



# **National Health Information Bulletin 2019-2020**

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## Foreword

### From the Secretary of Health

Kia Orana

Access and availability to accurate and reliable health information is crucial for enhancing and sustaining the provision of healthcare services in the Cook Islands. This annual statistical bulletin provides a summary of the health status of people living in the Cook Islands.

The data is primarily derived from the patient information management system (known commonly as MedTech); and directorate registers and reports.

Health information informs the direction of Te Marae Ora Ministry of Health Cook Islands (TMO) takes by identifying gaps in healthcare, policy and legislation.

It is also TMO's aim to ensure that government and the wider community including international stakeholders have access to accurate and reliable health statistics. The report also provides basic tabulated data readily available for researchers.

This report translates the unwavering dedication of all TMO health staff to whom I extend gratitude and acknowledgement. Ensuring documentation of your day to day work sustains a basis from which to produce this annual report.

For further clarification of information including those not published in this report, direct enquiries to the Health Information Systems team at TMO.

Meitaki maata



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**Mr Bob Williams**

**Secretary of Health**

## Executive summary

Te Marae Ora's mission statement is *"To provide accessible, affordable health care and equitable health services of the highest quality, by and for all in order to improve the health status of people living in the Cook Islands"*. In order to fulfil this statement there is a need to analyse the current health status of the nation.

In December 2019, TMO introduced 129 national health indicators<sup>1</sup> to monitor and analyse the health status of the Cook Islands population. The health indicators are short to long term goals. The indicators meet international reporting standards and provides a wider perspective of health concerns affecting the Cook Islands population. Health security and health protection is a priority, ensuring people are living to their full health potential, while providing effective and efficient health care.

In 2020 and 2019 novel coronavirus (COVID-19) global pandemic impacted economically and socially. The Cook Islands did not escape the global impact of the pandemic. The Cook Islands declared and have remained COVID-19 free since 16 April 2020.

On the positive side the pandemic enabled infrastructure upgrades during this period.

Decentralisation of health services over 2020, alleviated the impact of COVID-19 establishing ten local Puna clinics and relocation of Outpatients Emergency Department from Rarotonga Hospital to Tupapa clinic.

Local Puna clinics provided accessible primary health care within the villages, with nurse's onsite and doctors alternating between each one. Telemedicine was introduced during this period where a patient received a consultation over the phone and was able to request a refill of medication and other essential health care. Health specialist visits (HSVs) were suspended during 2020 due to border restrictions however international medical referrals remained.

Over the last four years the average crude birth rate per 1,000 population is 18. This equates to average of 4.3 births per week, estimating approximately 223 per year. In 2020 a total of 257 births occurred, increasing live births by 10%. All births in the Cook Islands are attended by skilled midwives.

The Cook Islands remains classified as having moderate fertility levels (defined as total fertility rate (TFR) less than 3 but greater than 2.1), 2020 the TFR is 2 per 1,000 fertile women, up from 1.8 in 2018. There are many factors that may contribute towards a decrease in TFR, social structures, easing economic uncertainty and career posts for mothers<sup>2</sup>.

Non-communicable diseases (NCDs) remains a challenging factor for TMO. In the last four years, 72% of deaths that occurred in the Cook Islands attributed to NCDs with 25% of cases occurring prematurely.

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<sup>1</sup> See **Appendix 1**

<sup>2</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4255510/>

Oral health over the last three years had an average of 4,410 consults aged two years and over. 23% of those consults were for oral restoration. In 2019 and 2020 the data was collated by classifications for patients seeking oral health.

It is important to note that as priority was given to COVID-19, health reporting for 2019 and 2020 was collated to produce this bulletin.

This annual health bulletin captured as much of TMOs 129 national health indicators. The indicators range from short to long term and most have no established baseline. Efforts will continue to better capture and report as per these indicators moving forward. Further health reporting will return to annual scheduling published before the first quarter following the year ending.

## **Introduction and information provision**

The Cook Islands is located in the south of the Pacific Ocean and consists of 15 islands. The main island Rarotonga hosts the government bureaucracy. Distance between each island proves challenging for communication technology and transportation of people and goods and services.

Rarotonga and the Pa Enua (outer islands) are accessible by air, however flights to the northern group of islands is intermittent and costly. The main mode of transport for goods and supplies is shipping. There are often delays in shipments, however each island population is generally able to sustain themselves between shipments of goods and supplies.

Te Marae Ora Ministry of Health Cook Islands (TMO) is the main provider of health care in the Cook Islands; and has a regulatory function through various legislations. Free healthcare is provided to all students until the age of 18 years and for all pensioners aged 60 years and over. Health services range from public health (inclusive of primary care) to secondary care. There are also a small number of private health providers on the island. Overall, healthcare in the Cook Islands is well equipped to provide basic primary and secondary level care.

The Cook Islands has an established Health Information System (HIS) unit, which produces data that is used to inform decision-making at TMO. The data is primarily extracted from the patient health information management system commonly referred to as MedTech. The MedTech database is used by health workers to record patient information and other activities of TMO directorates. The Pa Enua health facilities have MedTech32 capability, but face ongoing connectivity, IT infrastructure and equipment challenges.

Under digital health initiatives, TMO have been investing towards digitizing all departmental paper based registries and integration with the PIMs. For example the establishment of the Cook Islands National immunisation Register 1980-2020 – a computerised registry of paper based records.

Diseases are classified according to the international statistical classification of diseases (ICD10) which code its morbidity and mortality data. The mortality tabulation list 1 with 103 conditions or groupings is used in the Cook Islands for the coding of its underlying causes of death. Data sources used for this report are primarily from the Patient Information System (MedTech 32), TMO directorate registries and other information systems such as mSupply.

### **Data exclusions in this report**

Data in this bulletin does not include:

- Births and deaths of patients referred overseas
- Patients living overseas for chronic conditions

## Key facts

		2016	2017	2018	2019	2020
Overall	<b>Cook Islands census population resident</b>	<b>14,802</b>				
	Total Fertility Rate (TFR per woman)	2.5	2.4	2.5	1.8	2.0
	<i>Total number of deaths</i>	101	92	123	113	126
	Crude Death Rate (CDR per 1,000)	8.8	8.0	8.3	7.6	9.0
At Birth	<b>Total number of births</b>	<b>243</b>	<b>231</b>	<b>228</b>	<b>232</b>	<b>257</b>
	Life Expectancy at birth (5 year period)	73.6	74.1	75.7	75.9	77
	Crude Birth Rate (CBR per 1,000)	16.4	15.6	15.4	15.7	17
	Fetal (neonatal) Mortality Rate (per 1,000)	4.1	0	13	8.6	3.9
Under 5 years	<b>Cook Islands population under 5 years</b>	<b>1,261</b>	<b>1,261</b>	<b>1,261</b>	<b>1,261</b>	<b>1,261</b>
	Under 5 Mortality (per 1,000 children)	4	4.1	7.2	12.9	8
	<i>Number of Inpatients</i>	212	141	204	94	77
	% under 5	16.8	11.2	16.2	7.5	6.1
	<i>Number Outpatient Consultations</i>	5,736	5,239	5,196	5,388	2,995
	Consult Per child	4.5	4.2	4.1	4.2	2.4
5 to 14 years	<b>Cook Islands population 5-14 years</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>
	Life Expectancy at 5 years			71.1	72.0	73.9
	Infant Mortality Rate (per 1,000 children)	8.2	13	13.2	12.9	7.8
	<i>Number of Inpatients</i>	236	228	249	133	82
	% 5-14 year olds	8.6	8.3	9.1	4.9	3.0
	<i>Annual Outpatient Consultations</i>	5,800	6,955	7,018	6,871	3,910
	Consult Per child	2.1	2.5	2.6	2.5	1.4
15-34 years	<b>Cook Islands population 15-34 years</b>	<b>3,867</b>	<b>3,867</b>	<b>3,867</b>	<b>3,867</b>	<b>3,867</b>
	Life Expectancy at 15 years			61.3	63	64.5
	Teenage (adolescent, 15-19 years) Fertility	41.7	43.4	38.2	13.0	25.3
	NCD Mortality (% of people aged 15-64)	25.7	24.2	18.9	27	32
	NCD Premature Death (% of people aged 30-64)	23.9	22	19.9	30.6	27
	<i>Mental Disorder cases (Number of under 34)</i>	28	22	13	14	19
	<i>Number of Inpatients</i>	478	458	504	509	481
	% 15-34 year olds	12.4	11.8	13.0	13.1	12.4
	<i>Number Outpatient Consultations</i>	10,05	12,60	13,08	14,15	7,685
	Consult Per person	2.6	3.3	3.4	3.6	2.0
35-64 years	<b>Cook Islands population 35-64 years</b>	<b>5,394</b>	<b>5,394</b>	<b>5,394</b>	<b>5,394</b>	<b>5,394</b>
	Life Expectancy at 35 years			43.0	43.9	45.0
	<i>Number of Inpatients</i>	412	499	567	579	502
	% 35-64 year olds	7.6	9.3	10.5	10.7	9.3
	<i>Number Outpatient Consultations</i>	17,54	20,03	22,47	23,44	14,86
	Consult Per person	3.3	3.7	4.2	4.3	2.8
	<i>Mental Disorder cases (35-59 years)</i>	24	28	21	27	31
65 years and older	<b>Cook Islands population 65+ years</b>	<b>1,544</b>	<b>1,544</b>	<b>1,544</b>	<b>1,544</b>	<b>1,544</b>
	Life Expectancy at 65 years			18.1	15.4	15.8
	NCD Mortality (%)	52.5	47.3	53.5	42.4	42.8
	<i>Number of Inpatients</i>	408	408	454	462	409
	% of people 65 year or older	26.4	26.4	29.4	29.9	26.4
	<i>Number Outpatient Consultations</i>	7,450	7,472	8,440	8,289	6,083
	Consult Per person	4.8	4.8	5.5	5.3	4.0



