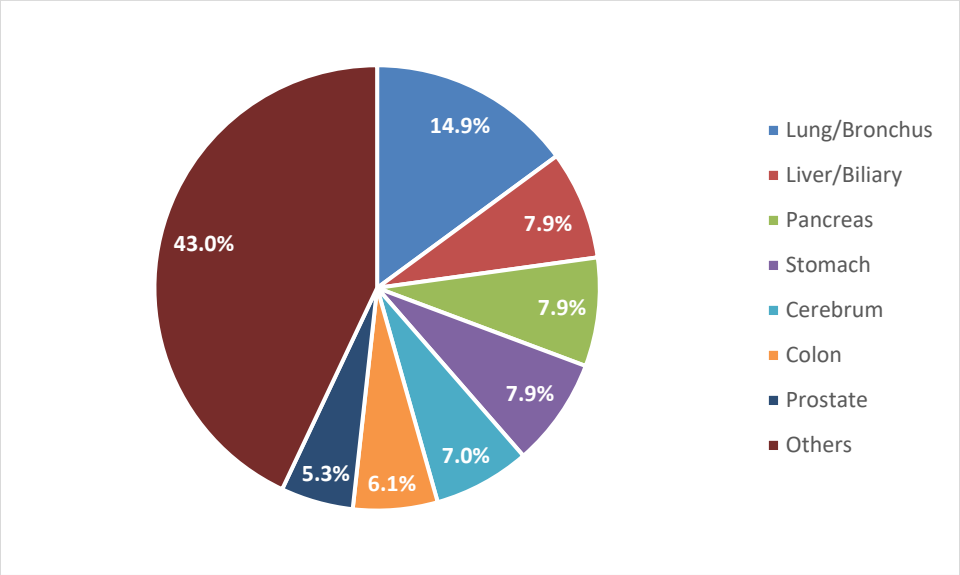
The main causes of cancer mortality among males (Qatari and non-Qatari) in Qatar is almost similar to the ones seen among industrialized countries, such as the EU. In 2016, among EU countries, like in Qatar, lung cancer is the most common cause of cancer-related deaths associated to 25% of cancer mortality among males.

Figure 3.7.2: Percentage of deaths by cancer in Qatari males, by top 7 causes, 2019



Source: Ministry of Public Health

Figure 3.7.3: Percentage of deaths by cancer in non-Qatari males, by top 7 causes, 2019



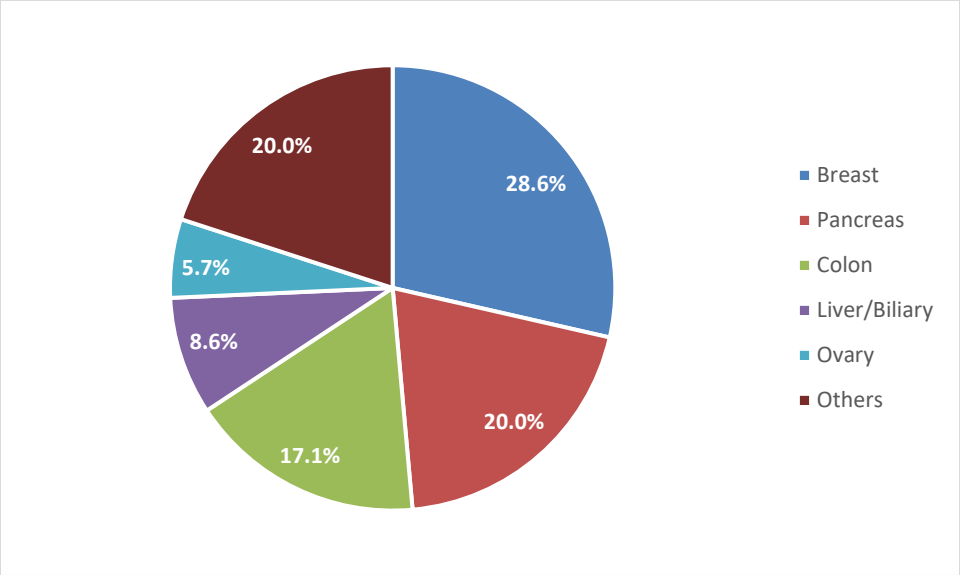
Source: Ministry of Public Health

The main contributors of cancer-related deaths among Qatari females in 2019 are breast cancer (29.0%), followed by pancreatic cancer (20.0%), colon cancer (17.0%), livery/biliary (8.0%) and ovarian cancer (6.0% each) (Figure 3.7.4, Table 3.7.3). The main causes of cancer mortality among non-Qatari females in 2019 are breast (26.0%) followed by cancer of colon (9.0%), pancreatic cancer (8.0%), ovarian cancer (7.0%), stomach cancer (6.0%) and liver/biliary cancer (5.0%) (Figure 3.7.5, Table 3.7.3).

The main cause of cancer mortality among females (Qatari and non-Qatari) in Qatar is also similar like that observed in EU countries. In 2019, among the EU countries, like in Qatar, breast cancer was also the most common cause of cancer-related deaths (16% of deaths). However, this was followed by lung cancer (15%) and colorectal cancer (12%) in the EU women (OECD, 2016) whereas amongst females in Qatar, deaths by lung cancer were not amongst the top causes of cancer related deaths.

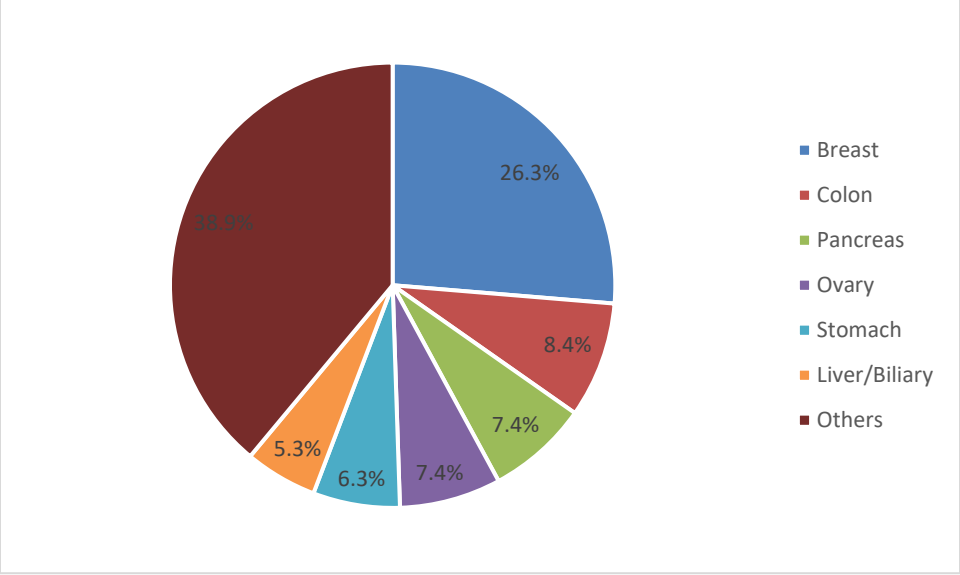
The difference in cancer related mortality between Qatar and the EU countries could be the result of different lifestyles, environmental factors, infectious diseases prevalence and genetics in the populations. In particular, the low frequency of cancer related deaths in females in Qatar could be explained by the low prevalence of smoking in women (Table 5.5)

Figure 3.7.4: Percentage of deaths by cancer in Qatari females, by top 5 causes, 2019



Source: Ministry of Public Health

Figure 3.7.5: Percentage of deaths by cancer in non-Qatari females, by top 6 causes, 2019



Source: Ministry of Public Health

Table 3.7.3: Cancer related mortality, by nationality and gender and by top 6 causes, 2019

Qatari	Non-Qatari

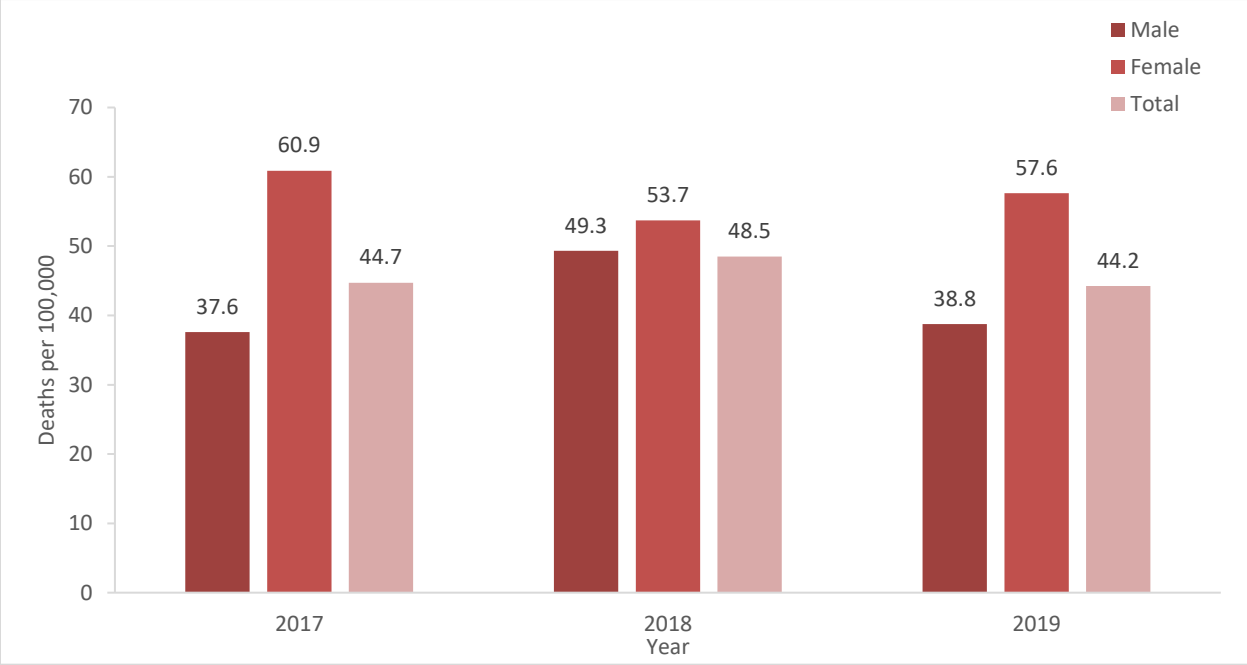
Male		Female		Male		Female	
Colon	9	Breast	11	Liver/Biliary	16	Breast	28
Liver/Biliary	7	Brain	6	Colon	13	Liver/Biliary	7
Brain	4	Liver/Biliary	3	Lung/Bronchus	10	Colon	6
Lung/Bronchus	4	Ovary	3	Brain	9	Pancreas	6
Pancreas	2	Gallbladder	2	leukaemia	8	Ovary	5
Rectum	2	Others	10	Pancreas	8	Lung/Bronchus	4
Oropharynx	2	Total	35	Others	65	Others	29
Others	11			Total	129	Total	85
Total	41						

Source: Ministry of Public Health

Standardized rates for all cancers. Comparison with region (EMRO) and other developed countries

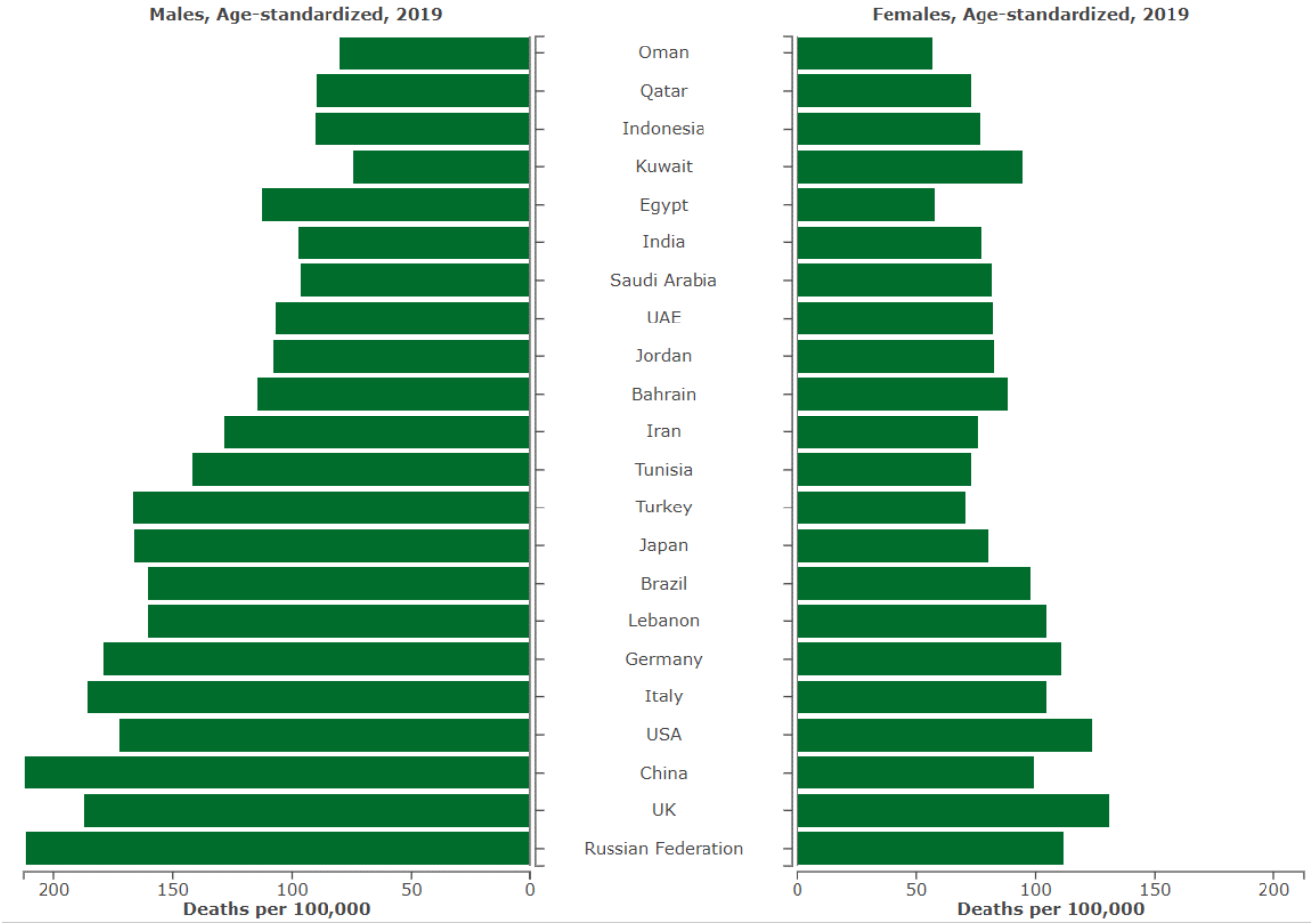
Based on the figure 3.7.6, SMR for all cancers was higher for female compared to male.
The highest standardized mortality rate for all cancers was in 2017 for female with 60.9 deaths per 100,000. After that, it decreases to 53.7 in 2018 followed by a small increase to 57.6 per 100,000 in 2019. Overall, after an initial increase in the SMR for all cancers from 2017 to 2018, these values decreased between 2018 to 2019.
Based on the estimation of the Institute for Health Metrics and Evaluation, Oman and Qatar have the smallest rate of SMR for all cancers in the EMRO region and among the developed countries (Figure 3.7.7).

Figure 3.7.6: Standardized mortality rates for all cancers by gender, 2017-2019



Source: Ministry of Public Health

Figure 3.7.7: Standardized mortality rates for all cancers among EMRO region and developed countries by gender in 2019



3.2.6.3 Mortality due to diabetes

Diabetes related mortality in Qatar showed a mixed trend during the three years period. Initially, between 2017 and 2018, there was a decrease of 16 deaths (i.e., from 126 to 110 deaths) which then increased by 4 deaths to reach 114 diabetes-related deaths in 2019 (Table 3.7.4).