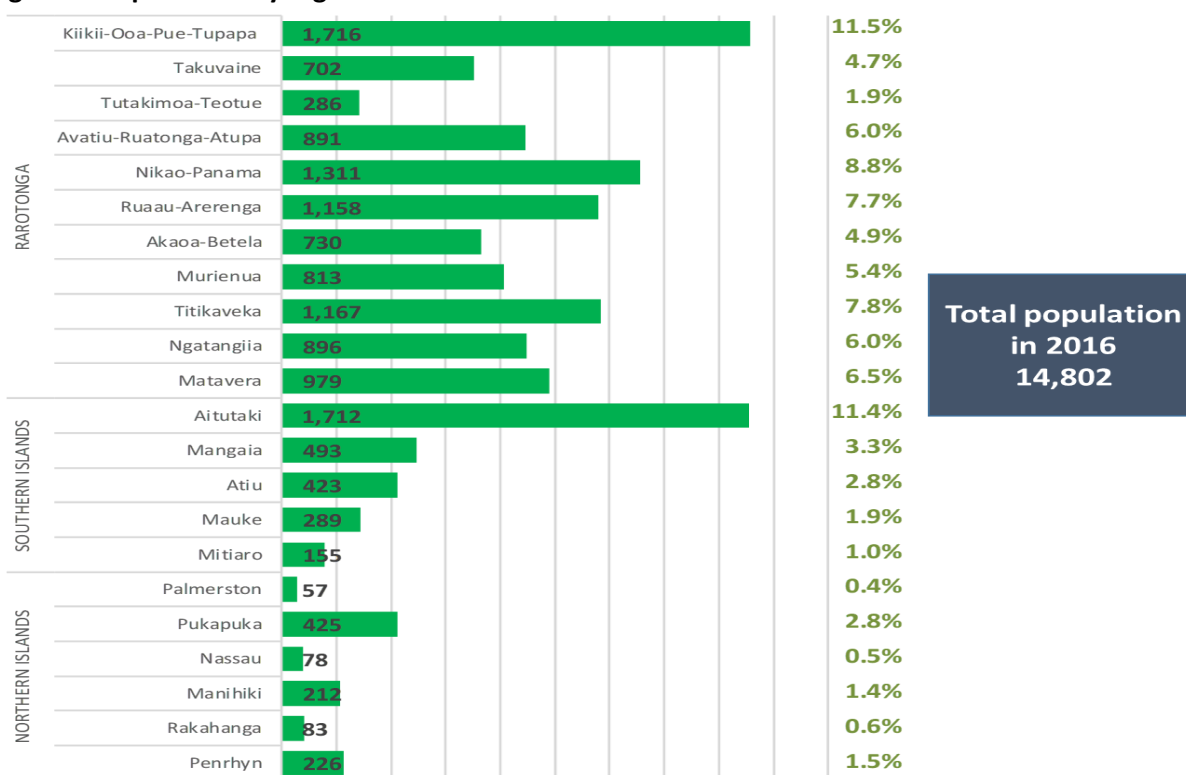
## Cook Islands resident population

The total population of the Cook Islands<sup>3</sup> as reported in the 2016 Census is 17,434 including 14,802 Cook Islands residents (people permanently living in the Cook Islands) and visitors present during the time of the census. The next census is due in 2021 which will provide an updated population for the Cook Islands.

Seven out of ten (72%) of all Cook Islands residents live on the main island, Rarotonga; with the remaining 28% living in the Pa Enua. Of that figure 21% live on the southern group islands of Aitutaki, Atiu, Mangaia, Mauke and Mitiaro (see Figure 1). The remaining 7% live in the northern group islands of Palmerston, Manihiki, Rakahanga, Pukapuka, Nassau and Penrhyn.

While the majority of the population reside on Rarotonga, one in four people aged 60 years and over live in the southern group islands of Aitutaki, Atiu, Mangaia, Mauke and Mitiaro. On the other hand of the age group 15 years old and younger, one in ten live in the northern group islands; and just under one in four in the southern group islands outside of Rarotonga.

**Figure 1: Populations by region 2016**



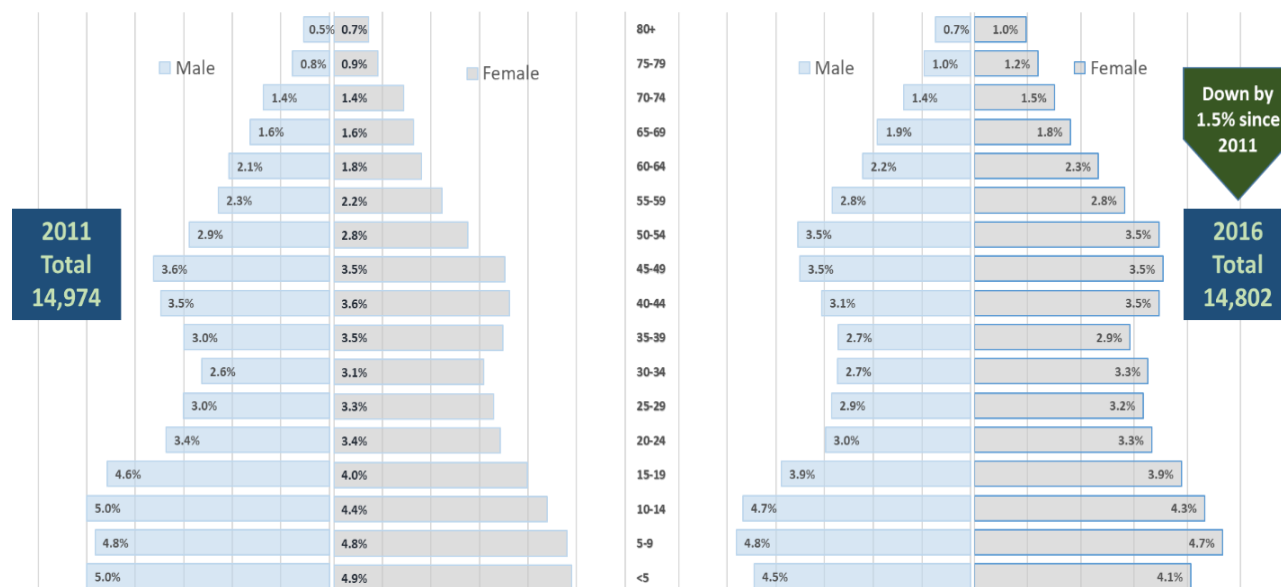
The population pyramids in **Figure 2** show a slight decline in the resident population of the Cook Islands between 2011 and 2016. It highlights changes in the overall age distribution of Cook Islands residents, particularly among the age group under 45 years. This suggests the Cook Islands has an aging population.

<sup>3</sup> Note: Census 2016 figures utilised, next population census due 2021

Children and those of young working ages, represent a decreased in numbers of people in five to 39 year age groups in 2011, to their respective five year older cohorts of 2016. This highlights signs of strong outward migration rather than mortality. The main incentives for migration are likely to be further education, greater employment opportunities, and higher wages overseas.

However, there was an increase in the proportions of men and women aged 50 years and older, increasing by 19% in 2011 population to 28% in 2016. **Note:** Older people are living longer lives indicating increasing number of healthier older people.

**Figure 2: The age distribution of the resident population by gender**



## Fertility and maternal care

### Obstetrics

By the end of 2020 over 95% of pregnancies were in antenatal care through to delivery. The Obstetrics service based at Rarotonga Hospital aim is to optimise maternal and foetal health by means of screening and medical interventions.

Postnatal care coverage rates for both women and new-borns are consistent with the last five years, above the 90% threshold. This indicates women aged 15 - 49 years are attending their pre and after birth antenatal care - four or more visits. Services for mother and child are provided through public health services and also the gynaecology clinic situated at the Rarotonga hospital.

The core function of postnatal care is to meet the needs of the mother and her child following birth. Care during this period address any variation of the expected recovery after birth. This includes guidance on breastfeeding, nutrition, family planning as well as early detection and treatment of complications – care and support for mother and baby ensuring the mother is confident when the aftercare period is completed.

Maternal, child and new-born care indicators are crucial for assessing TMO service coverage which allows insight to quality of care as well as health status of women and young children in the Cook Islands. Rates for these indicators generally show that maternal, child and new-born care coverage in the Cook Islands is of quality service. This is evident by low under five mortality rates and zero maternal deaths since 1995.

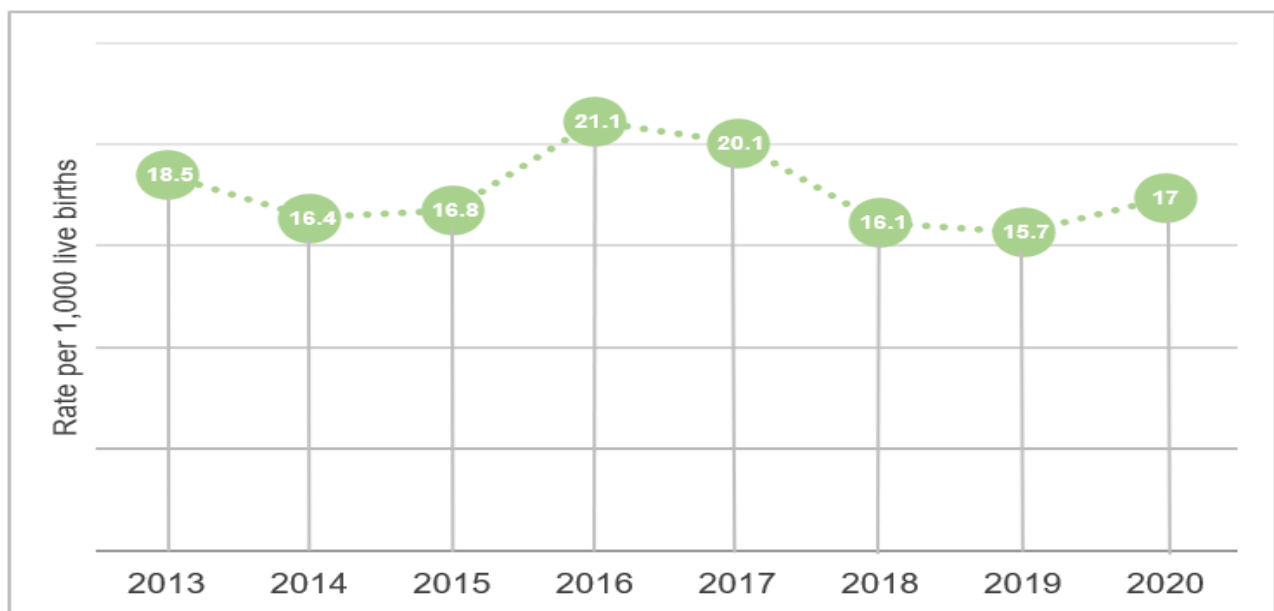
## Births and children

### Live births

All live births that occur in the Cook Islands are attended by a midwife; and a doctor when required. Over a ten year period, 2,456 live births occurred in the Cook Islands – about 156 males for every 151 female live births. For this 10 year period, an annual occurrence of 246 live births.

Crude birth rates appear to fluctuate from 2015 through to 2018 as seen in **Figure 3**. However, the trend mostly shows a decline in live births since 2013 despite a 10% increase of live births in the last year.