Figure 3.7.4: Number of diabetes-related deaths, by gender, age group and year, 2017 to 2019

Age groups	2017			2018			2019		
	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes
0-24	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	1	1

30-34	0	0	0	2	1	3	0	0	0
35-39	1	0	1	2	1	3	2	0	2
40-44	5	0	5	1	0	1	2	3	5
45-49	2	3	5	3	1	4	4	2	6
50-54	16	4	20	4	2	6	3	1	4
55-59	10	3	13	5	1	6	12	7	19
60-64	10	3	13	9	2	11	9	5	14
65-69	9	3	12	17	5	22	10	7	17
70-74	4	8	12	4	6	10	12	6	18
75-79	12	6	18	9	10	19	5	9	14
80+	16	11	27	13	12	25	7	7	14
Total	**85**	**41**	**126**	**69**	**41**	**110**	**66**	**48**	**114**

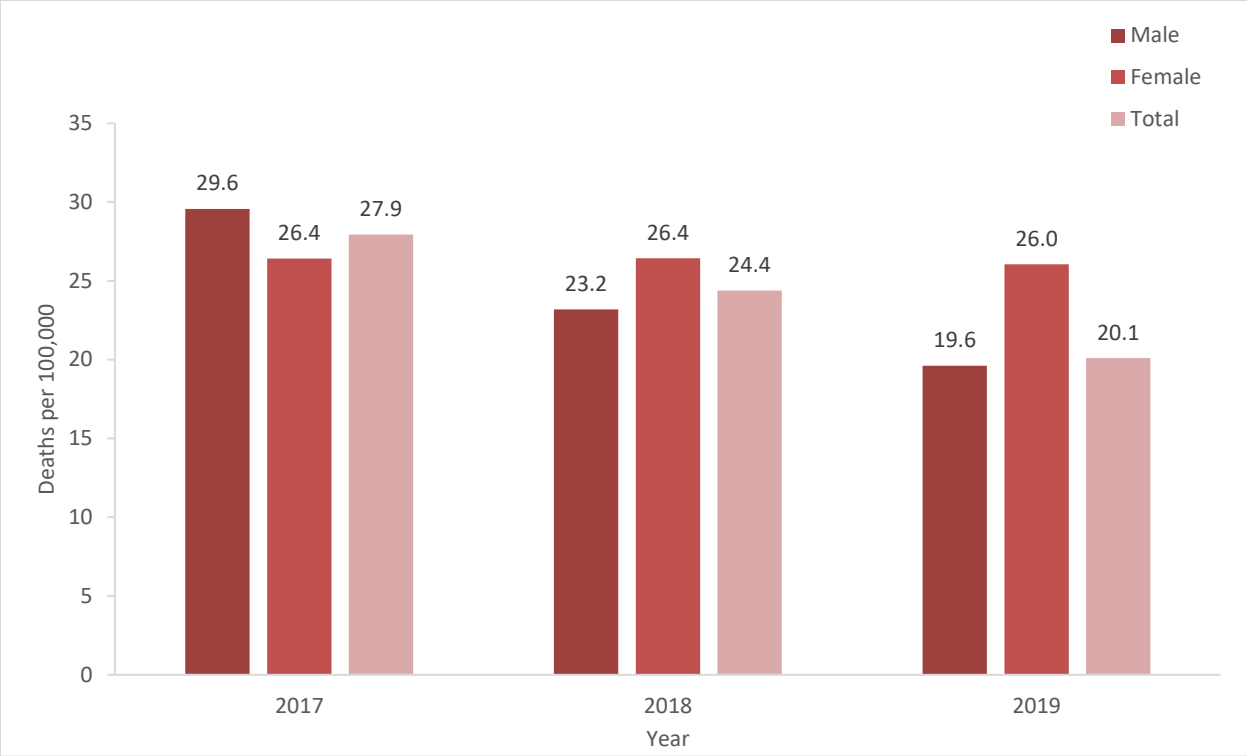
Source: Ministry of Public Health

Standardized rates. Comparison of diabetes related death with region (EMRO) and other developed countries

The standardized mortality rate of diabetes showed a decreasing trend from 2017 to 2019 both gender wise and for the overall population. For the overall population, from 2017 to 2019, SMR decreased from 27.9 to 20.1 per 100,000. From 2017 to 2019, for the male population, SMR changed from 29.6 to 19.6 per 100,000 and for females, from 26.4 to 26.0 per 100,000 (Figure 3.7.8).

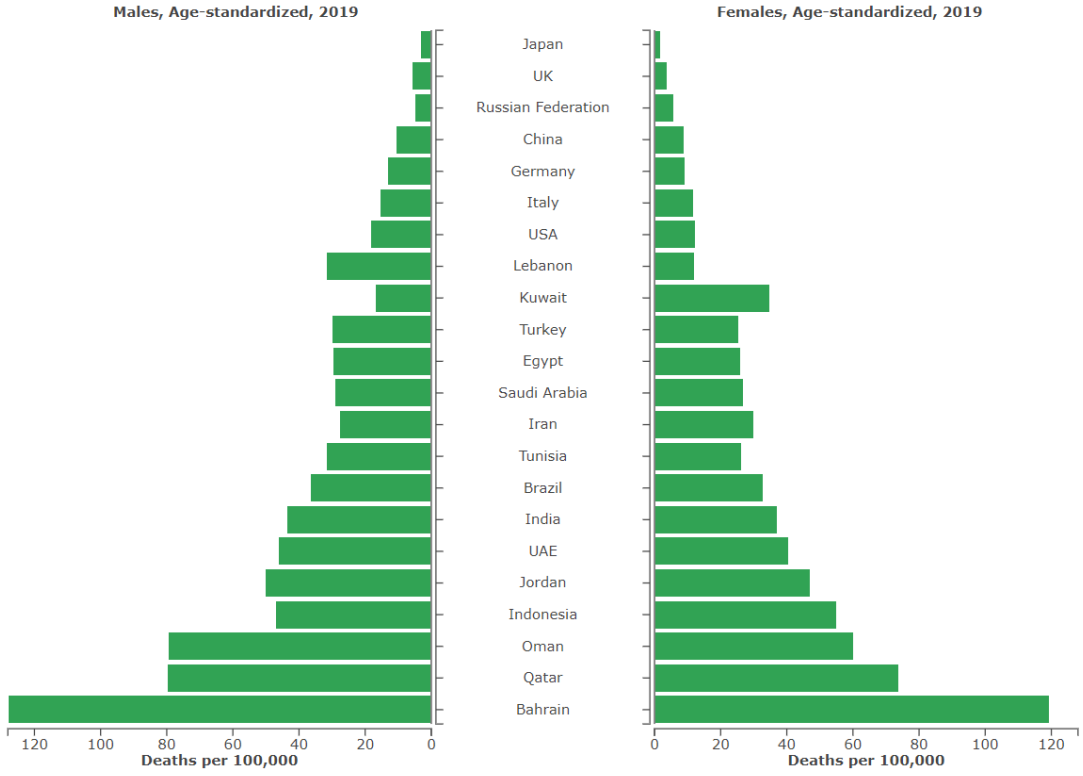
Within the EMRO region and the developed countries, Bahrain, Qatar and Oman were the countries with the highest SMR related to diabetes (Figure 3.7.9).

Figure 3.7.8: Standardized mortality rates for diabetes by gender, 2017-2019



Source: Ministry of Public Health

Figure 3.7.9: Standardized mortality rates for diabetes among EMRO region and developed countries by gender in 2019



3.2.6.4 Mortality due to respiratory diseases

Respiratory diseases related deaths contribute to an important proportion of the NCD burden of disease. (Table 3.7.5).

It is worthwhile to note that in the year 2019, a substantially higher number of respiratory diseases deaths in males were found in the extremes of age groups i.e. in the 0-4 years children (11 deaths) and in 75 years and above males (39 deaths). A minor surge of respiratory related mortality was also seen during the 4th decade of life in men (25 deaths) which is probably related to increased deaths due to occupational exposure, but this needs to be investigated further. For the females deaths related to respiratory causes, there was no major trend seen but comparatively there was a slight increase in the deaths during the 7th decade of life and onwards (Table 3.7.5)

Table 3.7.5: Number of respiratory disease-related deaths, by gender and age group, 2019

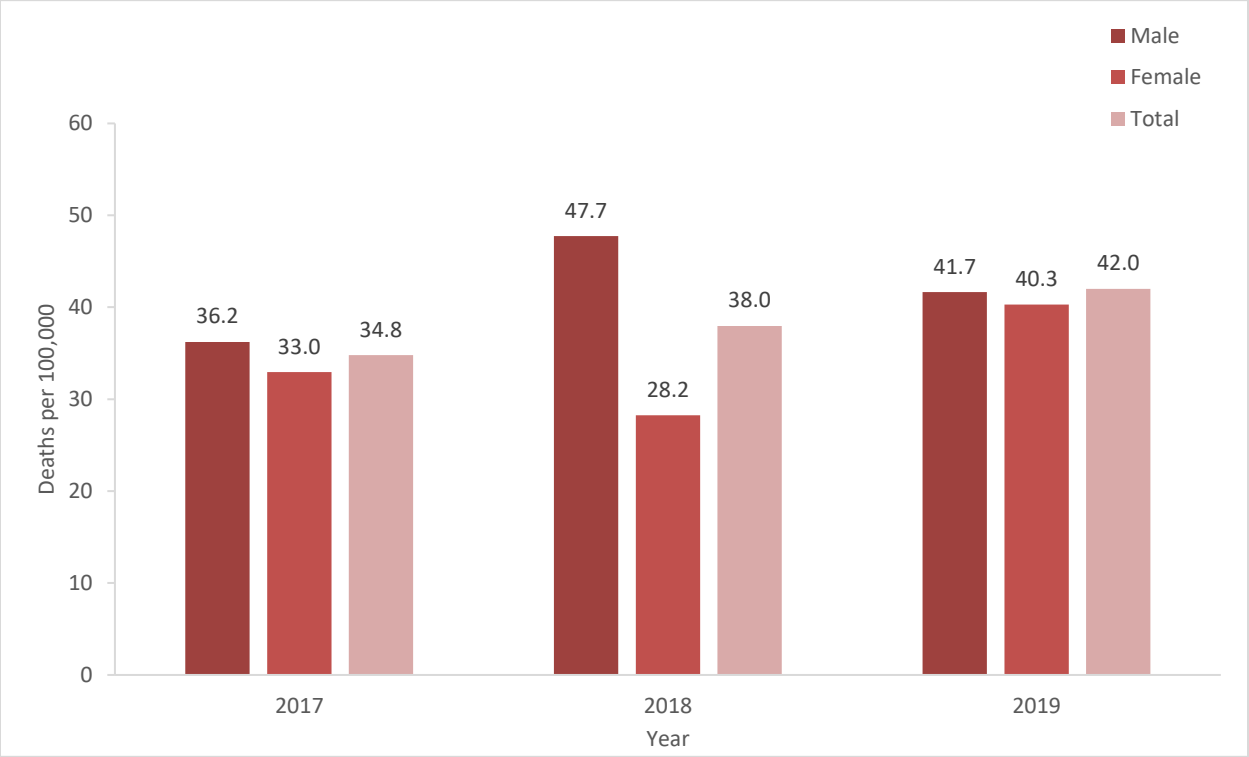
Age groups	Males	Females	Both sexes
0-4	11	5	16
5-9		1	1
10-14			
15-19	3	1	4
20-24	7	4	11
25-29	6		6
30-34	13		13
35-39	12		12
40-44	6	1	7
45-49	11		11
50-54	8		8
55-59	4	1	5
60-64	10	1	11
65-69	7	6	13
70-74	9	9	18
75-79	10	9	19
80+	29	23	52
Total	146	61	207

Source: Ministry of Public Health

Standardized rates. Comparison of chronic respiratory related death with region (EMRO) and other developed countries

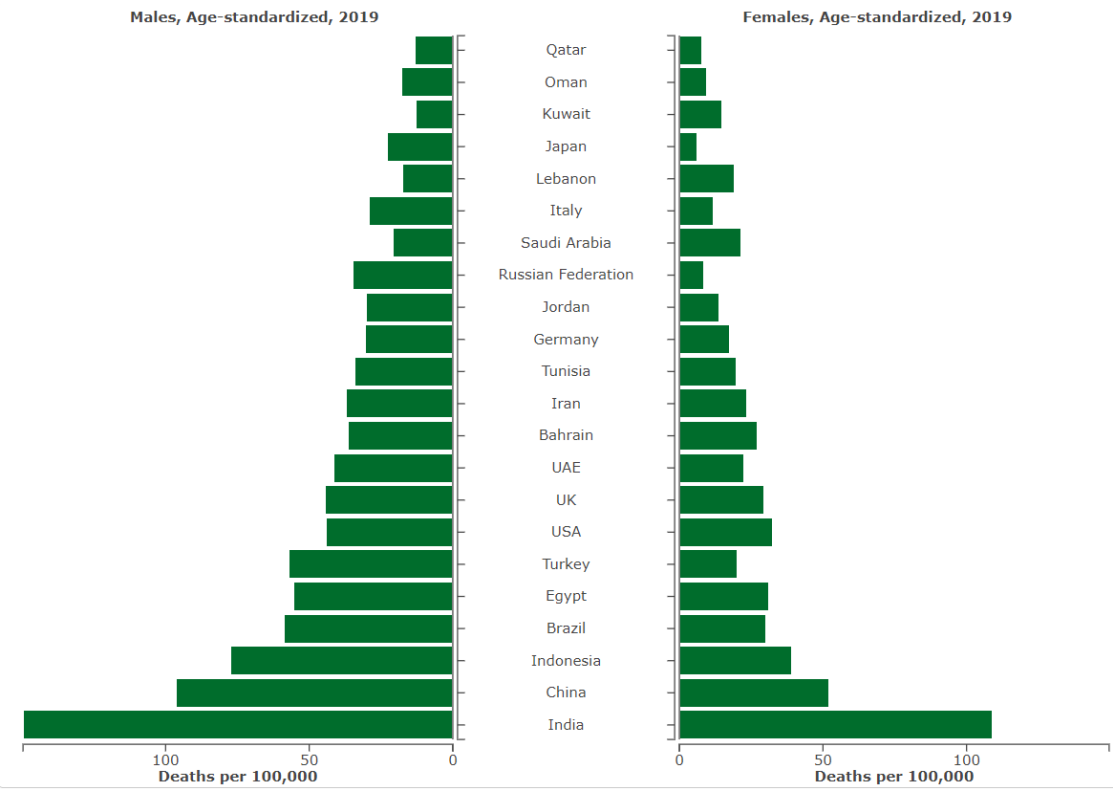
The figure 3.7.10, SMR for chronic respiratory shows an increasing trend from 2017 to 2019. The SMR increased from 34.8 in 2017 to 38.0 in 2018 and reach 42.0 per 100,000 in 2019. However in comparison to the EMRO region and developed countries, Qatar had the lowest SMR for diseases related to chronic respiratory conditions (Figure 3.7.11).

Figure 3.7.10: Standardized mortality rates for chronic respiratory by gender, 2017-2019



Source: Ministry of Public Health

Figure 3.7.11: Standardized mortality rates for chronic respiratory among EMRO region and developed countries by gender in 2019



3.2.6.5 Mortality due to road traffic injuries

Road traffic injuries are responsible for a significant mortality and morbidity, particularly among young people (OECD/EU, 2018).

In Qatar, in 2019, there was a total of 155 deaths from road traffic accidents (Table 3.7.6). This is close to the number of deaths due to cancer and higher than the deaths attributable to diabetes (Table 3.7.4).

Males account for most of the deaths due to road traffic accidents (142 deaths). Only 13 deaths occurred among females. For both the genders, most of the deaths related to RTAs occurred between 15 to 49 years of age, a total of 108 out of 142 deaths in males and 8 out of 13 deaths in the females (Table 3.7.6). In terms of the absolute number of deaths, with 112 deaths, non-Qataris had more deaths due to road traffic accidents than Qatari (Figure 3.7.8).

The difference in the age specific mortality rates due to road traffic accidents was highest in the Qatari population in the 15 to 19 years age group where the risk of dying due to a road traffic accident was close to 7 times higher (Figure 3.7.7). For the non-Qatari population, the highest difference in the age specific mortality rate was seen in the adult population of 80 years or more.

Table 3.7.6: Number of deaths from road traffic accidents, by gender and age group, 2019

Age groups	Males	Females	Both sexes

0-4	1	1	2
5-9	4	2	6
10-14	5		5
15-19	14		14
20-24	22	2	24
25-29	14	1	15
30-34	21	2	23
35-39	12	2	14
40-44	12		12
45-49	13	1	14
50-54	8		8
55-59	2	1	3
60-64	5	1	6
65-69	4		4
70-74	2		2
75-79	2		2
80+	1		1
Total	142	13	155

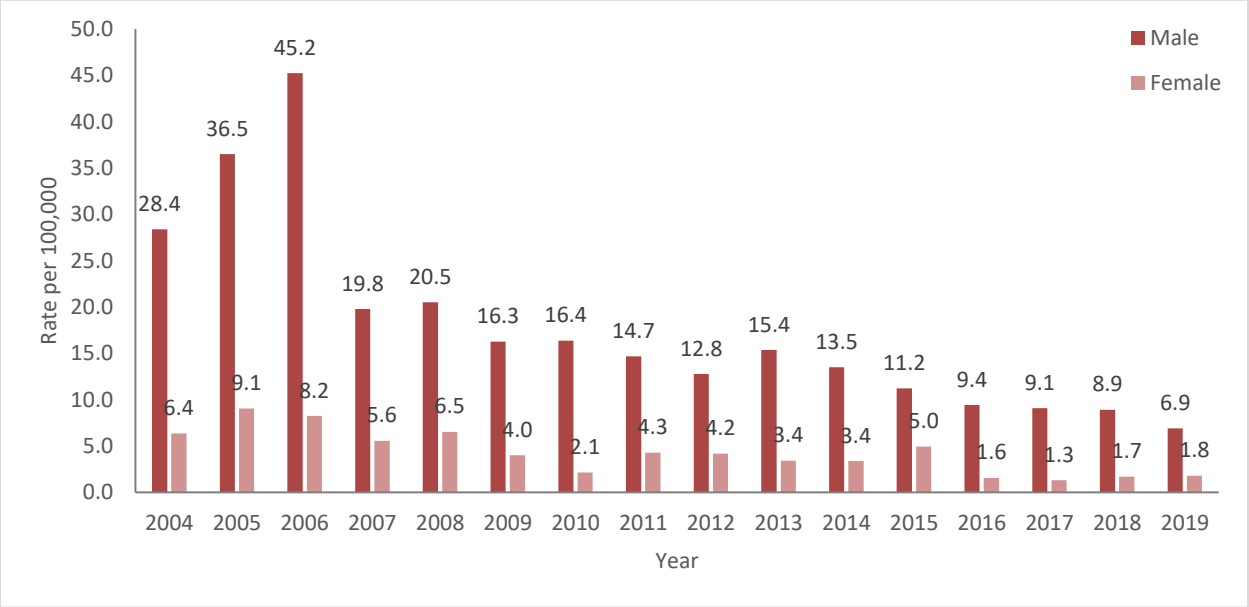
Source: Ministry of Public Health

Mortality rate for road traffic accidents was initially increasing from 2004 to 2006 up to 45.2 deaths per 100,000 among males (Figure 3.7.6). After 2006, the mortality decreases year by year down to the 2019 value of 6.9 deaths per 100,000 among males (a decrease of more than 6 times in 13 years) and 1.8 deaths per 100,000 among females (Figure 3.7.6).