**Figure 3: Crude live birth rate per 1,000 Cook Islands 2013-2020**

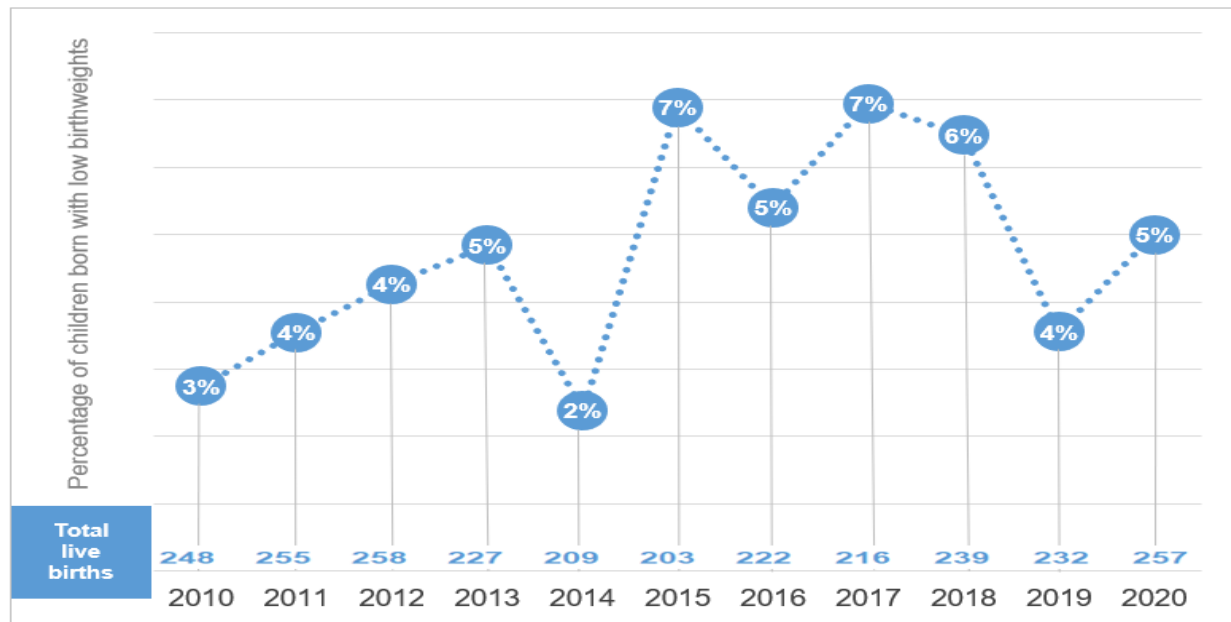


### Low birth weight

Low birth weight is primarily caused by premature birth and a condition called intrauterine growth restriction (IUGR) which occurs when a baby does not grow well during pregnancy. A normal birth weight is between 2,500 to 4,200 grams. In the last year approximately 5% of live births were of low birth weight shown in **Figure 4**.

This trend is also seen in the past ten years cumulatively accounting for 5% of total live births. This indicates that 95% of all live births in the Cook Islands were born within the normal weight range.

**Figure 4: Incidence of live births in the Cook Islands, 2010-2020**



### Exclusive breastfeeding

Data in the last two years indicate over 90% of babies that were born in the Cook Islands were breastfed. However, exclusive breastfeeding rates steadily declined after three months for 50% of babies. Supplements are common during this period correlating with maternal leave lasting between three to six months. Solids are also introduced at this period and between six to 12 months of age, 40% of babies remain breastfed.

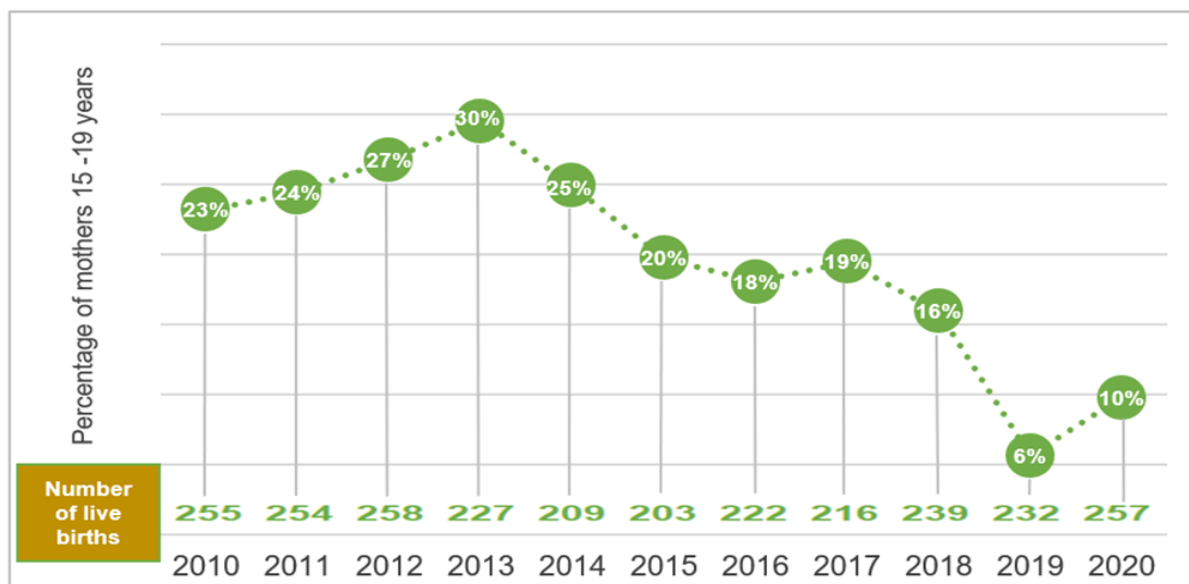
### Adolescent pregnancy

Since 2010, an average of 27 live births to adolescent mothers<sup>4</sup> occur a year. Cumulatively accounting for 11% of total live births over this period. About 7% of live births in the last year were to adolescent mothers, up 3.5% following 2019. However, this is a significant decrease from the last seven years whereby an average of 25% of mothers were classified as adolescents.

Overall, there is a decline in the trend of adolescent mothers to live births as seen in **Figure 5**.

<sup>4</sup> Defined as 14-19 years

**Figure 5: Percentage of adolescent mothers to live births 2010-2020**

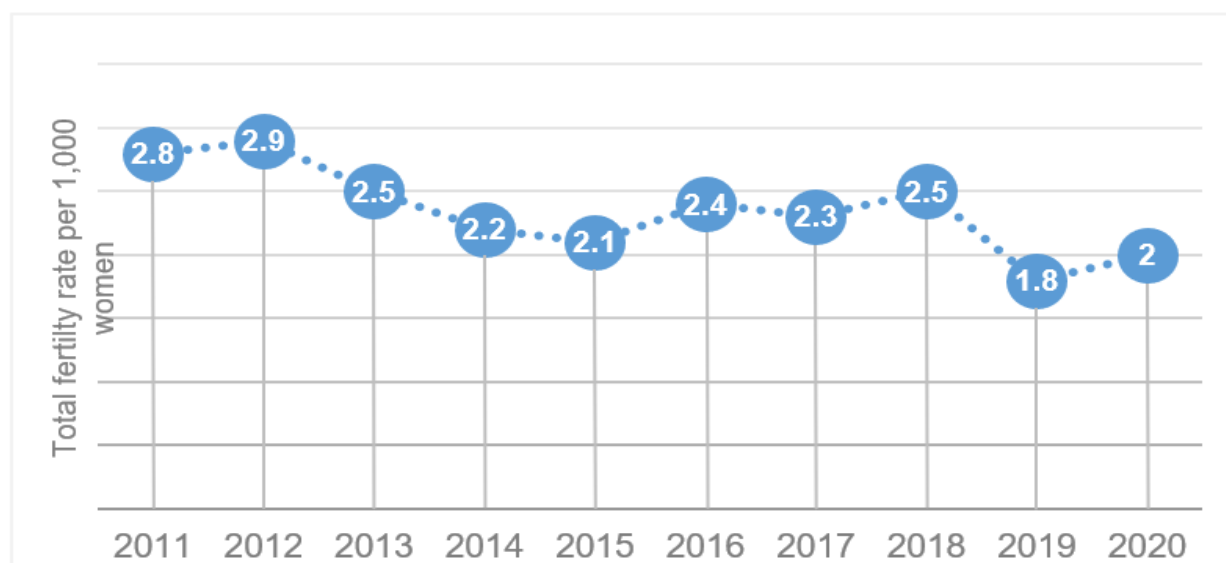


### Total fertility rate

The total fertility rate (TFR) is a measure of the average number of children a woman would give birth to during her child-bearing years (15 - years) experiencing the present-day age specific fertility rates. Consistent with the steady decline seen across previous years, TFR for 2020 is reported at two births per woman as seen in **Figure 6**.

Throughout the years the Cook Islands has remained under the classification of having *moderate fertility levels* – this is defined as a TFR less than 3 but greater than 2.1.

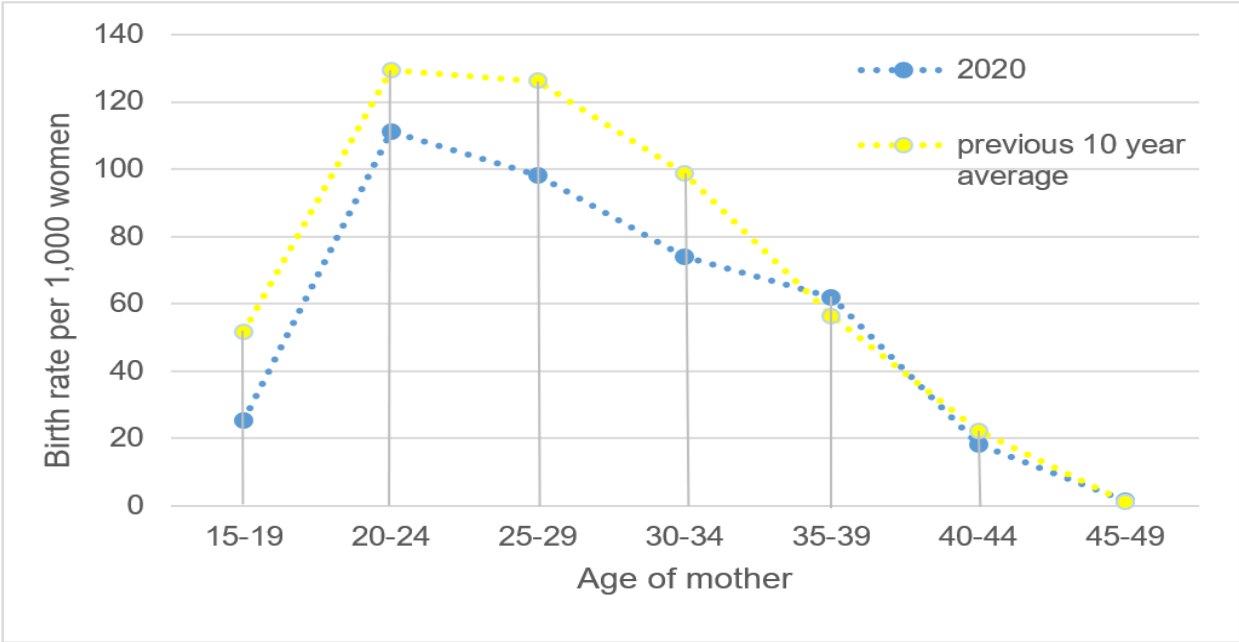
**Figure 6: Total fertility rate per 1,000 women Cook Islands - 2011-2020**



Looking at TFR for 2019 and 2020 shows low fertility levels ranging 2.1 or less which could suggest further decline of fertility levels in the Cook Islands.