Mortality from road traffic injuries in Qatar is currently lower than the average mortality rate from road traffic injuries across the OECD countries. In 2019, mortality rate from road traffic accidents was 8.2 deaths per 100,000 (World Bank, 2019) compared to 5.5 deaths per 100,000 in Qatar in 2019.

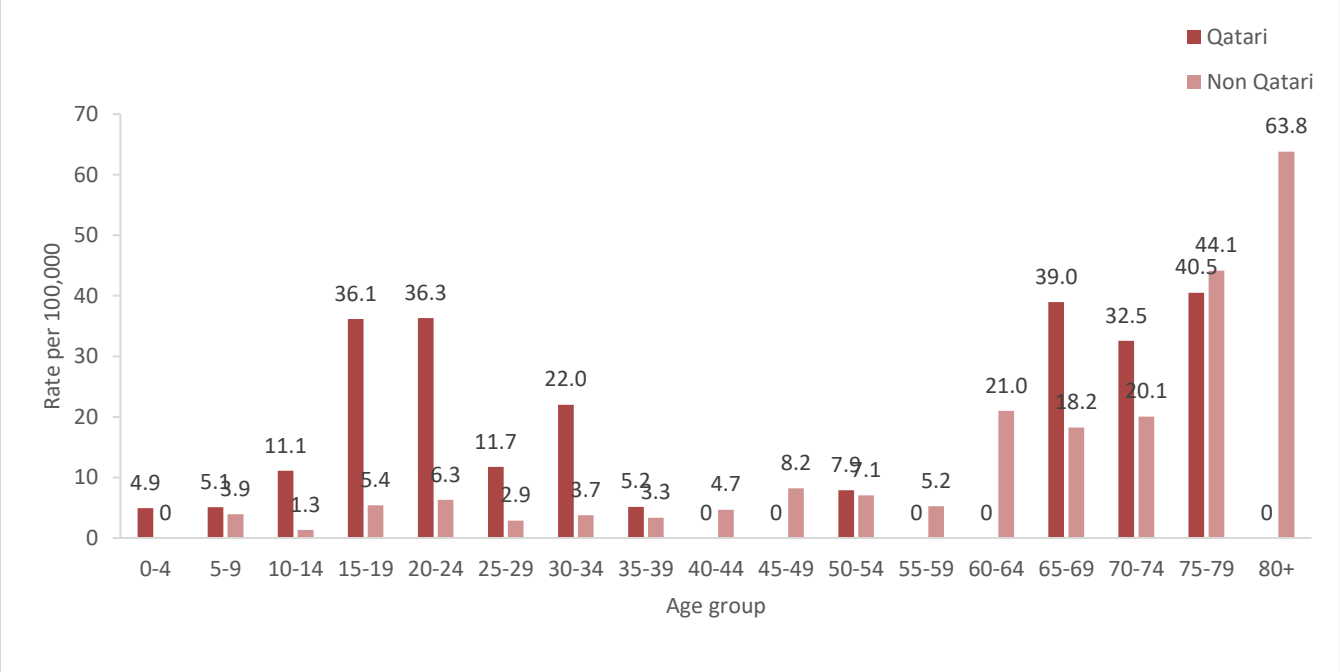
The significant decrease in mortality rate from road traffic accidents in Qatar is attributable to the reinforced public policies aimed at reducing speed driving, reckless driving, drunk-driving as well as increasing seat-belt use, helmet use for motorcycle and children restraints (Peter et al., 2004).

Figure 3.7.6: Mortality rate per 100,000 from road traffic injuries, by gender and year, 2004 to 2019



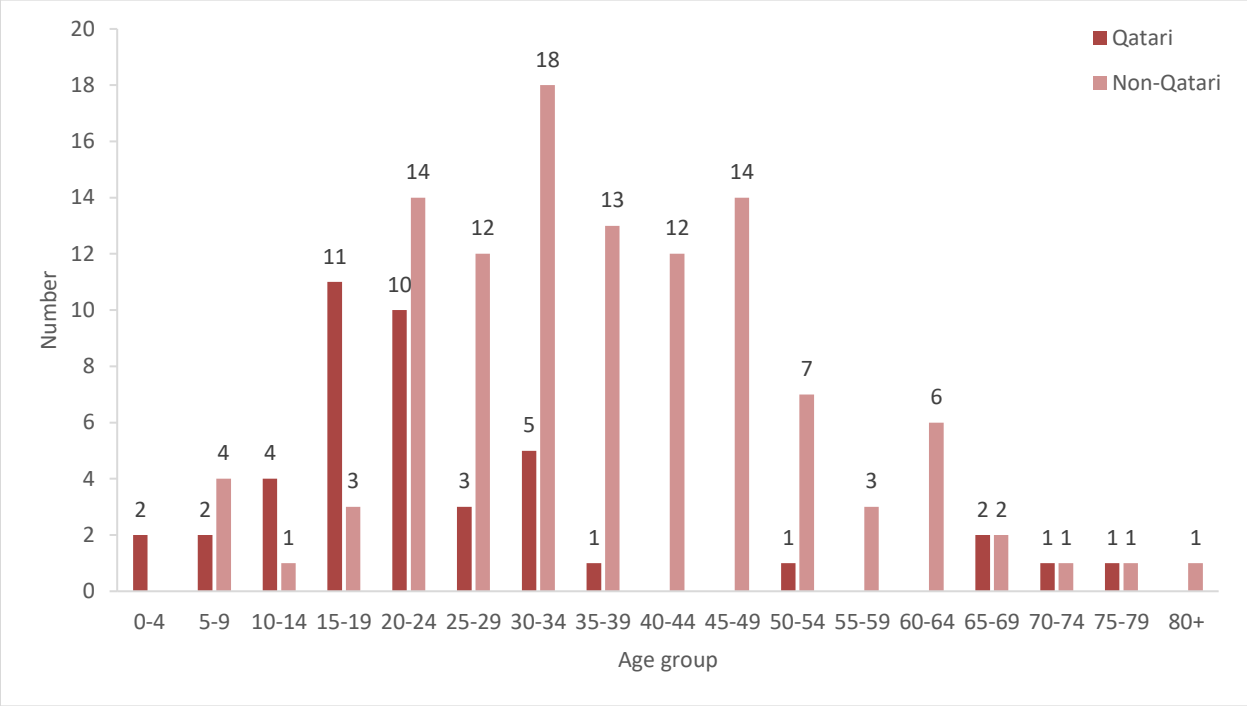
Source: Ministry of Public Health

Figure 3.7.7: Age-specific mortality rate per 100,000 from road traffic injuries, by age group and nationality, 2019



Source: Ministry of Public Health

Figure 3.7.8: Number of deaths from road traffic injuries, by age group and nationality, 2019



Source: Ministry of Public Health

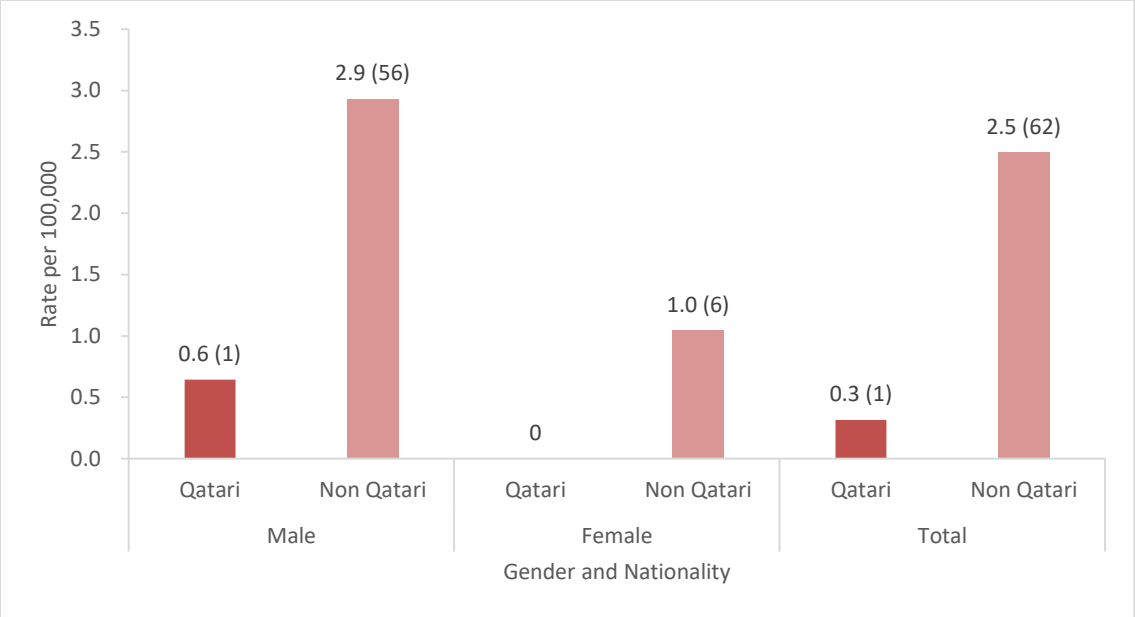
3.2.6.6 Mortality due to intentional self-harm

Suicide and deaths from intentional self-harm remain a significant cause of death worldwide (OECD, 2017). In 2019, Qatar's total death rate from suicide was 2.8 deaths per 100,000 (Figure 3.7.9). Death rate from intentional self-harm is lower among Qatari (0.3 deaths per 100,000) than in non-Qatari (2.5 deaths per 100,000). Non-Qatari suicide death rate is higher among males (2.9 deaths per 100,000) compared to the females (1.0 deaths per 100,000).

Qatar's death rate from suicide is lower compared to the global death rate from suicide. According to data from World Bank (World Bank ,2019), the worldwide average death rate from suicide was found to be 9.2 deaths per 100,000 in 2019. The total death rate from suicide among OECD countries is 12.0 deaths per 100,000, with 18.1 and 6.1 deaths from suicide among males and females respectively.

Mental health disorders represent a growing proportion of the global burden of disease. Many of these diseases might lead to intentional self-harm, potentially leading to death from suicide. Social determinants of health, such as income, socioeconomic status, education, combined with mental illnesses determine a person's tendency to harm himself (OECD, 2017).

Figure 3.7.9: Rate of deaths from intentional self-harm per 100,000 population, by nationality and gender, 2019. Absolute values in parentheses



Source: Ministry of Public Health

Note: The number in brackets is the deaths from intentional self-harm

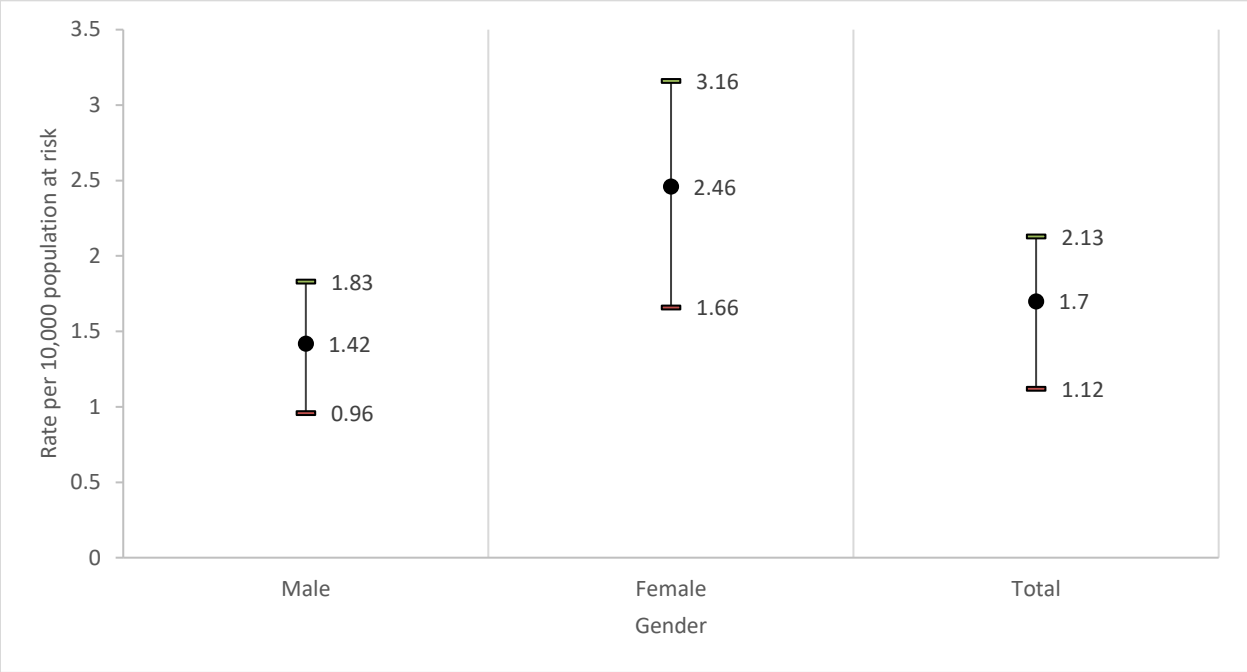
3.2.6.7 Mortality due to exposure to air pollutants

Exposure to air pollutants such as particulate matter with diameter less or equal to 2.5 μm (PM 2.5), less or equal to 10 μm (PM 10) and ozone (O_3) has been shown to increase the risk of many diseases and to increase the risk of death (Brunekreef & Holgate, 2002).

In 2019, the estimated mortality rate in Qatar was 1.42 deaths per 10,000 for males, 2.46 deaths per 10,000 for females, combined for a total 1.7 deaths per 10,000 attributable to ambient air pollution in Qatar (Figure 3.7.10).

High air pollution has been associated to several diseases, including lung cancer, respiratory disease, cardiovascular disease and neurological problems. Recently, air pollution has been recognized as a major risk factor for NCD (Prüss-Ustün et al., 2019) This public health concern should be closely monitored in all countries with public health interventions targeted to reduce the anthropogenic emission of PM2.5 and other air pollutants in order to reduce their health impact (Prüss-Ustün et al., 2019).

Figure 3.7.10: Estimated mortality rate per 10,000 attributable to ambient air pollution, by gender, 2019

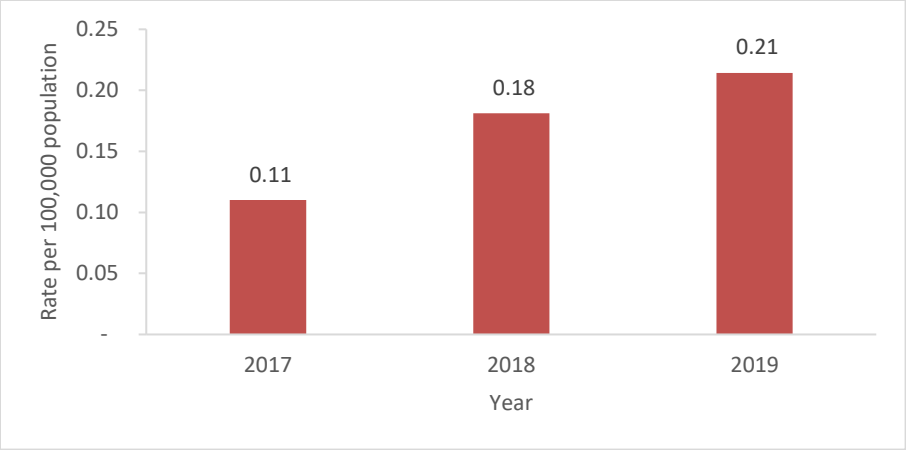


Source: Ministry of Public Health

3.2.6.8 Mortality attributable to unsafe water, unsafe sanitation, and lack of hygiene

Living in an unsanitary or polluted environment has been linked with increased risk of illness, morbidity, and mortality: for instance, only 1 or 2 deaths per 1,000,000 have been attributed to unsafe water, unsafe sanitation and lack of hygiene during the period between 2017 and 2019 (Figure 3.7.11). Access to clean water and sanitation are both global priorities under the UN SDGs (GOAL 6): the aim is to end open defecation (goal 6.2) and achieve universal and equitable access to safe and affordable drinking water for all (goal 6.1), by 2030

Figure 3.7.11: Mortality rate attributable to unsafe water, unsafe sanitation, and lack of hygiene 2017-2019



*3.2.6.9 Amenable cause specific mortality 2017-2019**

According to The Lancet, Mortality rate attributable to a list of causes within selected age intervals that could be avoided in the presence of high-quality personal health care. To be considered a cause amenable to personal health care, effective interventions must exist for the diseases. The most widely used list of these causes by age has been proposed by Nolte and McKee and used in a Lancet paper (The Lancet, May 18, 2017).

The results of amenable cause specific mortality are presented in table 3.7.7. The number of amenable cause specific deaths from 2017 to 2019 had the same trend by cause of death. In 2019, 35% of amenable cause specific mortality was from cardiovascular diseases, 27% was from diabetes, urogenital, blood, and endocrine diseases and 12% and 11% from neoplasms and neonatal disorders as described in the figure 3.7.12.

Table 3.7.7: Amenable cause specific mortality, by specific cause of death and age group, 2017-2019

Cause of death		ICD 10	Amenable age range (years)	Number of Deaths		
				2017	2018	2019
Communicable, maternal, neonatal, and nutritional diseases						
Tuberculosis		A10-A14, A15-A19.9, B90-B90.9, K67.3, K93.0, M49.0, P37.0	0–74	3	4	4
Diarrhoea, lower respiratory, and other common infectious diseases						
	Diarrhoeal diseases	A00-A00.9, A02-A04.1, A04.3, A04.5-A07, A07.2-A07.4, A08-A09.9, R19.7	0–14	0	0	1
	Lower respiratory infections	A48.1, A70, J09-J15.8, J16-J16.9, J20-J21.9, P23.0-P23.4, U04-U04.9	0–74	36	53	38

	Upper respiratory infections	J01-J01.91, J04.0, J05-J05.0, J05.11, J36-J36.0	0–74	0	0	0
	Diphtheria	A36-A36.9	0–74	0	0	0
	Whooping cough	A37-A37.91	0–14	0	0	0
	Tetanus	A33-A35.0	0–74	0	0	0
	Measles	B05-B05.9	1–14	0	0	0
Maternal disorders		N96, N98-N98.9, O00-O07.9, O09-O16.9, O20-O26.93, O28-O36.93, O40-O48.1, O60-O77.9, O80-O92.79, O96-O99.91	0–74	0	1	1
Neonatal disorders		P00-P04.2, P04.5-P05.9, P07-P15.9, P19-P22.9, P24-P29.9, P36-P36.9, P38-P39.9, P50-P61.9, P70, P70.3-P72.9, P74-P78.9, P80-P81.9, P83-P84, P90-P94.9, P96, P96.3-P96.4, P96.8-P96.89	0–74	62	65	62
Non-communicable diseases						
Neoplasms						
	Colon and rectum cancer	C18-C21.9, D01.0-D01.3, D12-D12.9, D37.3-D37.5	0–74	26	37	20
	Non-melanoma skin cancer (squamous-cell carcinoma)	C44-C44.99, D04-D04.9, D49.2	0–74	1	1	1
	Breast cancer	C50-C50.929, D05-D05.92, D24-D24.9, D48.6-D48.62, D49.3, N60-N60.99	0–74	33	38	31
	Cervical cancer	C53-C53.9, D06-D06.9, D26.0	0–74	4	3	4
	Uterine cancer	C54-C54.9, D07.0-D07.2, N87-N87.9	0–44	2	0	0
	Testicular cancer	C62-C62.92, D29.2-D29.8, D40.1-D40.8	0–74	1	0	0
	Hodgkin's lymphoma	C81-C81.99	0–74	3	0	1
	Leukaemia	C91-C95.92	0–44	13	15	9
Cardiovascular diseases						
	Rheumatic heart disease	I01-I01.9, I02.0, I05-I09.9	0–74	3	6	3

	Ischaemic heart disease	I20-I25.9	0–74	172	200	133
	Cerebrovascular disease	G45-G46.8, I60-I61.9, I62.0-I62.03, I63-I63.9, I65-I66.9, I67.0-I67.3, I67.5-I67.6, I68.1-I68.2, I69.0-I69.39	0–74	33	60	43
	Hypertensive heart disease	I11-I11.9	0–74	4	39	15
Chronic respiratory diseases		D86-D86.2, D86.89-D86.9, G47.3-G47.39, J30-J35.9, J37-J47.9, J60-J63.8, J65-J68.9, J70-J70.1, J70.8-J70.9, J82, J84-J84.9, J91-J92.9	1–14	2	2	1
Digestive diseases						
	Peptic ulcer disease	K25-K28.9, K31, K31.1-K31.6, K31.8, K31.82-K31.89	0–74	1	1	2
	Appendicitis	K35-K37.9, K38.3-K38.9	0–74	1	0	1
	Inguinal, femoral, and abdominal hernia	K40-K42.9, K44-K46.9	0–74	0	2	0
	Gallbladder and biliary diseases	K80-K83.9	0–74	2	2	2
Neurological disorders						
	Epilepsy	G40-G41.9	0–74	8	7	8
Diabetes, urogenital, blood, and endocrine diseases						
	Diabetes mellitus	E10-E10.11, E10.3-E11.1, E11.3-E12.1, E12.3-E13.11, E13.3-E14.1, E14.3-E14.9, P70.0-P70.2, R73-R73.9	0–49	11	11	14
	Chronic kidney disease	D63.1, E10.2-E10.29, E11.2-E11.29, E12.2, E13.2-E13.29, E14.2, I12-I13.9, N02-N08.8, N15.0, N18-N18.9	0–74	119	87	133
Other non-communicable diseases						
	Congenital heart anomalies	Q20-Q28.9	0–74	16	29	23
Injuries						
Unintentional injuries						
	Adverse effects of medical treatment	Y38.9-Y84.9, Y88-Y88.3	0–74	0	0	2

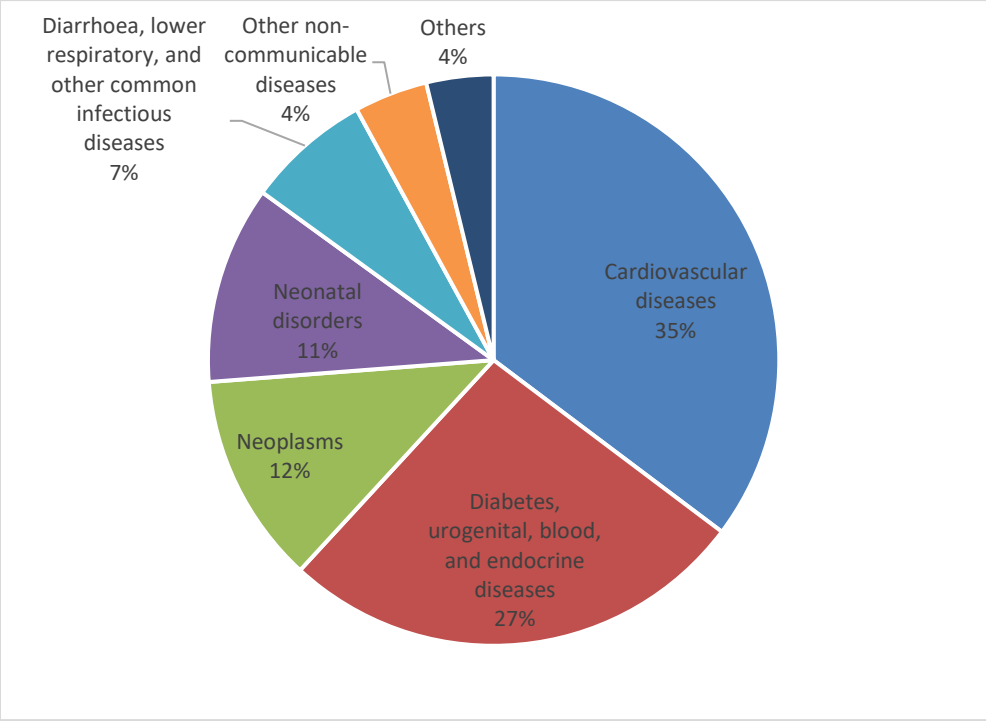
Total ACD				556	663	552

Source: Ministry of Public Health

* In our calculation we used only the two first digits for the COD. Therefore, the ACD could be overestimated as the COD used in the article were 3 and 4 digits (very specific). However, in our database, the COD is only 2 digits (less specific).

Source: Healthcare Access and Quality Index based on mortality from causes amenable to personal health care in 195 countries and territories, 1990–2015: a novel analysis from the Global Burden of Disease Study 2015 (https://www.thelancet.com/action/showPdf?pii=S0140-6736%2817%2930818-8)

Figure 3.7.12: Amenable cause specific mortality, by specific cause of death, 2019



Source: Ministry of Public Health

4 Morbidity

The following chapter describes the incidence and prevalence of selected diseases in the population of Qatar

4.1 Non-Communicable Diseases

Cancer is one of the leading causes of morbidity worldwide (Kanavos, 2006). In Qatar, among males, crude cancer incidence rate was 45.9, 54.0 and 55.5 per 100,000 in 2016, 2017 and 2018 respectively (Table 4.1.1). Among females, crude cancer incidence rate was 102.0, 146.8 and

139.9 per 100,000 in 2016, 2017 and 2018 respectively. Overall, cancer incidence was estimated to be 59.6 per 100,000 in 2016, 77.1 per 100,000 in 2017 and 77.3 per 100,000 in 2018 (Table 4.1.1).

For comparative purposes, age-specific cancer incidence rate is a commonly utilized indicator to describe the burden of cancer among different population age groups and among different countries. Calculating the age-standardized rates remove the differences from variations in age structure across a country and over time (Ahmad, et al., 2001).

In Qatar, age specific cancer incidence rate increases with increasing age and increases even more dramatically among 50+: this trend is seen in all years from 2016 to 2018 (Table 4.1.2). For instance, cancer incidence rate was 14.5, 20.9 and 13.2 cancer cases per 100,000 in the age group 0-4 in 2016, 2017 and 2018 respectively. From 166.5, 214.7 and 233.4 cases per 100,000 in the age group of 50-54 years it gradually increased to 904.7, 1755.8 and 1428.9 cases per 100,000 in the 80+ age group in the 2016, 2017 and 2018 respectively (Table 4.1.1).

Table 4.1.1: Crude cancer incidence per 100,000, by Gender, 2016 to 2018

Year	Male	Females	Total
2016	45.91	102.01	59.63
2017	53.96	146.78	77.08
2018	55.51	139.89	77.28

Source: Ministry of Public Health
Note: 2019 data not available at the time of publication

Table 4.1.2: Age-specific cancer incidence rate per 100,000, by age group and year, 2016 to 2018

Age	2016	2017	2018
0-4	14.46	20.85	13.24
5 - 9	12.94	19.53	16.15
10 - 14	5.21	15.92	10.43
15 - 19	13.47	20.53	24.66
20 - 24	8.76	9.49	10.96
25 - 29	14.89	14.94	19.17
30 - 34	30.30	29.31	29.09
35 - 39	47.05	54.07	49.67
40 - 44	64.29	80.43	88.62
45 - 49	109.49	134.83	134.77
50 - 54	166.46	214.72	233.41
55 - 59	259.34	380.58	365.32

60 - 64	479.77	646.98	661.70
65 - 69	889.98	1098.27	1020.82
70 - 74	993.92	1371.71	1566.34
75 - 79	753.77	1507.94	1424.50
80 +	904.70	1755.83	1428.91

Source: Ministry of Public Health

Note: 2019 data not available at the time of publication

In Qatar, in 2016, colorectal cancer (102 cases), followed by prostate gland (82 cases) and leukemia (79 cases) constituted the majority (28.9%) of newly diagnosed cases of cancer among males (Table 4.1.3). Among females, breast (258), thyroid gland (57) and colorectal (49) cancers contributed to the majority (54%) of newly diagnosed cases of cancer in 2016 (Table 4.1.4).
In 2017, Colorectal cancer (127 cases) followed by Leukemia (107 cases) and prostate cancers (102 cases) accounted for the majority (28.8%) of newly diagnosed cases of cancer among males (Table 4.1.5). Among females, breast cancer (368 cases), thyroid gland (91 cases) and colorectal (81 cases) cancers contributed to the majority (50.6%) of newly diagnosed cases of cancer in 2017 (Table 4.1.6)
In 2018, Colorectal cancer (154 cases) followed by cancers of prostate (109 cases) and Leukemia (92 cases) accounted for the majority (28.4%) of newly diagnosed cases of cancer among males (Table 4.1.7). In the same year among females, breast cancer (388 cases), thyroid gland (91 cases) and colorectal (87 cases) cancers contributed to the majority (49.9%) of newly diagnosed cases of cancer (Table 4.1.8)

Table 4.1.3: Number and percentage of cases of cancer for males, by category of cancer, 2016

ICD 10 Primary site	Number of cases	% of Total
C18-C21 / D01 Colorectal	102	11.2%
C61 / D07.5 Prostate	82	9.0%
C91-C95 Leukemia	79	8.7%
C44 / D04 Non-Melanoma skin cancer	77	8.5%
C82-C86, C96 Non-Hodgkin Lymphoma	45	4.9%
C67 / D09.0 Bladder	43	4.7%
C22 / D01.5 Liver and intrahepatic bile ducts	42	4.6%
C70-C72 Brain & CNS	40	4.4%
C33-C34 / D02.1-D02.2 Trachea, bronchus and lung	40	4.4%
C64-C66, C68 / D09.1 Urinary Tract	38	4.2%

Source: Ministry of Public Health

Table 4.1.4: Number and percentage of cases of cancer for females, by category of cancer, 2016

ICD 10 Primary site	Number of Cases	% of Total
C50 / D05 Breast	258	39.3%

C73 / D09.3 Thyroid gland	57	8.7%
C18-C21 / D01 Colorectal	49	7.5%
C54-C55 / D07.0 Uterus	47	7.2%
C44 / D04 Non-Melanoma skin cancer	32	4.9%
C53 / D06 Cervix uteri	27	4.1%
C56 Ovary	27	4.1%
C91-C95 Leukemia	20	3.0%
C82-C86, C96 Non-Hodgkin Lymphoma	15	2.3%
C16 / D00.2 Stomach	13	2.0%

Source: Ministry of Public Health

Table 4.1.5: Number and percentage of cases of cancer for males, by category of cancer, 2017

ICD 10 Primary Site	Number of Cases	% of Total
C18-C21 / D01 Colorectal	127	10.9%
C91-C95 Leukemia	107	9.2%
C61 / D07.5 Prostate	102	8.7%
C33-C34 / D02.1-D02.2 Trachea, bronchus and lung	80	6.9%
C64-C66, C68 / D09.1 Urinary Tract	71	6.1%
C82-C86, C96 Non-Hodgkin Lymphoma	65	5.6%
C44 / D04 Non-Melanoma skin cancer	59	5.1%
C67 / D09.0 Bladder	57	4.9%
C22 / D01.5 Liver and intrahepatic bile ducts	51	4.4%
C70-C72 Brain & CNS	43	3.7%

Source: Ministry of Public Health

Table 4.1.6: Number and percentage of cases of cancer for females, by category of cancer, 2017

ICD 10 Primary Site	Number of Cases	% of Total
C50 / D05 Breast	368	34.5%
C73 / D09.3 Thyroid gland	91	8.5%
C18-C21 / D01 Colorectal	81	7.6%
C54-C55 / D07.0 Uterus	63	5.9%
C53 / D06 Cervix uteri	57	5.3%
C91-C95 Leukemia	38	3.6%
C56 Ovary	30	2.8%
C76 - C80, C97 Unknown primary site	27	2.5%
C44 / D04 Non-Melanoma skin cancer	26	2.4%
C64-C66, C68 / D09.1 Urinary Tract	25	2.3%

Source: Ministry of Public Health

Table 4.1.7: Number and percentage of cases of cancer for males, by category of cancer, 2018

ICD 10 Primary Site	Number of Cases	% of Total
C18-C21 / D01 Colorectal	154	12.3%
C61 / D07.5 Prostate	109	8.7%
C91-C95 Leukemia	92	7.4%
C64-C66, C68 / D09.1 Urinary Tract	76	6.1%
C33-C34 / D02.1-D02.2 Trachea, bronchus and lung	74	5.9%
C67 / D09.0 Bladder	63	5.0%
C22 / D01.5 Liver and intrahepatic bile ducts	62	5.0%
C82-C86, C96 Non-Hodgkin Lymphoma	57	4.6%
C44 / D04 Non-Melanoma skin cancer	57	4.6%
C73 / D09.3 Thyroid gland	46	3.7%

Source: Ministry of Public Health

Table 4.1.8: Number and percentage of cases of cancer for females, by category of cancer, 2018

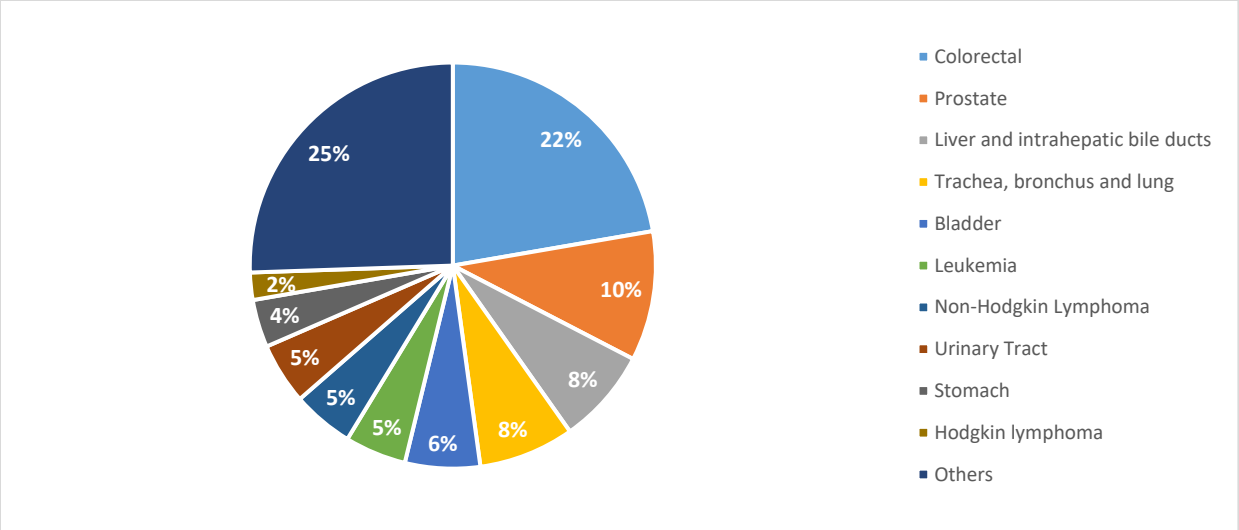
ICD 10 Primary Site	Number of Cases	% of Total
C50 / D05 Breast	388	34.2%
C73 / D09.3 Thyroid gland	91	8.0%
C18-C21 / D01 Colorectal	87	7.7%
C54-C55 / D07.0 Uterus	74	6.5%
C53 / D06 Cervix uteri	53	4.7%
C56 Ovary	49	4.3%
C44 / D04 Non-Melanoma skin cancer	33	2.9%
C82-C86, C96 Non-Hodgkin Lymphoma	30	2.6%
C91-C95 Leukemia	28	2.5%
C16 / D00.2 Stomach	25	2.2%

Source: Ministry of Public Health

In 2018, minor variations exist in the cancer incidence between Qatari and non-Qatari males. Colorectal cancers and prostate cancers were the two most common cancers, with incidence of 22.0% and 10.0% cases in Qatari males and 11.0% an 8.0% in non-Qatari males respectively. For Qatari males the third most common cancer was that of Liver and intrahepatic bile ducts (8.0%) and that of Leukemia (8.0%) for non-Qatari females.