In **Figure 7**, the highest number of births in the Cook Islands in 2020 occurred amongst mothers aged between 20 to 24 years in contrast to 2019 where 25 to 29-year olds were the most fertile group. The trend over a ten-year period generally show 20 to 24 years age as the highest fertility group in the Cook Islands.

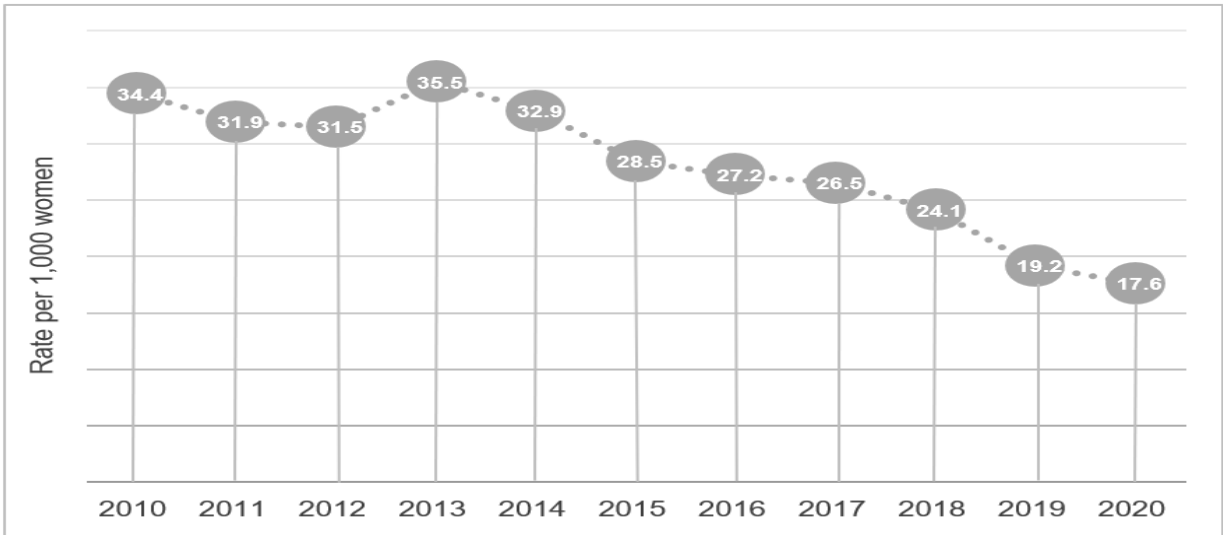
**Figure 7: Age specific fertility rates, previous 10-year average and 2020**



**Contraceptives: Family planning demand**

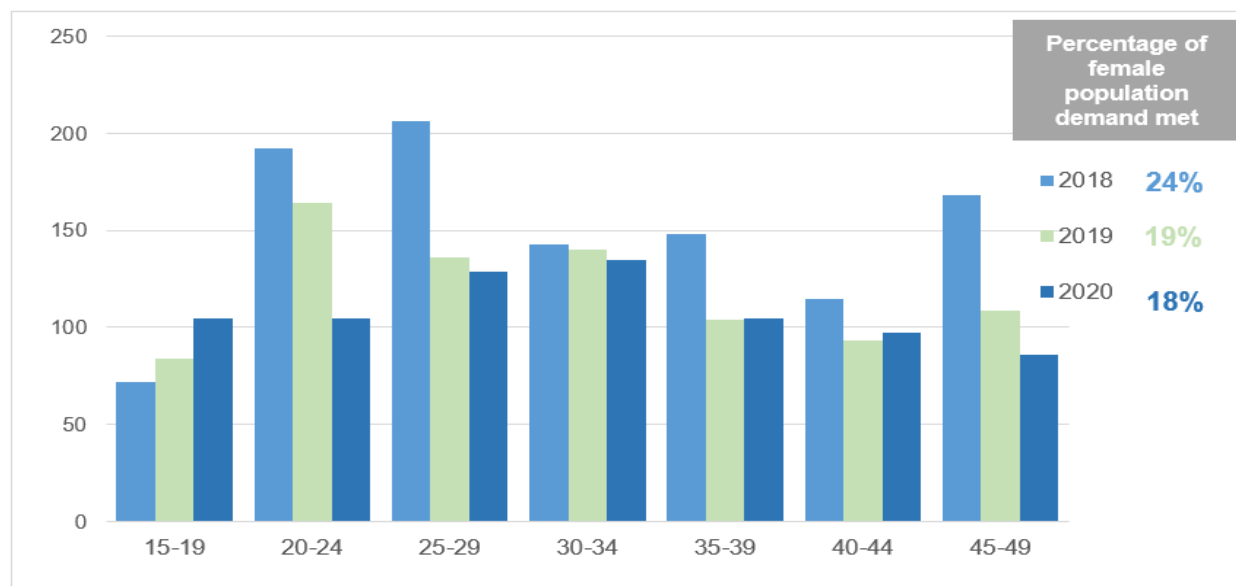
Te Marae Ora offers a variety of modern-day contraceptive methods to support individuals and couples to anticipate and attain their desired number of children as well as the spacing and timing of their births. In the last five years, the number and proportion of women in the child bearing ages of 15-49 years in the Cook Islands reporting utilization of a contraceptive method has declined as seen in **Figure 8**.

**Figure 8: Cook Islands contraceptive prevalence rate 2010-2020**



About 20% of female population have used some form of contraceptive in the last three years. Predominately the Depo Provera (77%), Norplant or Jadelle (12%) and oral contraceptives (9%) amongst those aged 15 to 49 years. **Figure 9** shows the women reporting contraceptive use in the last three years; and shows 50% of total reported contraceptive users range between ages 20 to 34, 40% for age groups 35 to 49 and 10% for female teenage population.

**Figure 9: Cook Islands female population utilizing contraceptives 2018-2020**



Across all age groups there is a decrease in the number of women who are utilising contraceptives each year as seen in **Table 1**. As TFR for the Cook Islands has remained stable, this generally indicates that less women are choosing to use contraceptives that are available.

This can be said for adolescent birth rates as less babies are being born to adolescent mothers. **Table 1** shows that over the last three years only 10% of Rarotonga's female population were utilising a contraceptive.

**Table 1: Rarotonga contraceptive methods by age groups, 2018-2020**

Type	Oral	Intra Uterine Device	Depo Provera	Norplant/Jadelle	Other	Percent
<b>Age group</b>						
15-19	17		221	22	1	10%
20-24	47	1	348	64	1	17%
25-29	51	4	335	78	3	18%
30-34	34	7	312	61	4	16%
35-39	41	7	262	47		14%
40-44	32	5	236	31	16	12%
45-49	22	1	322	16	2	14%
<b>Total</b>	<b>244</b>	<b>25</b>	<b>2036</b>	<b>319</b>	<b>12</b>	<b>100%</b>

## Immunisation

In 2020 TMO established the Cook Islands National Immunisation Register (NIR), an electronic register of immunisation information for the Cook Islands.

In 2021, TMO amended the national immunisation schedule to include vaccinated males for human papilloma virus (HPV) at the recommended age of females starting at nine years. The male population will now be at a lower risk of HPV infections which can be detrimental and can lead to cancer.

Immunisation coverage rates for babies born in the last two years remain over the 90% threshold, this is consistent with reporting from previous years. Immunisation rates for the Cook Islands have remained stable ranging over the 90% desired rates for the last 10 years ensuring protection against diseases as per Cook Islands National Immunisation Schedule.

Dropout rates are relatively low with reasons pertaining to religious views, lack of awareness and migration. Outreach programmes are implemented often to encourage parents and caregivers to immunise their children.

**Table 3: Percentage of children under five years immunised by vaccine (n=1420)**

Vaccine	BCg	Oral Polio Virus (OPV) 1	OPV2	OPV3	Measles Mumps Rubella (MMR) 1	MMR2	DPT4
	Hep1	PENT1	PENT2	PENT3			OPV4
Age group							
Birth	95						
	93						
Six weeks		91					
		91					
Three months			90				
			90				
Five months				90			
				90			
12 months					88		
18 months						88	
Four years							86
							86

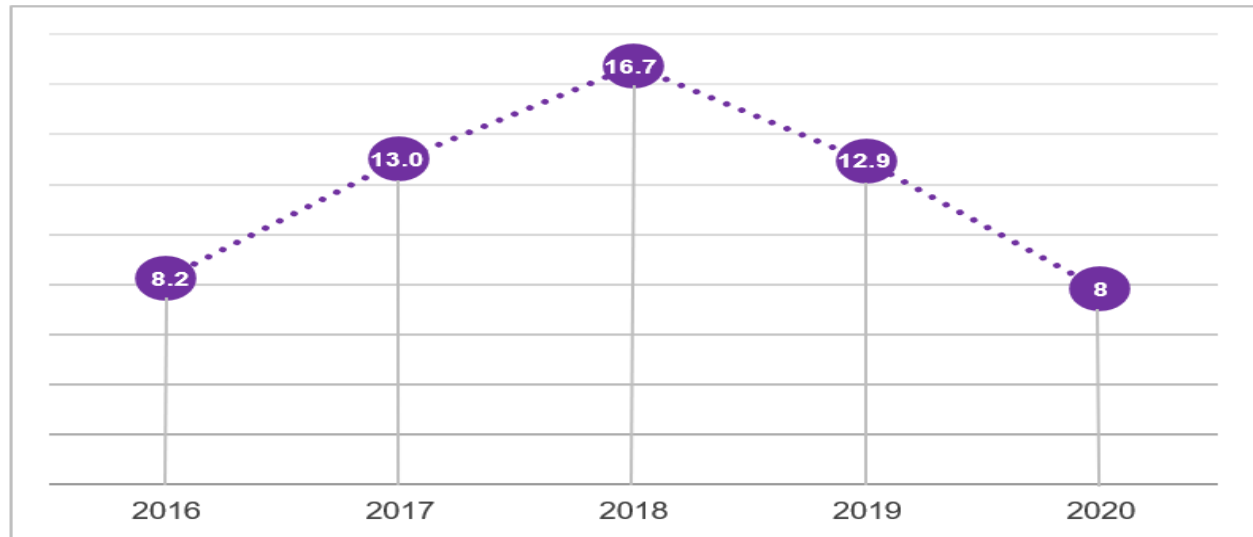
## Adolescent and under-five mortality

The Cook Islands have maintained a low adolescent and under-five mortality rate. **Figure 10** shows over a five-year period an increase peaking in 2018 and decline in 2020. Since 2016, an average of two infants, under-five and adolescent deaths have occurred. An annual occurrence of five deaths across these age groups. The highest number of infant deaths was four, seen in 2018.