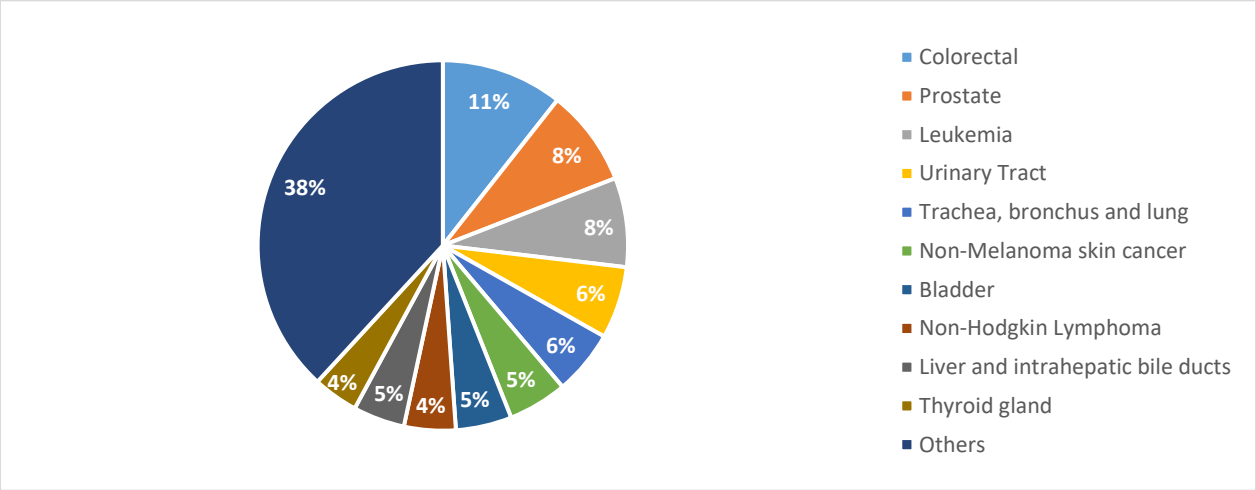
In 2018, among females, breast cancer is the most common cancer found in both Qatari (35.0%) and non-Qatari (34.0%). It is followed by colorectal (11.0%) and thyroid (9.0%) cancers among Qatari women. For non-Qatari women, breast cancer is followed by thyroid (8.0%) and uterine (7.0%) cancers as the second and third most common cancers in this population group.

Figure 4.1.1: Percentage of cancers in the male Qatari population, by type of cancer, 2018



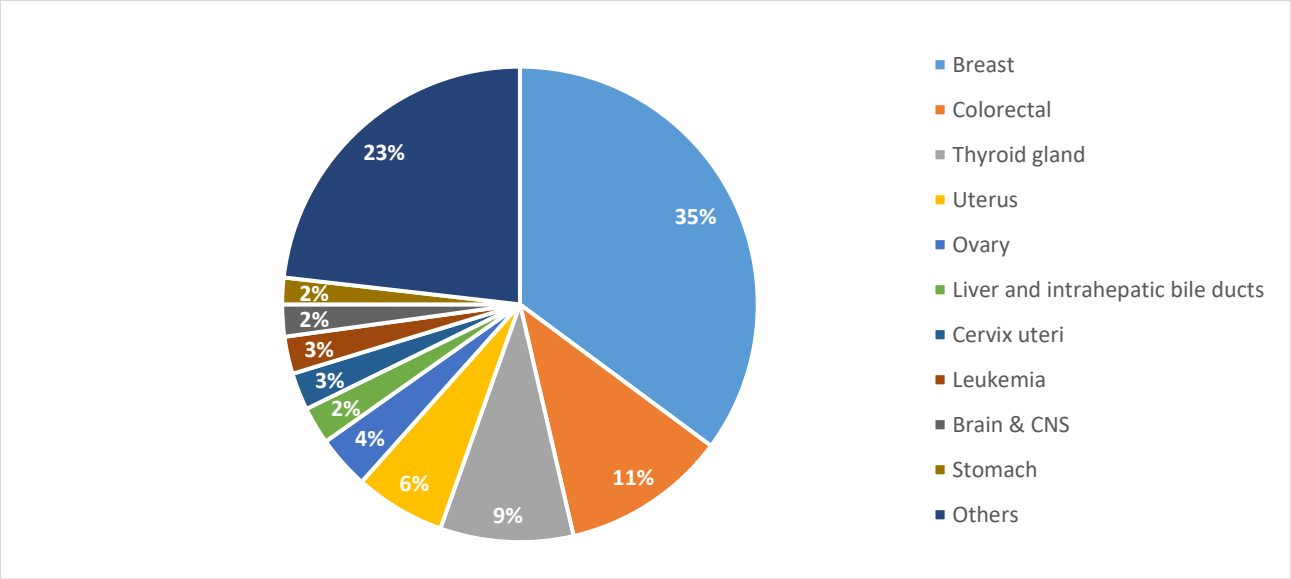
Source: Ministry of Public Health

Figure 4.1.2: Percentage of cancers in the male non-Qatari population, by type of cancer, 2018



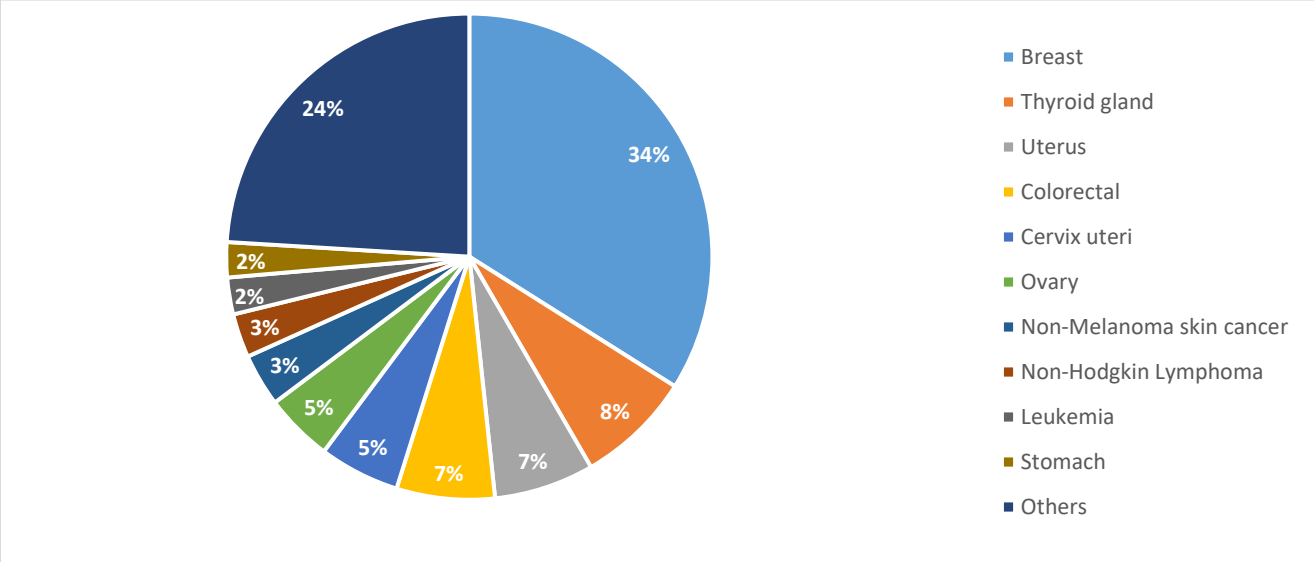
Source: Ministry of Public Health

Figure 4.1.3: Percentage of cancers in the female Qatari population, by type of cancer, 2018



Source: Ministry of Public Health

Figure 4.1.4: Number and percentage of cancers in the female non-Qatari population, by type of cancer, 2018



Source: Ministry of Public Health

On average, in the OECD countries, common cancers in 2017 were lung cancer (21.5%), colorectal cancer (11.0%) and breast cancer (14.5% in women) prostate cancer (9.4% amongst men) (OECD, 2019).

4.2 Communicable Diseases

4.2.1 Tuberculosis

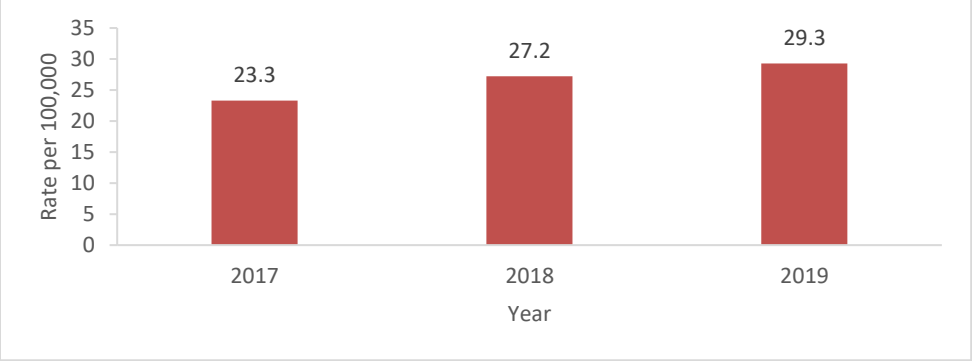
Tuberculosis is an infectious disease caused by the bacteria mycobacterium tuberculosis. Given its contagious nature, tuberculosis poses a serious public health threat, which led many countries to adopt strict regulatory procedures and protocols to adequately identify and treat tuberculosis in order to limit its spread (WHO, 2013).

In Qatar, Incidence of notified tuberculosis cases were on the decline from the year 2012 to 2016 (Table 4.2.1). Tuberculosis incidence rate was 28.0 cases per 100,000 in 2012, increasing to 29.3 cases per 100,000 in 2019. After 2016 there has been a sustained increase in the number of reported cases of tuberculosis with the numbers increasing to 23.3, 27.2 and 29.3 cases per 100,000 in the year 2017, 2018 and 2019 respectively (Figure 4.2.1 and Table 4.2.1). The extra-pulmonary, pulmonary, and overall number of notified tuberculosis cases have all increased over the past three years (Table 4.2.1).

Qatar's tuberculosis incidence, 29.3 cases per 100,000, is still much lower than the worldwide average of 130 cases per 100,000 in 2019. The small but sustained rise over the three years but still needs to be investigated. According to the World Bank, the incidence of tuberculosis has decreased from 148 cases per 100,000 in 2012 to 130 cases per 100,000 in 2019 (World Bank, 2019).

A number of public health interventions and clinical guidelines have been put in place and enforced over the past years and could account for the gradual decrease in tuberculosis incidence rate (screening X-rays, raising awareness, treatment of latent TB, precautionary measures when travelling to countries endemic with tuberculosis) (David, et al., 2017) (WHO, 2013). However, this is counteracted by another public health crisis: the emergence of multidrug-resistant tuberculosis (MDR-TB) where an increasing number of newly diagnosed cases are found to be resistant to rifampicin, the first-line drug therapy for treatment of tuberculosis (WHO, 2013).

Figure 4.2.1: Rate of tuberculosis case notification per 100,000, by year, 2017 to 2019



Source: Ministry of Public Health

Table 4.2.1: Notification of tuberculosis cases and rate per 100,000 population, by tuberculosis type and year, 2012 to 2019

Year	T.B (Ext-Pulmonary)	T.B (Pulmonary)	All	Rates
2012	259	252	511	28.0
2013	215	256	471	23.5
2014	322	143	465	21.0
2015	305	229	534	21.9
2016	262	244	506	19.3
2017	295	340	635	23.3
2018	441	310	751	27.2
2019	444	376	820	29.3

Source: Ministry of Public Health

4.2.2 Human Immunodeficiency Virus (HIV)

HIV, the human immunodeficiency virus, is the agent causative of the HIV infection. HIV is notably known to be a sexually transmitted infection but can also be transmitted by transfer of infected blood and from an infected mother to her infant during pregnancy or through breast milk (Rom & Markowitz, 2007). HIV targets the cells responsible for the immune system and destroys them, leading to a decrease in immunity over time and a higher probability of getting infected. The immune system becomes progressively weak, a condition referred to as AIDS or acquired immunodeficiency syndrome, and the infected body would ultimately be unable to fight infections, eventually resulting in death (Zuckerman, 2009).

In Qatar, the number of estimated new HIV infections has gradually increased from 2017 to 2019 (Table 4.2.2). Qatar was estimated to have 13 new HIV infection cases in 2010, gradually increasing to 18 new estimated cases of HIV infection in 2016 and then further increasing to 54 cases in 2019. These estimations are made through the software “Spectrum” and are generated through complex modelling techniques. On another hand, from 2017 to 2019, the new observed HIV cases were more likely to be among males and they account for the increasing trend of newly diagnosed HIV cases in Qatar (Figure 4.2.2). In Qatar, there were 8 new cases of HIV among males in 2017. It increased to 10 and 12 new cases of HIV among males in 2018 and 2019. Among women, the number of newly diagnosed HIV cases remained stable during the same period: There were no new HIV cases in 2017 but 3 new HIV cases were reported in both 2018 and 2019. The total number of new HIV cases more than doubled from 2017 to 2019: it increased from 26 to 39 to 54 cases in 2017, 2018 and 2019 respectively.

The increase in newly diagnosed new HIV cases in Qatar might be due to a combination of increasing population in Qatar as well as increased testing due to raised awareness among healthcare providers and the public health sector (Personal communication with CDC, 2019)

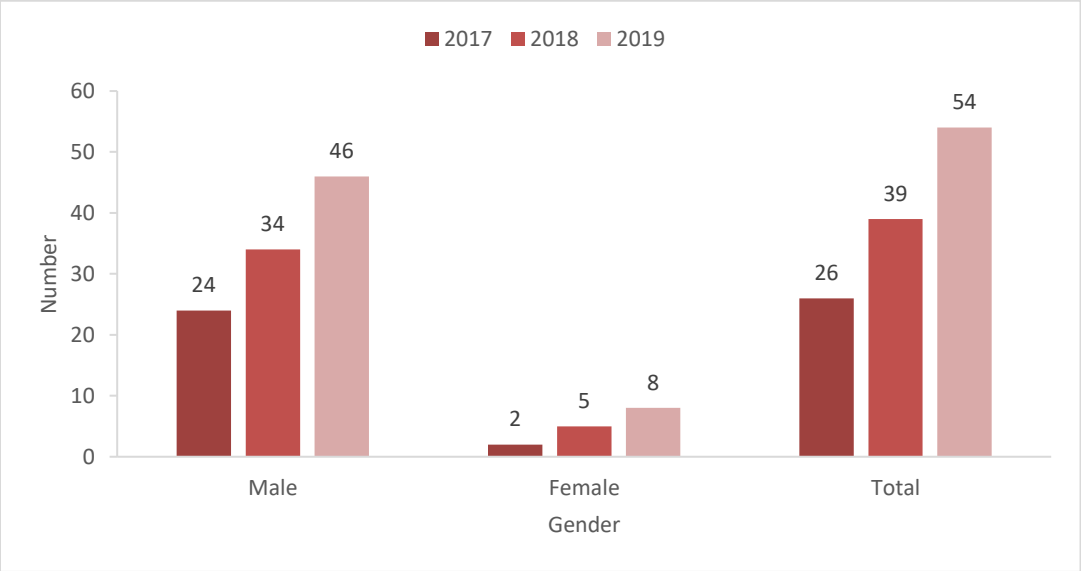
Table 4.2.2: Number of new HIV infections, by year, 2010 to 2019

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of new HIV infections	13	14	14	15	16	17	18	26	39	54

Source: Joint United Nations Programme on HIV and AIDS (UNAIDS)

Note: Generated using UNAIDS software "Spectrum". Numbers rounded to whole number.

Figure 4.2.2: Number of new reported cases of HIV/AIDS, by gender and year, 2017 to 2019



Source: Ministry of Public Health

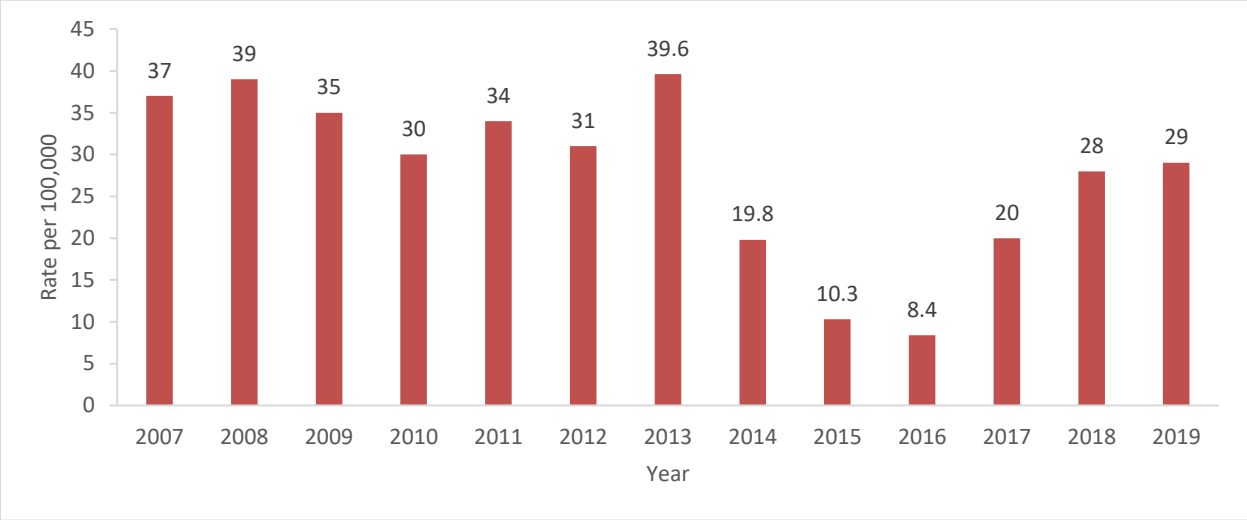
4.2.3 Hepatitis B

Hepatitis B is an infectious disease caused by the hepatitis B virus. Hepatitis B is another sexually transmitted disease and just like HIV, it can be transmitted by transfer of infected blood, intravenous drug abuse (needle sharing) and from an infected mother to her infant during pregnancy (WHO, 2017). The infection can remain in the liver and would lead to a progressively deterioration of this organ and ultimately to liver cirrhosis, cancer and death (Chisari & Ferrari, 1995).

In Qatar, hepatitis B incidence rate has gradually increased from 2017 to 2019 (Figure 4.2.3). It remained grossly stable from 2007 (37 cases per 100,000) to 2013 (40 cases per 100,000) before decreasing to 8 cases per 100,000 in 2016. Since then, there has been a sustained increase in the number of cases with the incidence rate per 100,000 cases increasing to 20, 28 and to 29 in the year 2017, 2018 and 2019 respectively (Figure 4.2.3).

Like other sexually transmitted infection, Hepatitis B causes a public health threat (WHO, 2017). A number of public health interventions, such as immunization of newborns and mother-to-child prevention account for the decreasing trend in hepatitis B incidence rate (WHO, 2017).

Figure 4.2.3: Hepatitis B incidence rate per 100,000, by year, 2007 to 2019



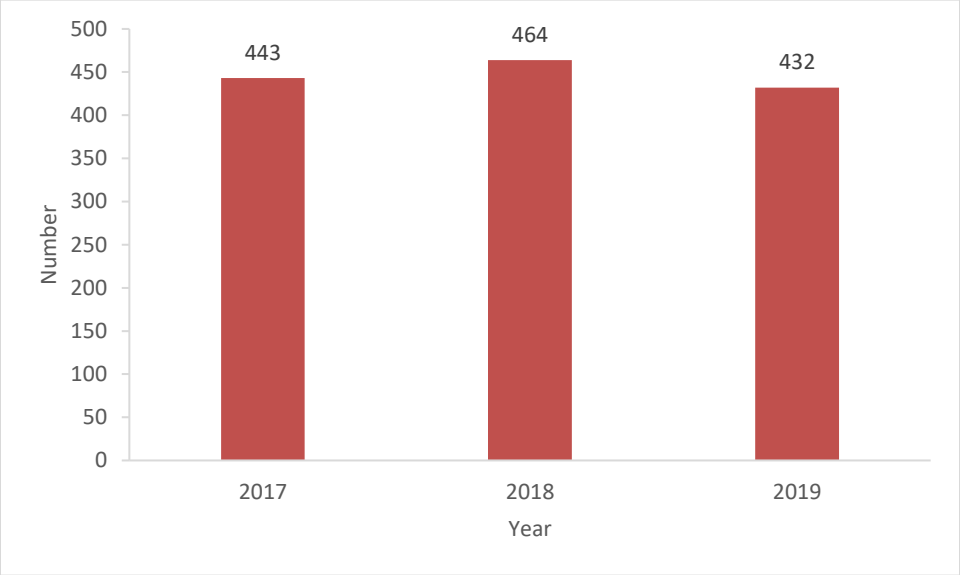
Source: Ministry of Public Health

4.2.4 Malaria

Malaria is an infectious disease caused by a type of parasite from the Plasmodium family. It is transmitted through the bite of a unique type of mosquito, the Anopheles. Malaria is endemic is certain geographic locations: it is predominantly found in the African region (93% of cases) as well as South-East Asia (3.4% cases) followed by the Eastern Mediterranean Region (2.1% of cases) (WHO, 2018). In other countries, such as Qatar, malaria is imported by people travelling from endemic region. In some sporadic cases there can be a local transmission originated by imported cases in the presence of the carrier mosquito.

In Qatar, there were 443, 464 and 432 cases of malaria reported in 2017, 2018 and 2019 respectively (Figure 4.2.4). Till 2011, the incidence of Malaria cases was consistently increasing but the rates have shown a decline since 2011. From 39 cases per 100,000 in 2011, the incidence has gradually declined with 16, 17, 15 cases per 100,000 reported in 2017, 2018 and 2019 respectively (Figure 4.2.5).

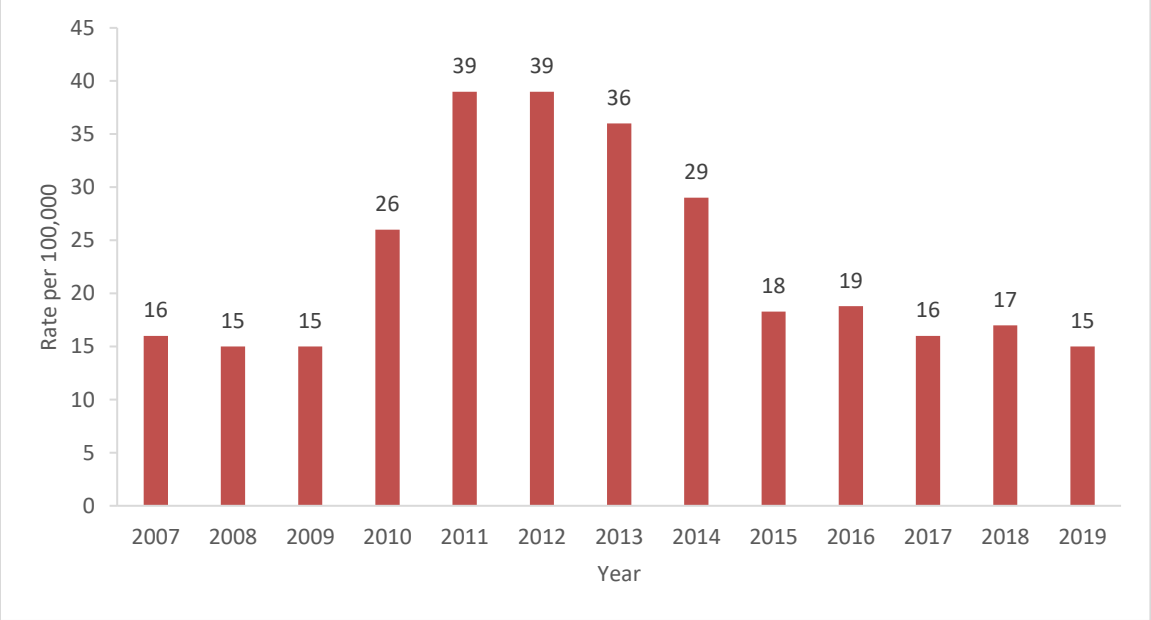
Figure 4.2.4: Number of cases of malaria reported, by year, 2017-2019



Source: Ministry of Public Health

Note: all cases were imported; no local transmission

Figure 4.2.5: Malaria incidence rate per 100,000, by year, 2007 to 2019



Source: Ministry of Public Health

Note: all cases were imported; no local transmission

4.2.5 Measles

Measles is an infectious disease caused by a virus. It affects primarily the respiratory system and leads to a characteristic generalized rash on the patient's body. The measles virus is highly contagious and is transmitted from person to person through airborne droplets as well as close and direct contact (Tagbo & Ezeonwu, 2018). It can progress to severe pneumonia as well as debilitating brain injury (in rare cases) and other significant morbidity and mortality. There is an effective vaccination against measles that is widely used in Qatar. The country has planned eradication of measles.

In Qatar, 9, 2 and 5 cases were reported in 2017, 2018 and 2019 respectively (Table 4.2.3) compared to 30 cases registered in 2016. The rates of measles cases over the past 3 years were 0.3, 0.1 and 0.2 cases per 100,000 population in 2017, 2018 and 2019 respectively (4.2.6).

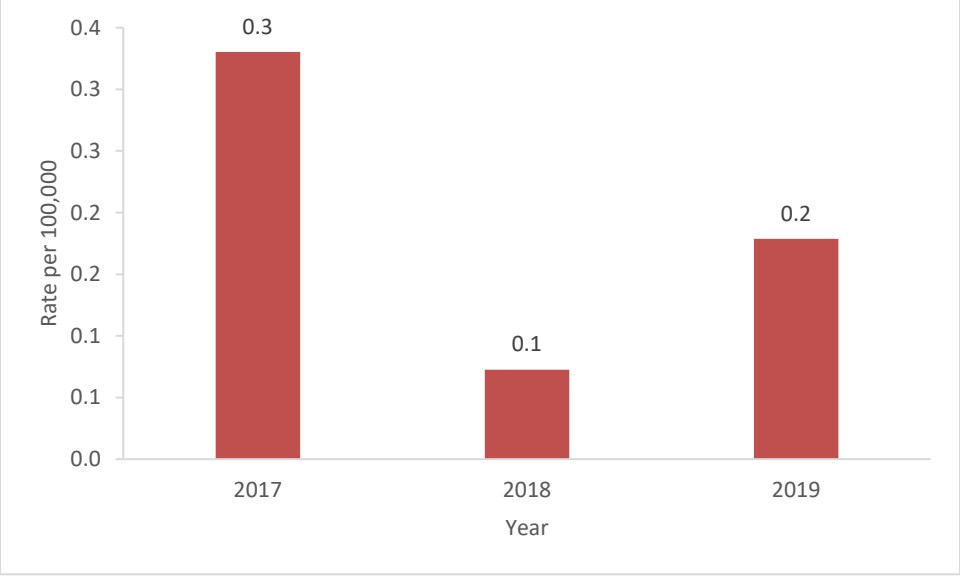
According to the Center of Disease Control (CDC), reported measles incidence rate decreased globally from 14.5 to 0.2 cases per 100,000, representing an 99% decrease from 2000 to 2019.

Table 4.2.3: Number of measles cases reported, by year, 2017 to 2019

Year	Measles
2017	9
2018	2
2019	5

Source: Ministry of Public Health

Figure 4.2.6: Rate of measles cases per 100,000, by year, 2017 to 2019



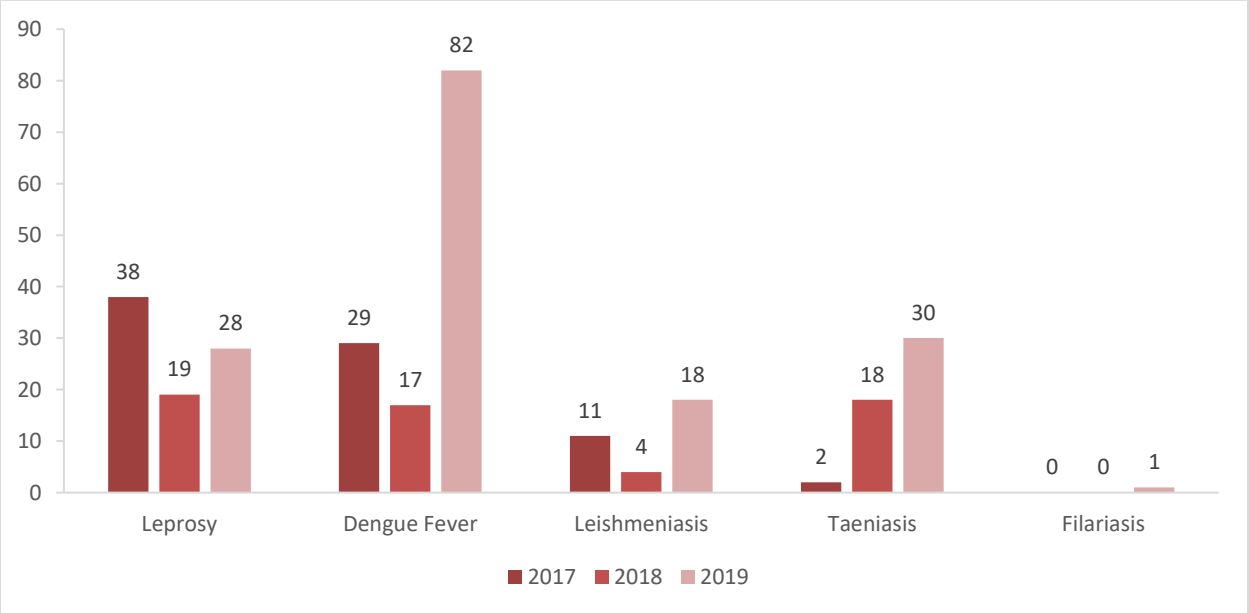
Source: Ministry of Public Health

4.2.6 Neglected tropical diseases

Neglected tropical diseases is a group of diverse infectious diseases and are major disabling conditions, mainly found in the poorest areas of the world. These diseases often result in significant morbidity such as disfigurement, blindness, brain injuries and often lead to death if not addressed promptly or left untreated (Hotez & Kamath, 2009). In our report, the focus was targeted on 5 diseases: Leprosy, Dengue Fever, Leishmaniasis, Taeniasis and Filariasis.

In Qatar, Leprosy showed a sharp decrease on the number of the cases from 38 to 19 in 2017 and 2018. In 2019, the number of cases increases to 28 cases (Figure 4.2.7). There was a sharp increase in the amount of Dengue cases in 2019 and reach 82 cases compared to 29 and 17 cases only in 2017 and 2018 respectively. From 2017 to 2019, Leishmaniasis cases have shown a mixed trend. There were 11 cases reported in 2017, which after an initial decline in reported cases (4 cases) in 2018 these increased to 18 cases in 2019. Emergence of Taeniasis has been reported since 2014 (0 cases) with 2 cases in 2017 and 18 and 30 cases in 2018 and 2019 respectively (Figure 4.2.7). For Filariasis, there was only one case registered in 2019 and zero cases in 2017 and 2018.

Figure 4.2.7: Number of selected neglected tropical diseases cases, by disease type and year, 2017 to 2019



Source: Ministry of Public Health

5 Risk Factors

Chapter 5 examines major risk factors for health including health-related behaviors and lifestyle such as dietary habits, tobacco consumption, obesity, physical activity in people of all age

groups. The prevalence of most of these risk factors for developing diseases can be modified by public health interventions and policies (Singh, Reddy & Prabhakaran, 2011).

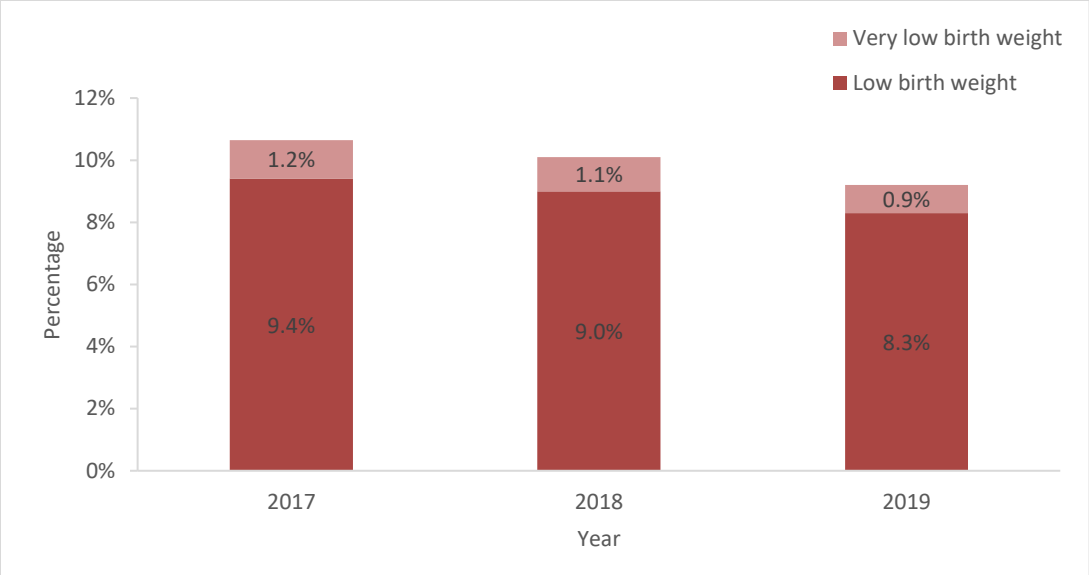
5.1 Low birth weight

Low birth weight is defined as by the World Health Organization as the weight of an infant at birth of less than 2,500 grams irrespective of the gestational age of the infant. Very low birth weight describes infants weighing less than 1500 grams at birth, irrespective of their gestational age (OECD/EU, 2018). It is a very important indicator of infant health, as low birth weight infants are at increased risk of health problems, disabilities, morbidities and even death. Some of the main risk factors for low birth weight include maternal smoking, alcohol consumption and poor nutrition during pregnancy, low body mass index, lower socioeconomic status, having had in-vitro fertilization treatment and multiple births, and a higher maternal age (OECD/EU, 2018).