Three adolescent deaths occurred in the past two years, two were caused by motor vehicle accidents. Motor vehicle accidents have caused majority of adolescent deaths followed by injuries and intentional self-harm. These rates suggest the infant and adolescent population of the Cook Islands are relatively healthy.

**Figure 10: Under-five mortality crude death rate per 1,000 Cook Islands, 2016-2020**

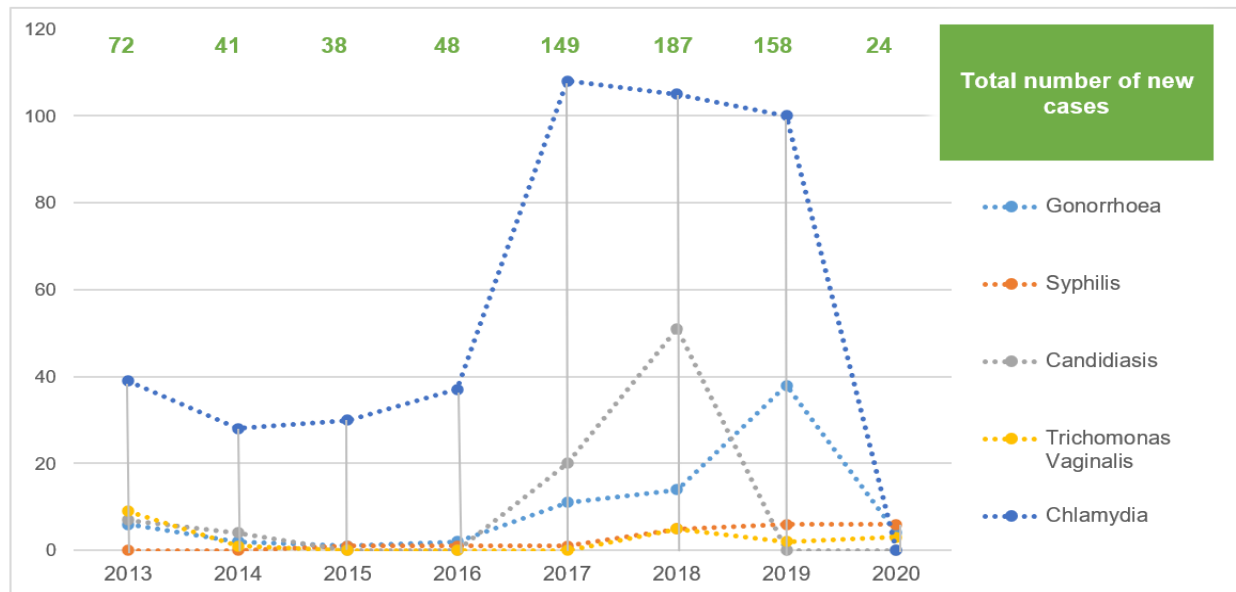


## **Blood borne pathogens (BBP) and sexually transmitted diseases (STI)**

### **Laboratory confirmed**

The number of laboratory confirmed Blood borne pathogens (BBP) and sexually transmitted diseases (STI) has been relatively high for the last five years. Prevalence of chlamydia in the Cook Islands is still prominent with a startlingly 90% increase of diagnosed cases since 2016 as seen in **Figure 11**. Gonorrhoea increased (63%) followed by Hepatitis B and syphilis.

**Figure 11: Top five STI laboratory confirmed cases, 2013-2020**



Sexually transmitted diseases incidence for 2020 is reported at 1.6 lower compared to the last three years, 13 cases of STI per 1,000 population in 2017. Aberration of this figure is likely low for 2020 as there is no laboratory data for this period.

Empiric therapy for chlamydia was implemented by TMO in 2020. This is the common treatment of all patients who present symptoms consistent with chlamydia. This was preferred over the traditional practice of initially testing and treatment due to the high incidence of chlamydia and limited resources for acquisition of testing consumables.

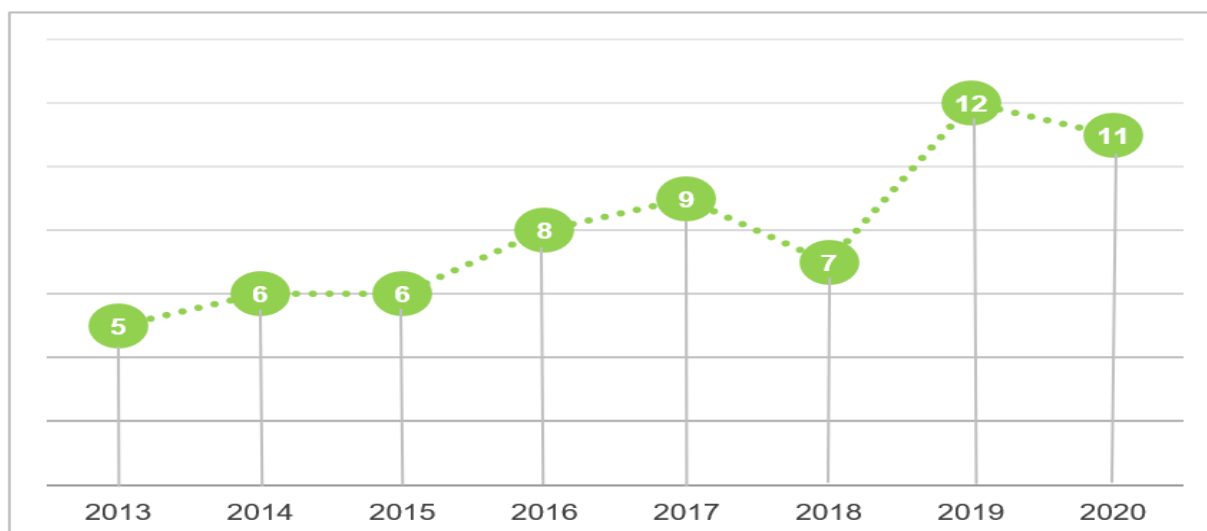
With no available laboratory confirmed chlamydia data, the total number of those treated using empiric therapy allows for insight on the chlamydia situation for this period. A total of 86 prescriptions of azithromycin tablets were prescribed over 2020 under chlamydia empiric therapy we can reason that 86 people were treated for chlamydia.

## Hepatitis-B

Over the last five years in the Cook Islands an annual average of nine hepatitis-b cases were identified. The highest being 12, in 2019

As seen in **Figure 12**, the trend generally shows more people are affected each year particularly in the last two years.

**Figure 12: Laboratory confirmed hepatitis-B cases, 2013-2020**



### **Congenital syphilis rate**

Congenital syphilis is a chronic infectious disease caused by a spirochete (*treponema pallidum*) acquired by the foetus in the uterus before birth – symptoms take several weeks or months after birth and in some cases may take years to appear. This infectious disease is one of the many screened for during antenatal visits and as of 2020 there remains no reported cases on congenital syphilis since the early 2000's.

### **Human immune deficiency virus (HIV)**

No cases of Human immune deficiency virus (HIV) have been detected in the Cook Islands, the incidence and prevalence of HIV remain at zero. Prior to 2019 there remained a cumulative of two imported cases of HIV living in the Cook Islands since 2008 – one male and one female. Currently there remains only one imported case of HIV living in the Cook Islands.

Antiretroviral therapy (ART) is designed to allow people living with HIV to live a healthy life as well as limit transmission risks. Te Marae Ora does not provide ART therapy however have managed these cases by way of monitoring CD4 count and viral load testing conducted throughout each year. There have been no reported instances of unsuppressed viral load.

There are a number of non-government organisations who, in collaboration with TMO campaign for HIV awareness in the Cook Islands by way of annual screening. In the last year, just under 2000 people were tested for HIV, 69% were females while noting that all women booked for antenatal care are tested for HIV. Prevalence of mother-to-child transmission remain at zero as there have been no cases of HIV detected.

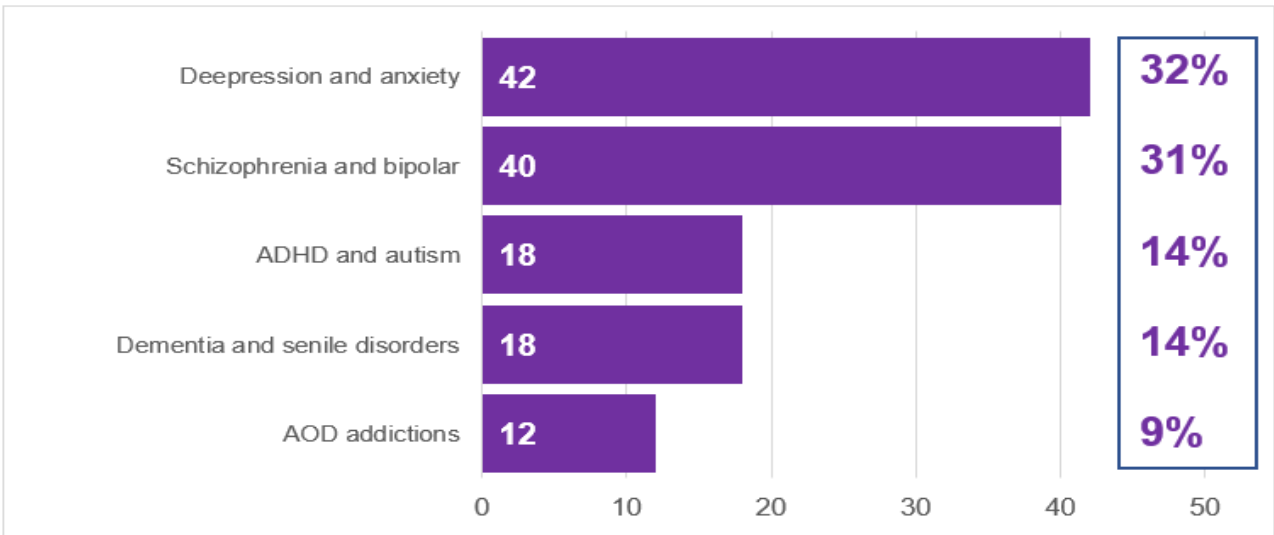
# Mental health

## Incidence rate

The number of newly diagnosed mental health cases in the Cook Islands over the last two-years indicated a slight increase opposed to previous years, the incidence rate of 5.7 which is about 6 cases per 1,000 population.