The proportion of low-birth-weight infants in Qatar has decreased between 2017 to 2019 from 9.4% in 2017 to 9.0% and 8.3% in 2018 and 2019 respectively (Figure 5.1). When analyzing the data by nationality (Figure 5.2), a higher proportion of low birth weight infants is observed among Qatari newborns (10.6%) as compared to non-Qatari newborns (7.5%). Proportion of very low birth weight children (<1500 gr. at birth) is also slightly higher among Qatari newborns (1.0%) with respect to non-Qatari ones (0.8%). Most of the difference by nationality is attributable to newborns weighting between 1500 and 2499 gr. at birth. The proportion of low birth weight newborns in Qatar is the one of the lowest among the GCC countries (WHO EMRO, 2019)

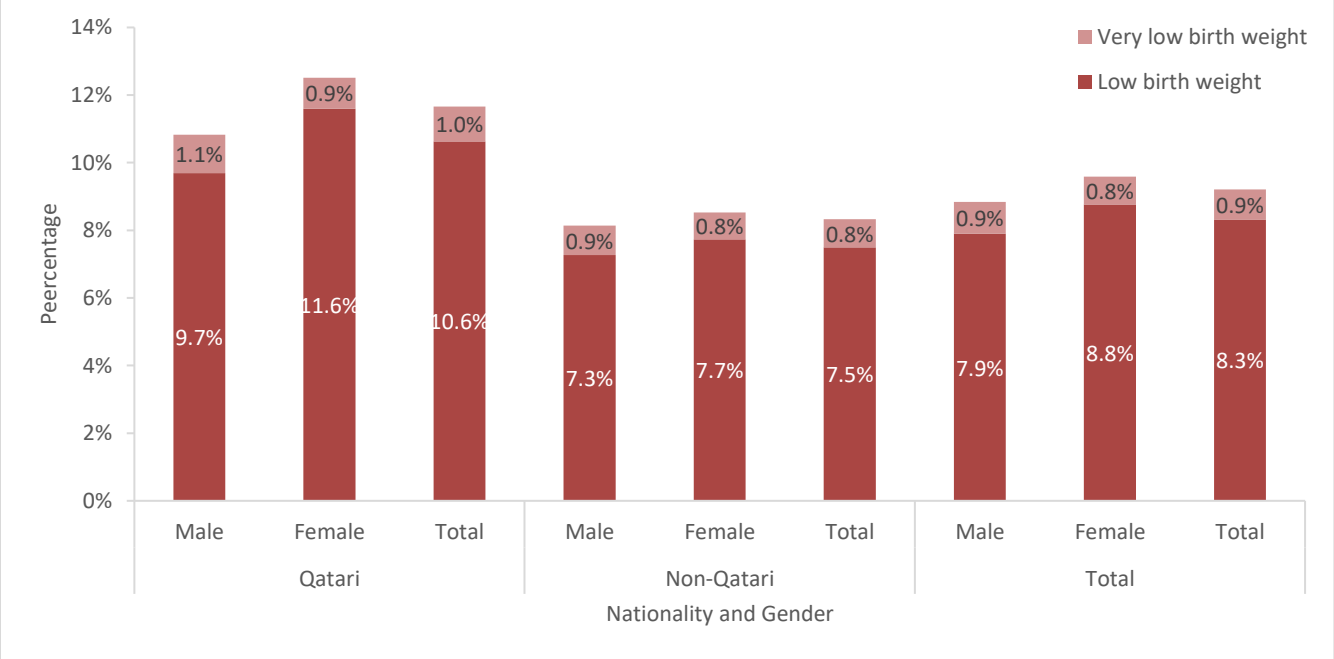
The increased use of delivery management techniques such as induction of labor and caesarean delivery, as well as the use of in-vitro fertilization techniques and multiple pregnancies may also have played a role in explaining the increasing proportion of these newborns among total births (OECD/EU, 2018).

Figure 5.1: Percentage of newborn babies with very low (less than 1,500 grams) and low birth weight (less than 2,500 grams), by year, 2017 to 2019



Source: Ministry of Public Health and Planning and Statistics Authority

Figure 5.2: Percentage of newborn babies with very low (less than 1,500 grams) and low birth weight (1,500 to 2,499 grams), by gender and nationality, 2019



Source: Ministry of Public Health and Planning and Statistics Authority

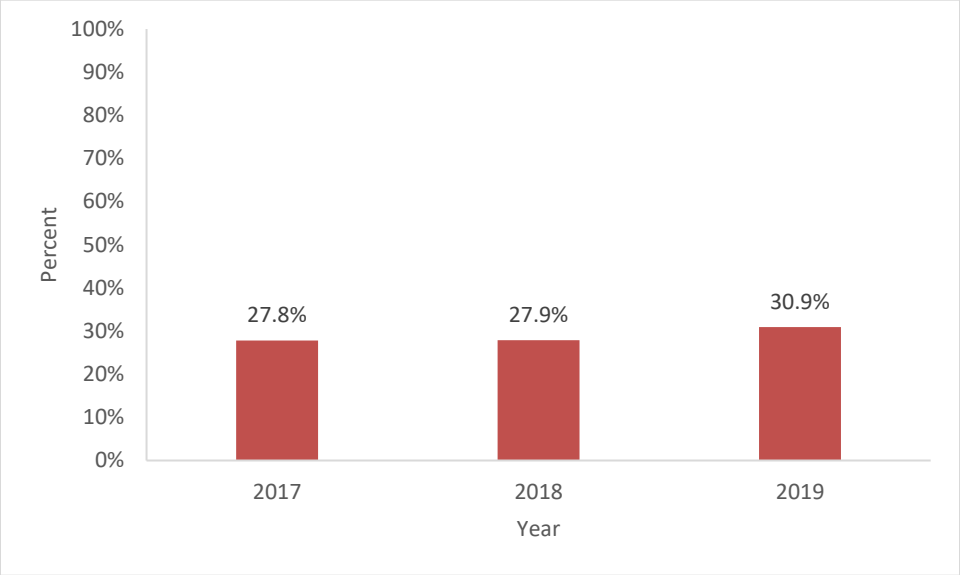
5.2 Breastfeeding

Breastfeeding is a well-recognized way to provide ideal food and nutrients for the growth and development of newborns. According to the WHO, exclusive breastfeeding for 6 months is the

optimal way of feeding infants (Greiner, 2014). Review of the evidence showed that breast milk promotes cognitive development, enhance the infant's immunity, leads to quicker recovery during illnesses and decrease infant mortality from common illnesses such as diarrhea and respiratory infections. In addition to unparalleled benefits for the infants, breastfeeding also promotes the mother's health and well-being. It strengthens the bond between the mother and the child and decreases the risks of breast and ovarian cancers (Gartner et al., 2005).

The total proportion of exclusively breastfed infants under 6 months of age in Qatar in 2017 was 27.8% which increased to 30.9% in 2019 (Figure 5.3). According to the WHO EMRO report 2019, it was estimated that 40% of infants under 6 months of age globally were exclusively breastfed, compared to 35% in the EMRO countries (WHO EMRO, 2019).

Figure 5.3: Percentage of infants under 6 months of age who were exclusively breastfeed, by nationality, 2017-2019



Source: Primary Health Care Corporation

5.3 Childhood malnutrition

Childhood malnutrition and impaired nutritional status refers to the indicators describing the magnitude of under- and over nutrition in a population. Both, overweight and obesity in childhood are strong predictors of obesity in adulthood as well as all the associated risk factors for chronic diseases such as diabetes, cardiovascular diseases and cancers. On the other hand, undernutrition and wasting among children impairs their ability to fully grow, develop (both physically and mentally), learn and play. (UNICEF/WHO/World Bank, 2018)

In Qatar, 2.1% of children under 5 were wasted in 2017 and with 2.2% and 2.0%, this number remained relatively stable over 2018 and 2019 respectively. On the other hand, in 2017, 6.2% and 1.8% of children under 5 were overweight and obese respectively (Table 5.1). In 2019, the obesity levels in under 5 children remained stable (1.8%) but the percentage of under 5 children who were overweight in 2019 slightly increased to 6.9% (Table 5.1). In Qatar, among school-age children from the age of 13 to 18 years, between 20.4% and 24.6% children were found to be obese and between 21.6% and 24.2% of children were found to be overweight. On another hand, there was a small percentage of children aged 13 to 16 with recorded thinness (between 2.2% to 3.0%) and severe thinness (0.6%) (Table 5.2)

According to the WHO-JME report, 11.2% of children under 5 were considered overweight and 7.7% of children under 5 were wasted (moderate or severe) in the EMRO region, in 2019. (UNICEF/WHO/World Bank, 2019 https://www.who.int/publications/i/item/unicef-who-the-world-bank-group-joint-child-malnutrition-estimates-levels-and-trends-in-child-malnutrition-key-findings-of-the-2019-edition)

Childhood malnutrition has become one of the most serious public health challenges and its prevention starts with adequate maternal nutrition during pregnancy and adequate breastfeeding during the first two years of life. With the rise of the fast food chains, it is crucial for parents to ensure safe and proper food to their children as well as an environment and opportunities for physical activity among kids. On a national level, fighting childhood nutrition requires multi-sectoral nutrition programming, raising awareness on the health threats in poses, both short-term and long-term, as well as legislative interventions (UNICEF/WHO/World Bank, 2018)

Table 5.1: Percentage of children under 5 years with impaired nutritional status, by type of nutritional impairment, 2017-2018-2019

Percentage of Obesity, Overweight and wasting	2017	2018	2019
Children under 5 year who are Stunted	1.9%	2.6%	3.4%
Children under 5 year who are Wasted	2.1%	2.2%	2.0%
Children under 5 years who are Overweight	6.2%	6.2%	6.9%
Children under 5 years who are Obese	1.8%	1.7%	1.8%

Source: Primary Health Care Corporation

Table 5.2: Percentage of school children aged 13-18 years who are overweight, obese, thin or severely thin, by body mass index3 and age, year school 2018-19

[3] As per World Health Organization's definition, for children aged between 5 and 19 years: Overweight is a BMI-for-age greater than 1 Standard Deviation (SD) Above WHO Growth Reference median; Obesity is a BMI-for-age greater than 2 SD above the

Age	Obese	Overweight	Thinness	Severe Thinness	Normal
13	24.6	24.2	2.3	0.6	48.5
14	23.5	23.7	2.2	0.6	50.0
15	22.2	21.6	2.7	0.6	52.9
16	20.4	22.3	3.0	0.6	53.7
17	18.9	19.8	2.9	0.6	57.7
18	20.3	19.6	3.2	1.2	55.6
Total (13 to 18)	**22.3**	**22.5**	**2.6**	**0.6**	**52.0**

Source: Growth monitoring 2018-19 data, Ministry of Public Health

Overweight and obesity are defined as having excessive proportion of body fat and are most of the time related to a combination of sedentary lifestyle and improper nutrition. Both, overweight and obesity, are well established risk factors for many chronic diseases, including diabetes, cardiovascular diseases, and cancer. It is one of the leading causes of years of life lost worldwide and in the OECD counties (OECD, 2017). Body Mass Index (BMI) is a measure to evaluate an individual's weight in relationship to his height. WHO states that adults above the age of 18 with a BMI or 25 or greater are considered overweight and adults with a BMI of 30 and above are considered obese (WHO, 2018).

5.4 Anemia

Woman of reproductive age are at higher risk of developing anemia while pregnant and anemia in pregnancy is associated with low birth weight, premature birth and maternal mortality. Optimal nutrition, iron supplementation and routine follow up are highly recommended to prevent anemia in pregnant women. According to the WHO, anemia of pregnancy is defined as having hemoglobin level less than 11g/dL (WHO, 2018).

In Qatar, 33.3% of pregnant women were found to have anemia in 2017. This proportion increased slightly to 33.5% and 34.1% in 2018 and 2019 respectively (Table 5.3). This is a global health problem, with 40.1 women developing anemia while pregnant worldwide (World Bank, 2019). Over the past 30 years, the prevalence of anemia during pregnancy has been steadily decreasing, from 43.4% in 1990 to 40.1% in 2016 (World Bank, 2019)

Table 5.3: Percentage of pregnant women with anemia, 2017-2018-2019

Year	2017	2018	2019
Percentage	33.3%	33.5%	34.1%

Source: Primary Health Care Corporation

WHO Growth Reference median; Thinness is a BMI-for-age greater than 2 SD below the WHO Growth Reference median; Severe Thinness is a BMI-for-age greater than 3 SD below the WHO Growth Reference median

5.5 Physical Activity

Low level of physical activity is a very crucial modifiable risk factor for numerous non-communicable diseases such as cardiovascular diseases, hypertension, diabetes as well as certain cancers. In addition to these benefits, physical activity has been shown to promote mental health well-being, relieve stress and improve academic achievement. The WHO recommends 60 minutes of moderate to vigorous daily physical activity for the children aged 5 to 17. Moderate to vigorous activity refers to a physical activity undertaken for at least an hour which result in an increase in heart rate that could leave the child out of breath (OECD, 2017).

5.6 Tobacco

The negative health consequences of tobacco on the human body and health are well known. Tobacco consumption increase the risks of cancers, stroke, coronary heart disease, respiratory diseases such as Chronic Obstructive Respiratory Diseases (COPD) and asthma. It can also cause several complications in newborns of smoking women, such as low birth weight (OECD, 2017).

The Global Youth Tobacco Survey (GYTS) done in 2018 captured the rate of smoking among people aged between 13 and 15 years. There is consistently a high proportion of adult male smokers compared to adult female smokers. Among “Current Tobacco Users”, 15.7% of adult male and 8.7% of adult female are classified in this category. 3.3% of adult male and 0.6% of adult female are classified in the “Frequent cigarette smokers” category. (Table 5.5)

Table 5.5: Percentage of 13-15 years who are currently tobacco users and frequent cigarette smokers by gender in 2018

Gender	Current Tobacco Users	Frequent cigarette smokers*
Male	15.7%	3.3%
Female	8.7%	0.6%
Overall	12.1%	1.9%

Source: Global Youth Tobacco Survey, 2018

*Smoked cigarettes on 20 or more days of the past 30 days.

5.7 Access to improved drinking water and sanitation facilities

Improved drinking water is a type of water source that is flowing while being protected from contamination from the outside environment especially with fecal matter. Examples include public tap and piper water into yards. Improved sanitation facility refers to refers to the separation human excreta from human contact as to provide optimal hygiene and prevent the transmission of diseases.

In Qatar, in 2019, 100% of the residents had access to both the improved drinking water and improved sanitation facilities (Table 5.6).

Table 5.6: Percentage of residents who have access to improved drinking water and improved sanitation facilities, 2019

	Access to improved drinking water	Access to improved sanitation facilities
Percentage	100%	100%

Source: Planning and Statistics Authority

5.8 Ambient air concentration

Particulate matter (PM) includes PM10 (<10 µm) and PM2.5 (<2.5 µm) emitted from industry, transport, and natural sources like forest fires. Inhaled PM can affect the heart and lungs, causing health issues. PM2.5 particles can reach deep into the lungs, leading to respiratory tract irritation. Nitrogen dioxide (NO2) forms when fossil fuels burn, mainly from cars, trucks, and power plants. It can cause lung inflammation, reduced function, and asthma attacks. Sulfur dioxide (SO2) from burning fossil fuels can harm health and the environment. Ozone (O3) absorbs UV light and, when inhaled, reacts chemically with respiratory tract molecules, causing adverse health effects.

The following table describes in monthly basis the distribution of air pollutants in Qatar for the years 2017 and 2018.

Table5.7: Annual average of ambient air concentration of PM2.5, PM10, NOx, SO2 and Ozone

	2017					2018				
	PM2.5	PM20	Nox	SO2	O3	PM2.5	PM20	Nox	SO2	O3
January	32	119		4.4	24	42	282	33.20	3.29	18
February	33	127	37	4.6	26	41	182	29.44	4.13	20
March	30	107				41	193	28.85	3.80	21
April	40	153	36	4.1	28	38	196	25.99	4.05	25
May	46	206	30	4.7	26	47	201	30.85	4.56	31
June	43	161	24	0.5	32	51	243	24.54	4.42	34
July	64	218	22	6.9	23	62	283	19.23	4.09	21
August	71	160	18	4	15	47	189	22.21	3.48	20
September	66	132	21	3.7	15	54	154	17.61	3.60	23
October	32	119	26	8	21	42	152	18.16	3.71	30
November	32	113	42	4.1	27	25	87	23.48	3.30	26
December	43	160	32	3.8	24	32	92	22.98	3.05	25
Annual average	44	148	29	4	24	44	188	24.58	3.6	25

6. Health Workforce

Healthcare professionals and health providers are the backbone of any health system and they must be in sufficient number to offer the population the services they need. Doctors, nurses, dentist, pharmacists and allied health professionals constitute the health workforce of a

country (OECD, 2017). Allied health professional includes medical sonographers, medical technologists, occupational and physical therapists, speech language, dietitians among others.

In Qatar, there were 23.7, 25.5 and 27.3 physicians per 10,000 population in 2017, 2018, and 2019 (Table 6.1). This increasing trend of healthcare professionals has also been found among dentists (from 6.0 to 6.5 per 100,000), nurses (67.1, 74.7 and 81.0 per 100,000) and pharmacists and pharmacist assistants (8.3 to 9.7 per 100,000) from 2017 to 2019. Allied health professionals were estimated to be 30.6 per 100,000 in 2017, 31.3 per 100,000 in 2018 and 33.3 per 100,000 in 2019 (Table 6.1)

In the OECD, it was estimated that the number of physicians was 35 per 10,000 in 2017, higher than the average number of physicians in Qatar for the same year. Nurses outnumber physicians and the average number of nurses in the OECD countries in 2017 (88 per 10,000) was also higher compared to Qatar (67 per 10,000) (OECD, 2019).

The number of doctors as well as other healthcare professionals per capita and per population varies widely across countries (OECD, 2017). Although there is a general trend of increased health workforce worldwide, the number of healthcare professionals is largely dependent on the population needs and should be continuously revised to offer optimal medical care.

Table 6.1: Number of healthcare professionals per 10,000 population, by profession and year, 2017 to 2019

Year	2017	2018	2019
Physicians	23.7	25.5	27.3
Dentists	6.0	6.4	6.5
Nurses	67.1	74.7	81.0
Pharmacists	8.3	9.0	9.7
Allied Health Professionals	30.6	31.3	33.3

Source: Ministry of Public Health

7. Service delivery

Service delivery encompasses the part of the health system where a patient receives appropriate treatment, diagnostic test, intervention, disease prevention, rehabilitation, proper follow-up and continuum of care. It relates to the management and delivery of these health services in inpatient as well as outpatient facilities.

Another indicator for health service delivery are the number of health care facilities and the number of hospitals beds relative to the population. They refer to the availability and access to health care facilities. The number of primary health care facilities measures availability of outpatient services for delivering treatment to patients at the primary health care level. The

number of hospital beds, on the other hand, provides an indication of the resources available for delivering services to inpatients in hospitals (OECD, 2017).

In Qatar, number of primary health care facilities has slightly increased from 2017 to 2019 in the public sector. There were 26 primary health care facilities (0.09 care facilities per 10,000 population) in 2017 which increased to 27 primary health care facilities (0.1 care facilities per 10,000 population) in 2019.
After a constant rate of 0.09 health care facilities per 10,000 population since the year 2014, this rate saw a minor growth in 2018 when it increased to 0.10 health care facilities per 10,000 population. The same rate was maintained in 2019 (Table 7.1).
In Qatar, the number of beds was 2,223, 2,498 and 2,778 in 2017, 2018 and 2019 respectively among public hospitals (Table 7.2). From 2017 to 2019 there was a decreasing trend of the rate of hospital beds per 10,000 among public inpatient facilities (from 9.3 to 9.0 beds per 10,000 population respectively). The same trend continued in the year 2017 when these figures decreased to 7.94 public hospitals beds per 10,000 population. However, from 2018 there was a sustained increase in public sector beds and they improved from 9.05 per 10,000 population beds in 2018 to 10.20 beds per 10,000 population in 2019 (Table 7.2). For private inpatient facilities, there was also an increasing trend in both the number and the rate of beds per 10,000 from 2017 to 2019: there were 327, 358 and 356 beds in 2017, 2018 and 2019 respectively as well as a rate of 1.17, 1.30, 1.31 beds per 10,000 in 2017, 2018 and 2019 respectively (Table 7.2)

In the OECD, the average rate of hospital beds per 1,000 was 4.7 beds per 1,000 in 2017 (OECD, 2019).

As previously discussed, the number of primary health care facilities and the number of hospital beds should be tailored to the population's need and constantly monitored to provide adequate access and treatment coverage. A suboptimal number of health care facilities and hospital beds could result in longer waiting time and restricted access whereas an excess in the latter could result in inappropriate and wasted distribution of resources (OECD, 2017).

Table 7.1: Number of primary health care facilities and rate per 10,000 population, 2017 to 2019

Year	Public	
	Number	**Rate per 10,000**
2017	26	0.09
2018	27	0.10
2019	27	0.10

Source: Ministry of Public Health

Table 7.2: Number of hospital beds and rate per 10,000 population, 2017 to 2017

Year	Public		Private	
	Number	Rate	Number	Rate
2017	2,223	7.94	327	1.17
2018	2,498	9.05	358	1.30
2019	2,778	10.20	356	1.31

Source: Ministry of Public Health
Note: All-day care beds are not included; * include Aspetar Beds

Annual outpatient visits is a reflection of the number of consultations with doctors mainly in primary health care clinics as well as hospital outpatient departments, including both generalists and specialists.

In Qatar, during the year 2017 and 2019, the annual outpatient visits varied between 2.7 and 2.4 consultations per person per year (Table 7.3). In the OECD, there was 6.8 annual outpatient visits per person per year in 2017.

The number and type of doctor consultations can vary among different population groups in each country. The trend in visiting a general practitioner has been found to be equally distributed in most countries, but in nearly all countries, people with higher socioeconomic status were more likely to see a specialist than those with lower status and would report more frequent visits, according to an OECD study (Deveaux & de Looper, 2012).

Table 7.3: Annual outpatient visits per capita, 2017 to 2019

Year	2017	2018	2019
Number per capita	2.7	2.4	2.7

Source: Ministry of Public Health
Note: Public facilities only

The percentage of deliveries attended by skilled health professionals reflects the maternal and fetal health care system of a country. WHO reinforces that all women should have access to skilled care during pregnancy and childbirth to ensure prevention, detection and management of complications (WHO, 2004).
In Qatar, 100% of deliveries were attended by a skilled birthing professional in 2019 (Table 7.4). By contrast, the World Data Bank estimated a worldwide average of 80.0% of deliveries attended by a skilled birthing professional.

Improvements in the coverage of the proportion of deliveries attended by skilled birthing professionals and their provision of care may explain the low maternal and infant mortality seen in Qatar.

Table 7.4: Percentage of deliveries attended by skilled birthing professionals, 2019

Year	2019
Percentage	100%

Source: Ministry of Public Health

The following table 7.5 describes the Hospital acquired infections (as for HSPA definition) - MRSA (per 10,000 patient days), Clostridium difficile infection (CDI) (per 10,000 patient days), and Surgical site infections (%). At 0.01 MRSA cases (per 10,000 patients), the incidence of MRSA has consistently remained low since 2017. Since the year 2017, the CDI have consistently decreased from 1.43 cases per 10,000 patients in 2017 to 1.07 CDI cases per 10,000 patients in 2019. However, the surgical site infection rates reported as 0.87% in 2017 has seen an upward trend with 0.92% cases reported in 2018 and 1.33% cases reported during the year 2019.

Table 7.5: the Hospital acquired infections (as for HSPA definition) - MRSA (per 10,000 patient days), Clostridium difficile (per 10,000 patient days), Surgical wound infections (%), 2017 to 2019

Indicators / Year	2017	2018	2019
Incidence of Inpatient Hospital-Onset MRSA per 1,000	0.01	0.02	0.01
Incidence Of Inpatient Hospital-Onset CDI per 10,000	1.43	1.52	1.31
Surgical Site Infection Rate	0.87%	0.92%	1.33%

Source: Hamad Medical Corporation

Table 7.6 gives the gender specific figure (per 100,000 population) for hospital admission during the year 2017, 2018 and 2019. The data is further broken down as per nationality (Qatari and non-Qatari) and also on the type of admission (i.e., day care cases vs in-patient cases). During 2017-19 the number of hospital admissions for Qataris remained relatively stable as it only changed by less than 10,000 patients (from 111,123 to 119,769 per 100,000 Qatari). During the same year, hospital admission for non-Qatari residents changed by almost 40,000 (from 215,570 to 252,566 per 100,000 non-Qatari).

Table 7.6: Hospital admission by major cause per 100,000 population by nationality and gender, 2017 to 2019

Nationality	2017					2018					2019				
	Day Cases		Inpatient		Total	Day Cases		Inpatient		Total	Day Cases		Inpatient		Total
	M	F	M	F		M	F	M	F		M	F	M	F	
Qatari	30,329	32,576	18,897	29,321	111,123	31,996	36,546	18,522	28,005	115,069	32,817	37,606	19,608	29,738	119,769
Non-Qatari	52,687	32,895	64,831	65,157	215,570	57,523	35,650	68,652	67,216	229,041	64,779	39,434	74,695	73,658	252,566

Source: Hamad Medical Corporation

In Table 7.6.1 the hospital admissions are further broken down on the basis of the major causes for admission and the duration of admission (i.e., Day cases vs inpatient). In Table 7.6.2 the data is further explained on the basis of hospital admission for chronic diseases per 100,000 population. Since 2017, the top five causes of admissions due to disease classification by either ICD or chronicity has remained the same (Table 7.6.1 and 7.6.2)

Table 7.6.1: Hospital admission per 100,000 population on the basis of Disease groups defined in ICD, 2017 to 2019

	2017			2018			2019		
Major Disease Group by ICD	**Day Cases**	**Inpatient**	**Total**	**Day Cases**	**Inpatient**	**Total**	**Day Cases**	**Inpatient**	**Total**
Blood Diseases & Blood-Forming Organs	6,039	4,610	10,649	6,930	3,938	10,868	4,154	4,454	8,608
Childbirth & Puerperium	2,014	33,911	35,925	1,441	33,270	34,711	2,415	34,865	37,280
Circulatory System	1,684	9,736	11,420	1,950	10,273	12,223	2,453	11,692	14,145
Congenital Anomalies	741	1,839	2,580	555	1,360	1,915	509	953	1,462
Digestive System	7,305	13,860	21,165	8,739	15,326	24,065	8,666	17,499	26,165
Diseases of the ear and mastoid process	310	1,240	1,550	355	1,293	1,648	485	1,425	1,910
Diseases of the eye and adnexa	5,071	703	5,774	5,455	678	6,133	6,183	689	6,872
Endocrine Gland	1,654	3,763	5,417	2,411	4,290	6,701	2,842	4,675	7,517
Factors Influencing Health Status	106,757	20,061	126,818	114,617	20,601	135,218	123,233	20,953	144,186
Genitourinary System	4,609	10,746	15,355	5,327	11,466	16,793	6,548	12,112	18,660
Infectious & Parasitic	236	9,190	9,426	298	9,572	9,870	645	10,203	10,848
Injury & Poisoning cases	640	12,349	12,989	622	12,109	12,731	775	12,442	13,217
Mental Disorders	78	1,618	1,696	66	1,785	1,851	165	2,172	2,337
Neoplasms	1,972	3,470	5,442	2,378	3,662	6,040	2,482	3,562	6,044
Nervous System & Sense Organs	523	2,442	2,965	410	2,666	3,076	507	3,078	3,585
Nonspecific Symptoms and Signs	4,322	14,415	18,737	4,737	14,548	19,285	4,473	16,258	20,731
Perinatal Period	14	7,517	7,531	20	7,912	7,932	3	8,679	8,682
Respiratory System	1,410	17,804	19,214	1,639	18,108	19,747	1,852	19,757	21,609
Skeletal Syatem & Connective Tissue	1,377	4,102	5,479	1,594	4,214	5,808	2,532	4,835	7,367
Skin & Subcutaneous Tissue	1,503	4,456	5,959	1,540	4,657	6,197	1,598	4,615	6,213
Special Purpose									
Null	228	374	602	631	666	1,297	2,116	2,781	4,897
Total	148,487	178,206	326,693	161,715	182,395	344,110	174,636	197,699	372,335

Source: Hamad Medical Corporation

Table 7.6.2: Hospital admission by chronic disease per 100,000 population, 2017 to 2019

2017	2018	2019

Chronic Diseases Principal Diagnosis	Day Cases	Inpatient	Total	Day Cases	Inpatient	Total	Day Cases	Inpatient	Total
Asthma	8	1,924	1,932	2	1,851	1,853	2	2,172	2,174
Chronic Heart Failure	79	1,371	1,450	9	1,274	1,283	5	1,422	1,427
COPD	27	487	514	31	605	636	28	647	675
Diabetes	41	1,559	1,600	79	1,685	1,764	245	1,745	1,990
Hypertension	25	715	740	15	811	826	15	1,044	1,059
Other Diseases	148,307	172,150	320,457	161,579	176,169	337,748	174,341	190,669	365,010
Total	148,487	178,206	326,693	161,715	182,395	344,110	174,636	197,699	372,335

Source: Hamad Medical Corporation

Nationality wise hospital admissions via the Emergency Department (ED) for the years 2017 to 2019 are given in Table 7.6.3. Hospital re-admissions during the same years (i.e., from 2017 to 2019) have consistently decreased from 1.82% in 2017 to 1.43% patients re-admitted in the year 2019 (Table 7.6.4).

Table 7.6.3: HMC -ED activity by nationality and gender, 2017 to 2019

Nationality	2017				2018				2019			
	Registered patient - not admitted to IP		Admitted as IP from ED		Registered patient - not admitted to IP		Admitted as IP from ED		Registered patient - not admitted to IP		Admitted as IP from ED	
	M	F	M	F	M	F	M	F	M	F	M	F
Qatari	228,646	210,932	13,923	20,877	224,915	212,897	13,821	20,361	227,746	216,838	14,702	21,933
Non-Qatari	725,074	459,993	48, 959	44,327	748,375	481,081	52,856	47,036	803,697	495,849	59,364	52,799

Source: Hamad Medical Corporation

Table 7.6.4: HMC - RE-admission rate, 2017 to 2019

2017	2018	2019
1.82%	1.50%	1.43%

Source: Hamad Medical Corporation

With 59.3% children in 2017 and 62.5% children in 2019, the percentage of under 5 years children with diarrhea who were treated with Oral rehydration therapy (ORT) has consistently remained stable (Table 7.7).

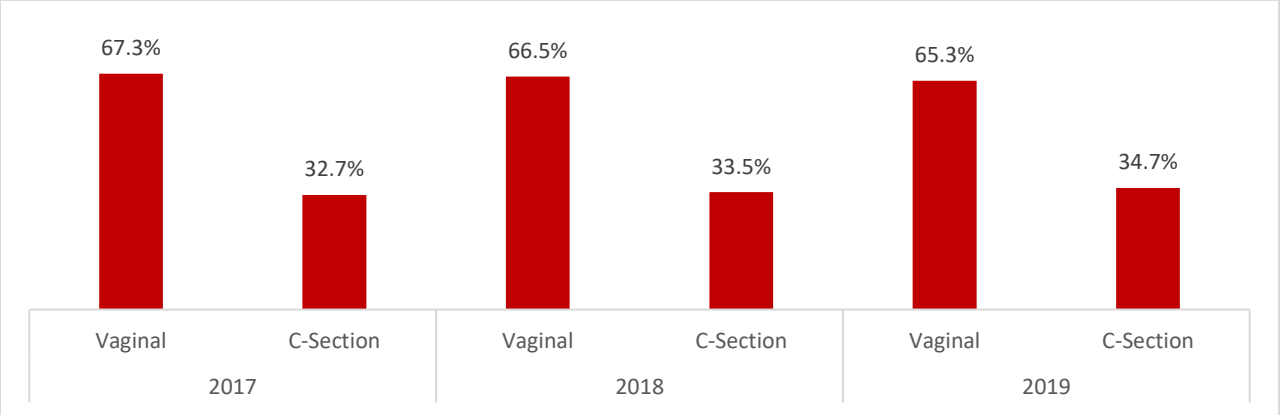
Table 7.7: Children under 5 with diarrhea treated with oral rehydration therapy (%), 2017 to 2019

2017	2018	2019
59.3%	63.5%	62.5%

Source: Hamad Medical Corporation

The figure 7.1 shows that the rate of vaginal section rate decreases steadily from 67.3% in 2017 to 66.5% in 2018 and reach 65.3% in 2019. However, the cesarean section rate increases from 32.7 in 2017 to 33.5% in 2018 and reach the highest value of 34.7% in 2019.

Figure 7.1: Vaginal and C-Section rate in governmental hospitals, 2017 to 2019



Source: Hamad Medical Corporation

Conclusion

The process of collecting data and insights from the community on an ongoing basis has been instrumental in ensuring the accurate identification of health priorities in Qatar. By actively engaging with the community and gathering primary and secondary data, we have been able to gain a comprehensive understanding of the specific health needs and challenges faced by the population.

The continuous collection of data and insights from the community enables us to stay updated on the evolving health landscape in Qatar. By regularly interacting with community members, healthcare providers, and other stakeholders, we are able to monitor the changing health concerns and emerging health issues.

This real-time information helps us to identify and prioritize the most pressing health challenges faced by the population. It allows us to focus our efforts and resources on the areas that require immediate attention, thereby ensuring that policy interventions are targeted and effective.

Furthermore, the data-driven approach supports the formulation of appropriate policy interventions from a public health perspective. By analyzing the collected data and insights, we can identify the underlying causes and determinants of health issues in Qatar. This enables us to design evidence-based strategies and interventions that are tailored to address the root causes and mitigate the impact of these health challenges. By aligning policy interventions with the specific needs of the population, we can maximize the effectiveness of our efforts and ensure that resources are utilized efficiently. The insights and information presented in this report are intended to serve as a valuable resource for policymakers.

In summary, this report compiles health and statistical information gathered through the ongoing collection of data and insights from the community. It serves as a comprehensive repository of information that can assist and guide public health, healthcare, and health policy decisions in Qatar. By utilizing the data and insights presented in this report, policymakers can make evidence-based decisions, implement targeted interventions, and ultimately improve the health outcomes and well-being of the population.

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