**Figure 13** reflects mental and behavioural disorders in the last year – this accounts for service coverage of Rarotonga, Aitutaki, Atiu and Rakahanga. The majority of the mental health population (55%) are males.

**Figure 13: Number and proportion of mental and behavioural disorders, 2019-2020**



## Admissions due to mental health

The last five years saw an annual average of 36 patients. The highest admission was 41 seen in in the last two years – a 36% increase since 2017.

An annual average of about 11 inmates in Rarotonga Prison received long-term treatment for mental and behavioural disorders.

## Substance abuse and service access

Alcohol and other drugs addictions show alcohol dependence (75%) as the main diagnosis opposed to cannabis (25%). About 30% of alcohol dependents were female and all cannabis dependents male – across both substance diagnosis an average age of 20 to 44 years.

In contrast with the incidence rate for newly diagnosed mental health cases – figures in the last two years show that 15 per 1,000 population accessed mental health services. This is the highest seen compared to previous years with 54% of utilization being women.

This only reflects those who sought counselling and therapy for on two or three occasions compared to those diagnosed with a mental disorder. The proportion of the nature of mental

health services accessed over the last two years show that majority received care for anxiety, mood disorders and insomnia.

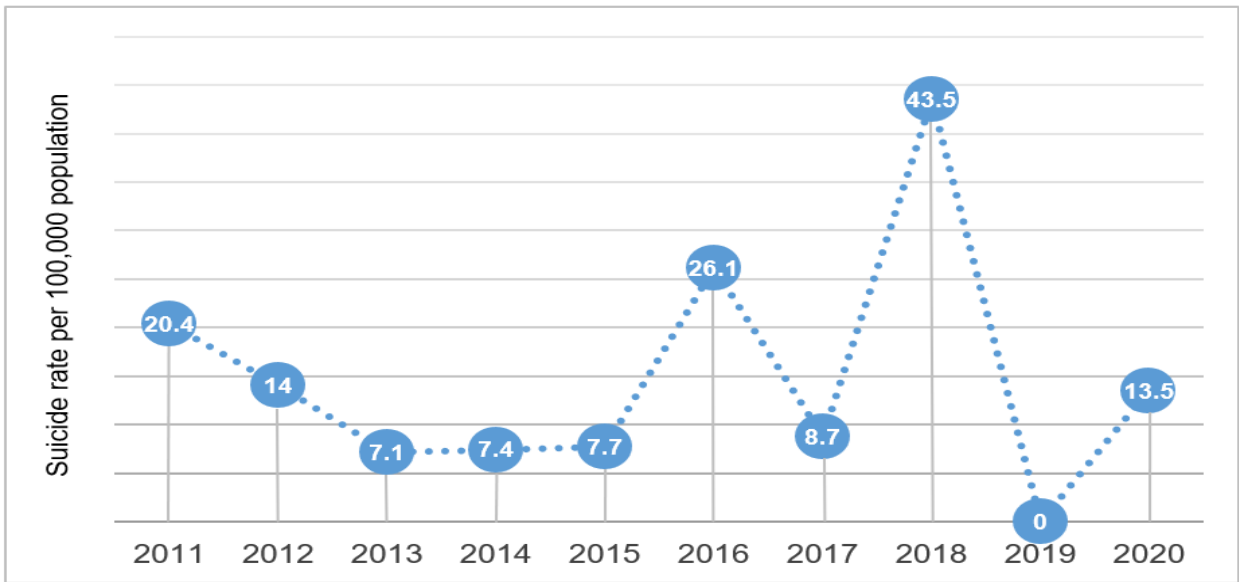
About 4% of mental health population were managed as high-risk of self-inflicting – gender proportion were equal for those who experienced suicidal thoughts and behaviour following failed suicide attempts.

**Suicide**

A total of 34 deaths occurred from intentional self-harm in the last 15 years – an annual occurrence of two deaths to intentional self-harm per year. Majority of the cases occur on the mainland of Rarotonga.

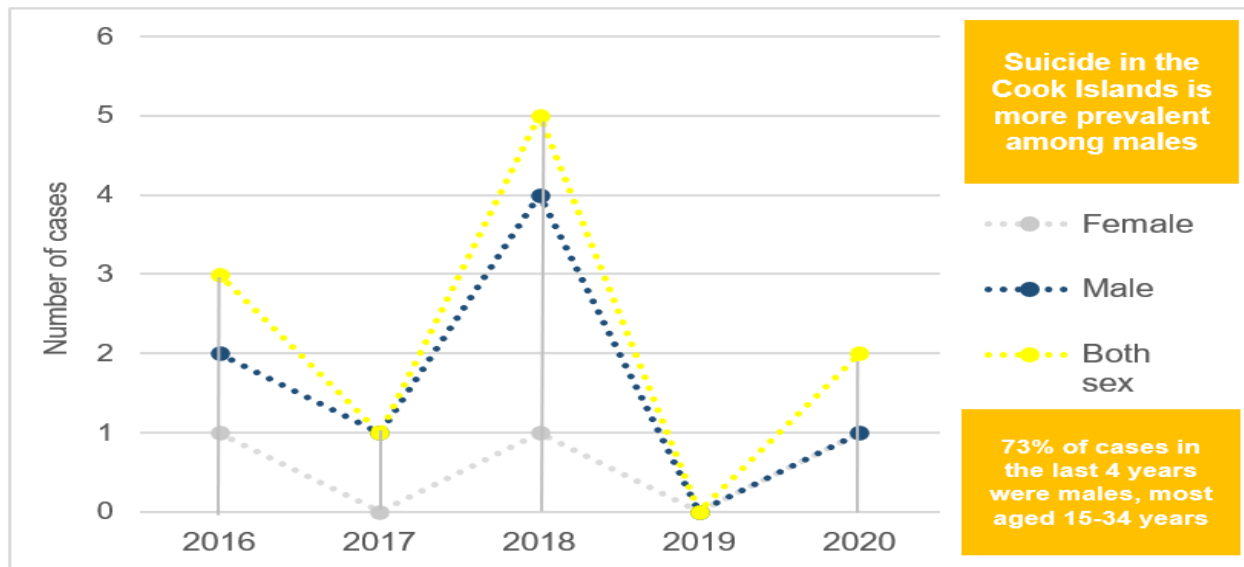
**Figure 14** shows suicide rates expressed per 100,000 for the Cook Islands, two key findings over this period generally show the trend has remained stationary with a spike of five deaths occurring in 2018 to a drop of zero deaths the following year. Two deaths occurred in 2020.

**Figure 14: Suicide rate per 100,000 Cook Islands, 2011-2020**



In the last four years, males were the most affected by suicide as seen in **Figure 14**. This trend is seen also reflecting over the last fifteen years in which males accounted for a disheartening 83% of suicides.

**Figure 15: Suicide by sex, Cook Islands 2016-2020**



## Injuries, motor vehicle accidents and others

### Cook Islands Injury Surveillance (CIIS)

The collection of data describing the occurrence of, and factors associated with injury in the Cook islands for the last two years. **Figure 16** reflects superficial injuries which are the simplest in terms of healing reported the highest number of cases followed by fall accidents and traffic injuries. About 60% of injuries were male.

For this period, of the total injuries treated and discharged, only 7% were hospitalised shown in Figure 16 – half of those admissions attributed to motor vehicle accidents to which 66% were alcohol related. Data indicates males aged 15-34 years to be the most affected.

**Figure 16: CIIS proportion of reported injuries 2019-2020**

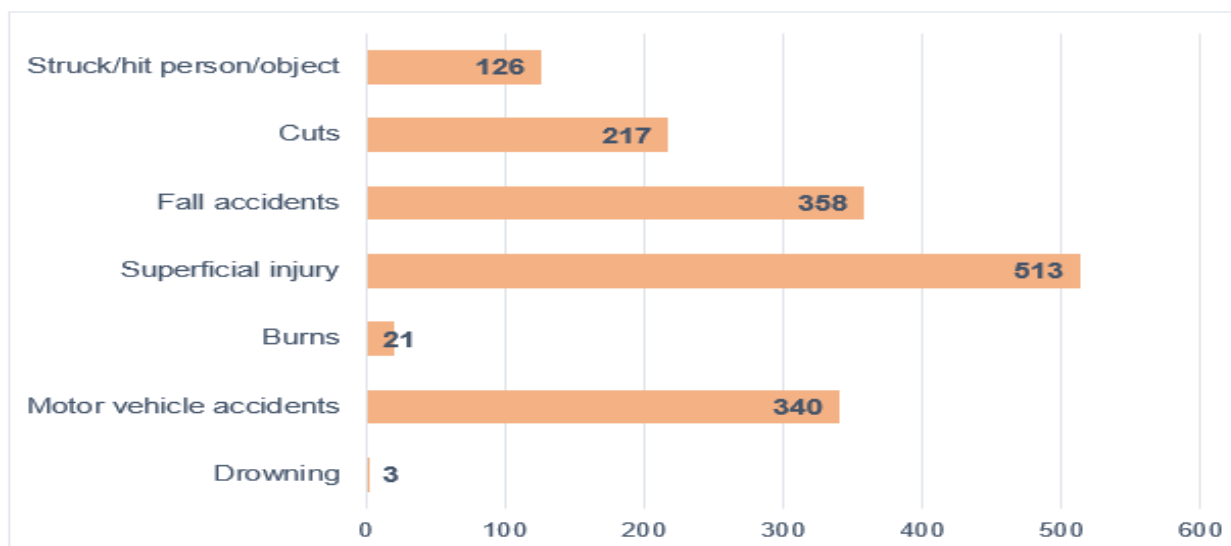
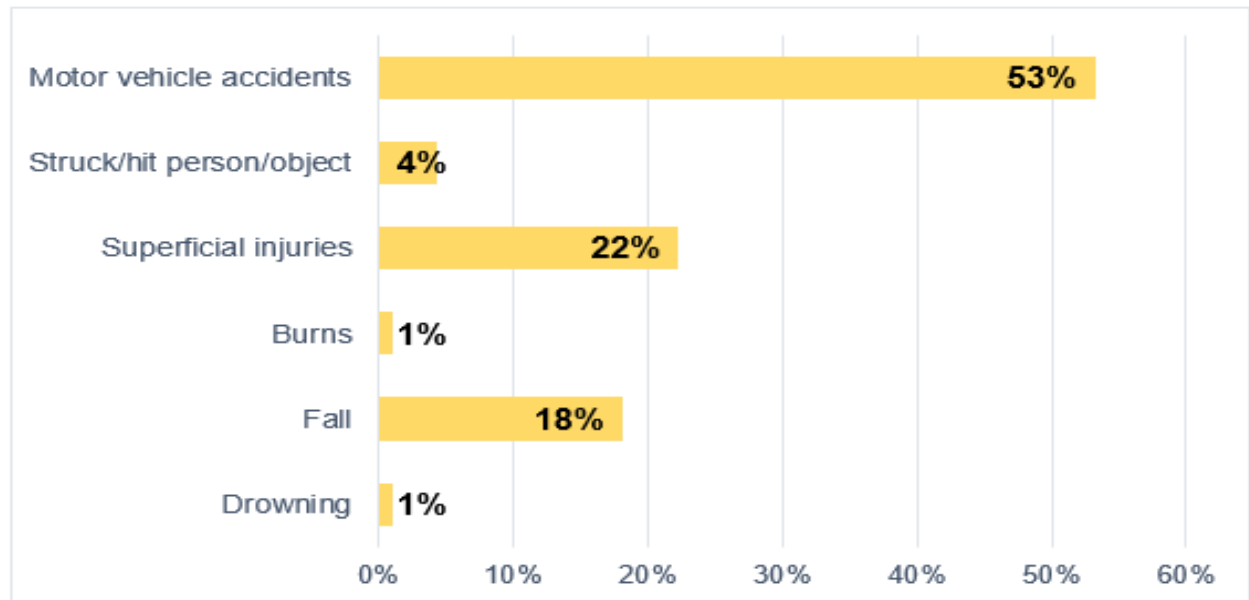


Figure 17: Percentage of injuries hospitalised 2019-20



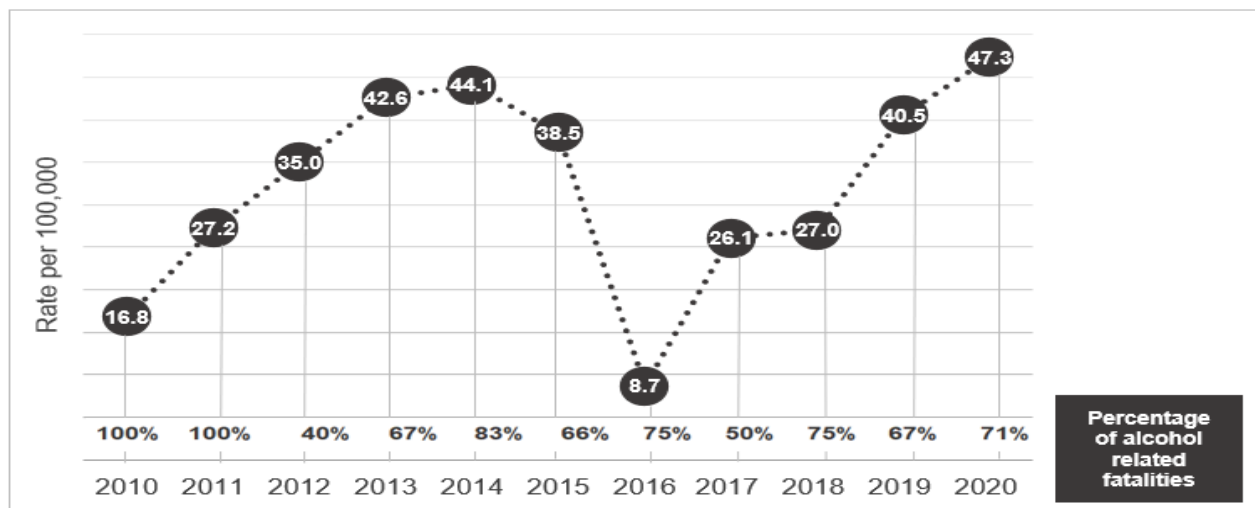
### Motor vehicle accidents (MVA)

Cook Islands report the highest number of motor vehicle related fatalities in 2020 at a rate of 47 per 100,000 population as seen in **Figure 18**. Seven fatalities occurred, 71% were related to alcohol.

In the last decade, a yearly average of five deaths due to motor vehicle accidents occurred. There are at least fifty-two motor vehicle related admissions a year – over 50% are alcohol related as shown in **Figure 19**.

Interestingly, there was a 19% drop seen in motor vehicle admissions in 2020 despite reporting the highest number of fatalities. The Cook Islands established compulsory helmets during this period which could be reflective of the drop in motor vehicle admissions.

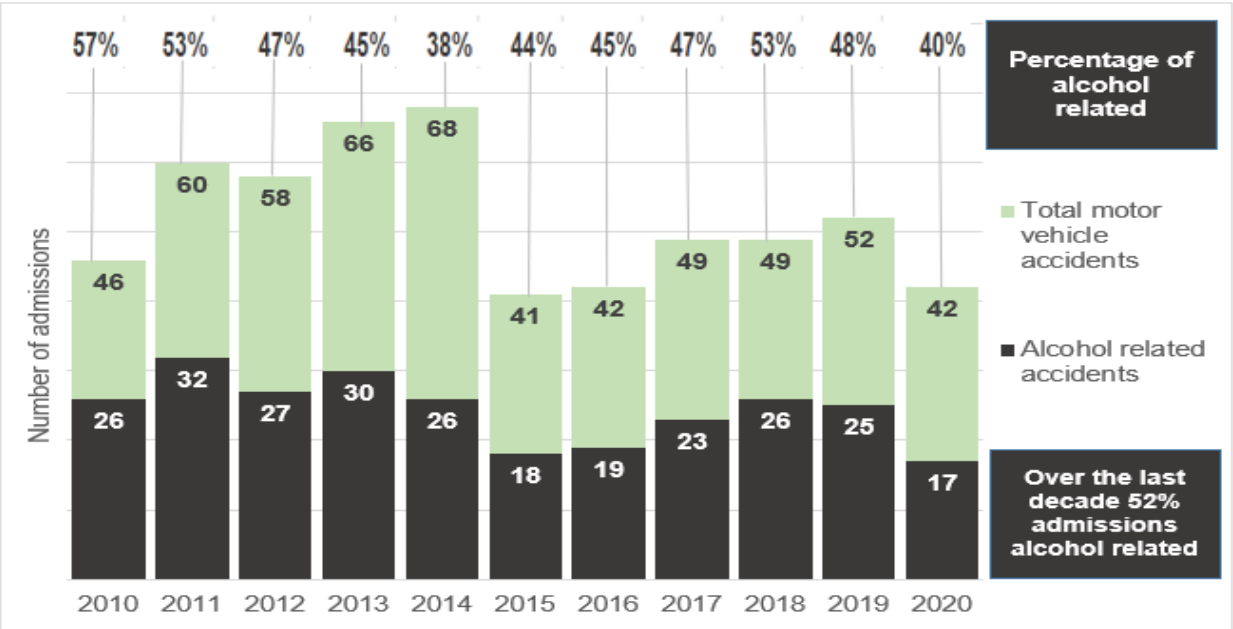
Figure 18: Death rate to motor vehicle accidents 2010-2020



Helmets reduce risks of head injury for only motorbike users and provides no help for those involved in car and truck accidents. Figures in the last year suggest a causation of helmets on the admissions of motor vehicle admissions though it is too soon to suggest helmets have impacted the prevalence of motor vehicle related fatalities.

The trend and figures allude to alcohol as a leading factor relating to motor vehicle accidents and fatalities. This demands a need for focus and interventions on alcohol control to harbour true regression of motor vehicle fatalities in the Cook Islands.

Figure 19: Motor vehicle accident admissions vs alcohol related 2010-2020



**Ciguatera poisoning**

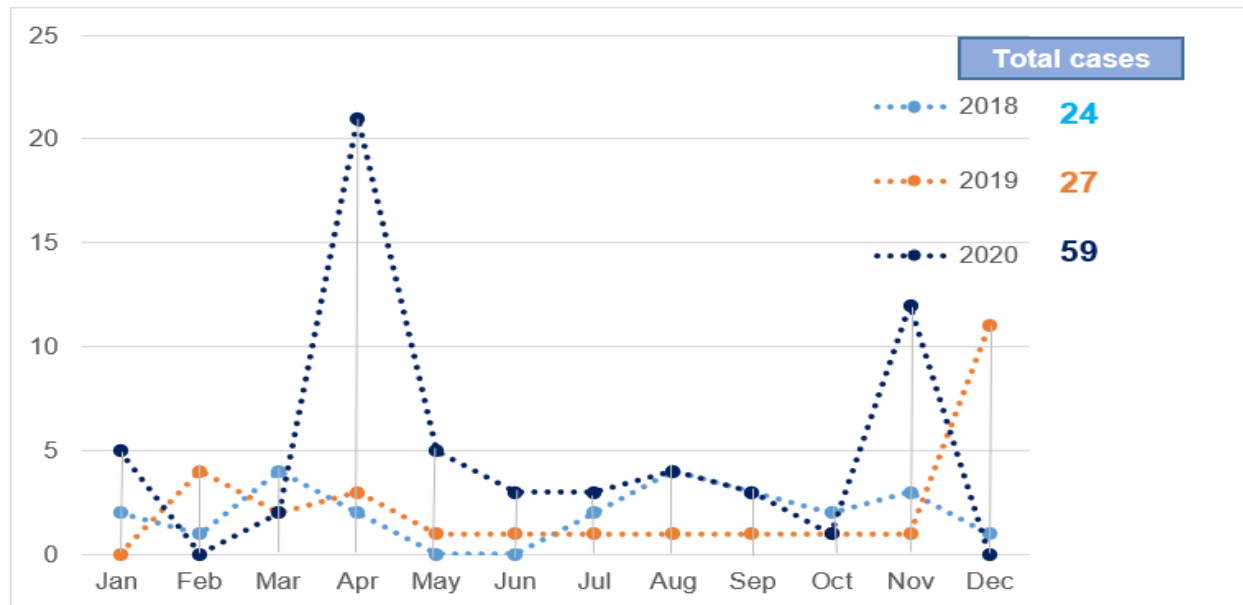
An annual average of 45 cases occurred over the last five years. **Figure 20** shows a spike of 59 cases in 2020 with an average of 5 cases a month compared to 2 cases in 2019.

Since 2018, about 93% of cases were males with majority occurring in the first and last quarters.

In the last three years, only 4.5% of cases were hospitalised with no fatalities occurring from fish poisoning.



**Figure 20: Fish poisoning cases by month 2018-2020**



## Dengue

Under TMO health protocols, five cases of dengue warrants declaration of an outbreak. The DENV-1 strand of dengue was present in 2019 when an outbreak in February was declared. This continued until DENV-2 was identified the following year, 2020. Public health control measures were ongoing.

While most of the cases were reported in Rarotonga, some cases were identified in the Pa Enua – Aitutaki and Pukapuka.

Control measures included:

- Vector control programme example peri-focal and block-spray treatment.
- Operation Namu – collaboration of public sector, parliament approved one day dedicated to community action.
- Targeted awareness encouraging community engagement by keeping homes clean to remove mosquito breeding and resting sites.
- Tutaka (environment risk assessment).

Over the last two years, the Cook Islands reported over 380 dengue cases (probable and confirmed) not including suspected cases with 11 cases reported in the Pa Enua. Majority of cases were probable (61%), DENV-1 (23%) and DENV-2 (16%).

Of the total dengue cases, 20% was hospitalised – 62% probable, 25% DENV-1 and 6% for DENV-2.

TMO hold procedural preventive measures that all dengue cases hospitalised sleep under an insecticide treated net (ITN) preventing further spread of the disease, this means that 100% of cases admitted are protected.

There is no specific cure or treatment for dengue virus. For decades TMO have maintained a conservative treatment system. This is a type of medical treatment defined by the avoidance of invasive measures and procedures – simply medication, lots of fluid, food and rest.

In 2020, a spike in dengue cases was experienced in the first quarter which steadily decreased through to the start of the last quarter. With only two probable cases reported within 6 weeks (Epi weeks 38-43), the Dengue outbreak in the Cook Islands was declared over in October.

Concluding 2020, no fatalities to dengue occurred in the Cook Islands for over forty-years where a few lives succumbed to DENV-4 in the 1980's. TMO public health control and response measures have advanced since then.

## **Non-communicable diseases**

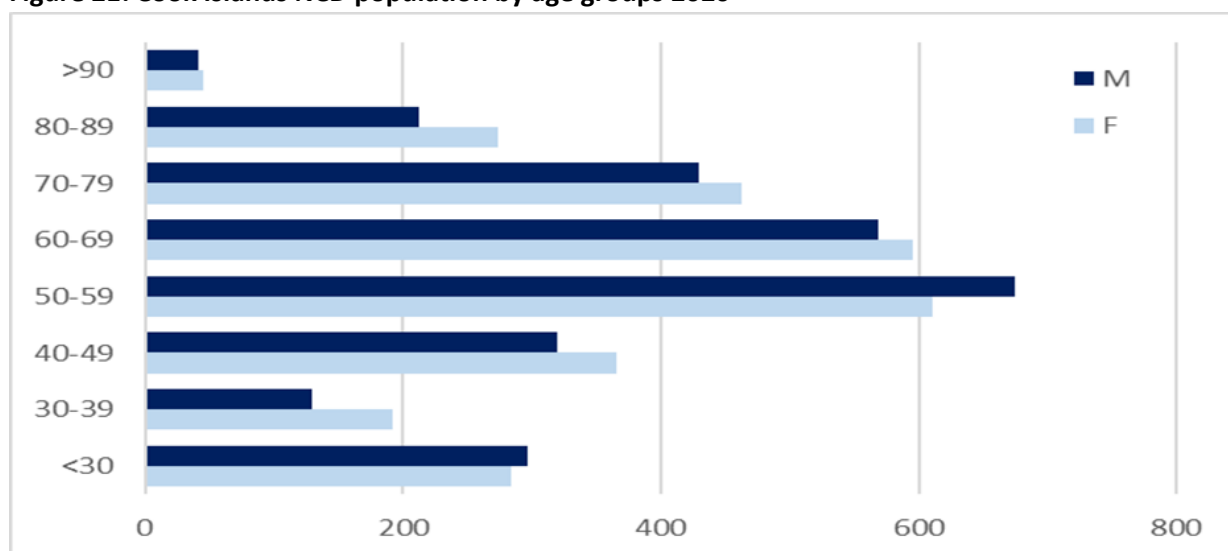
### **Prevalence and incidence rate**

The Cook Islands is burdened with high prevalence and incidence rates of non-communicable diseases (NCDs). This group of NCDs is not transmissible directly from one person to another, NCD's include: stroke, heart disease, cancer, diabetes.

In the last four years an annual average rate per 1000 population for NCD incidence is 21 with prevalence at 460 per year. In contrast, gender and age have remained steady over the last twenty years. Cardiovascular diseases (CVD) which includes hypertension, stroke, renal failure, heart failure, heart diseases and myocardial infarction is the most prevalent NCD's in the Cook Islands. This is followed by diabetes, chronic obstructive pulmonary diseases (COPD) and cancer.

There are nearly 5500 people diagnosed in the Cook Islands with an NCD, majority of cases are living with comorbidities. This consists of 51% female and 49% male which represents 59% of Cook Islands resident population (15-64 years).

**Figure 21: Cook Islands NCD population by age groups 2020**



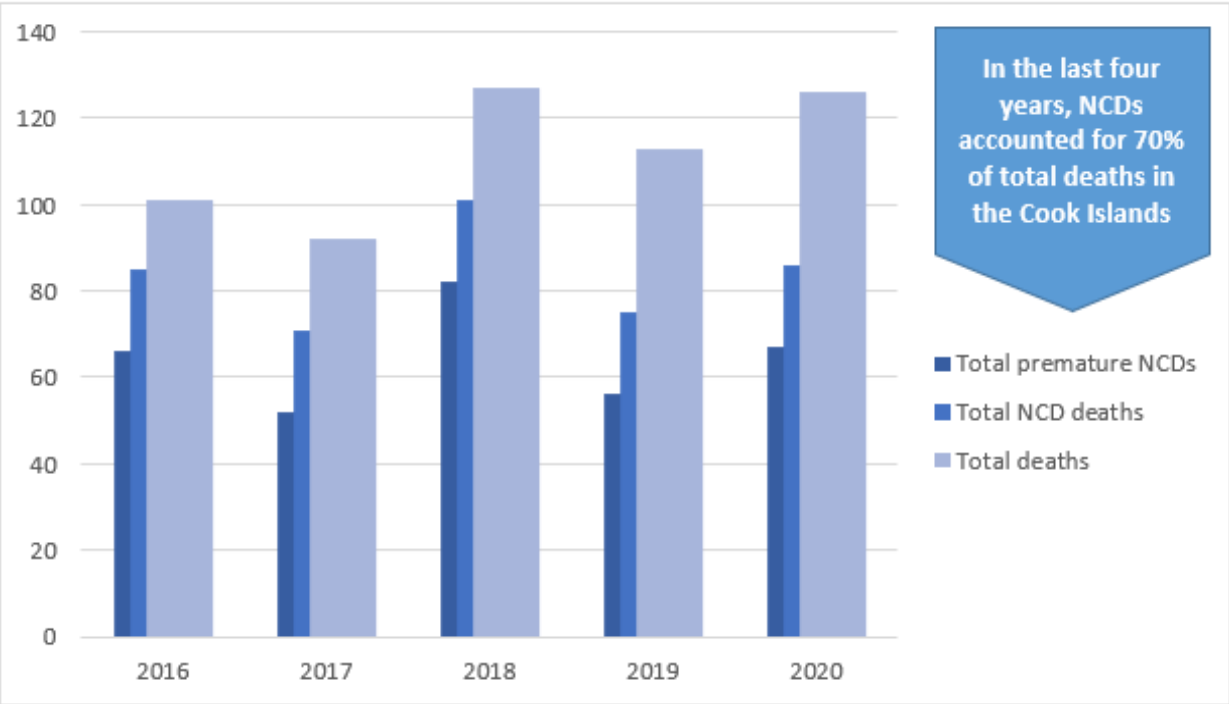
Similar to previous years, 50-69 years age group remain the largely effected population for NCD accounting for 45% of cases as seen in Figure 21. However, over the last three years more cases are seen diagnosed in the <30 years age group. This indicates a concern for the younger population and highlights TMOs focus to address NCDs by prevention and control measures.

#### **Deaths from NCD's including premature**

NCDs are the main cause of deaths in the Cook Islands reflecting an annual average of 72% for deaths in the last four years with about 25% occurring premature<sup>5</sup>. Note a drop since 2018 accounting for 69% of total deaths over 2020 as seen in **Figure 21**.

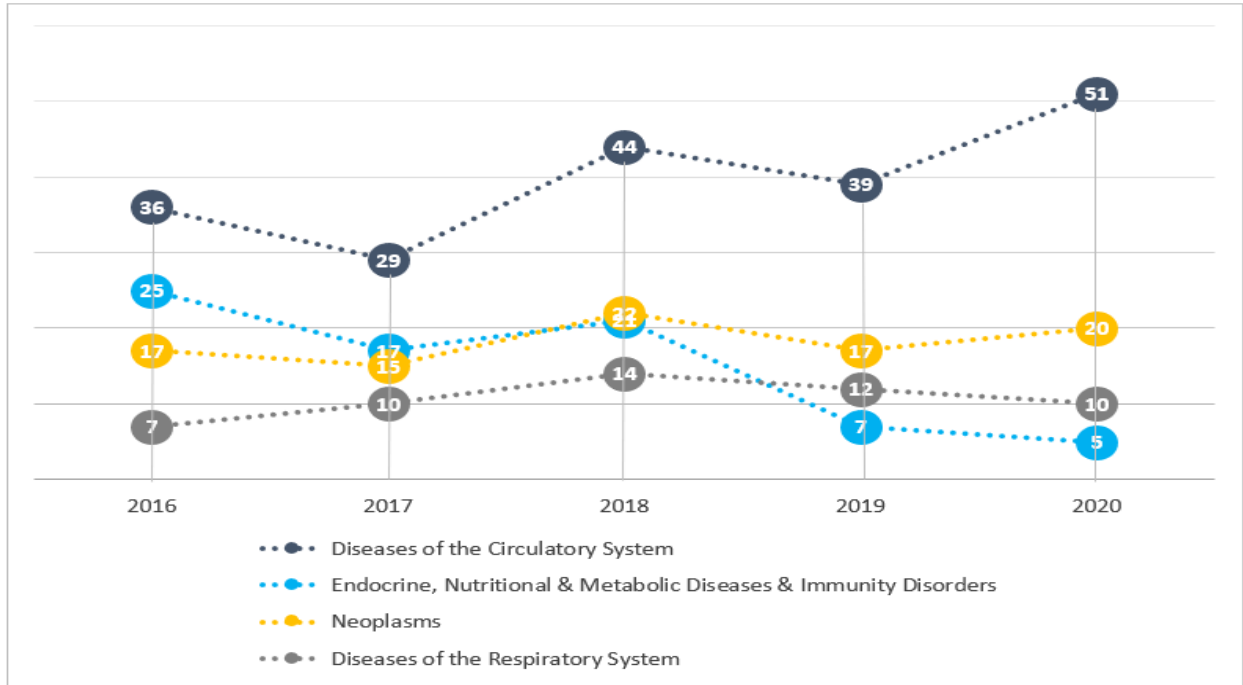
<sup>5</sup> Premature deaths to NCDs defined as 30-69 years

Figure 21: Cook Islands NCD deaths vs total deaths 2016-2020



Consistent with previous years the leading cause for NCD deaths attributed to heart diseases followed by cancer and diabetes as seen in **Figure 22**. Furthermore, deaths attributing to diabetes and diseases of the respiratory system have dropped since 2018.

Figure 22: NCD deaths by groupings 2016-2020



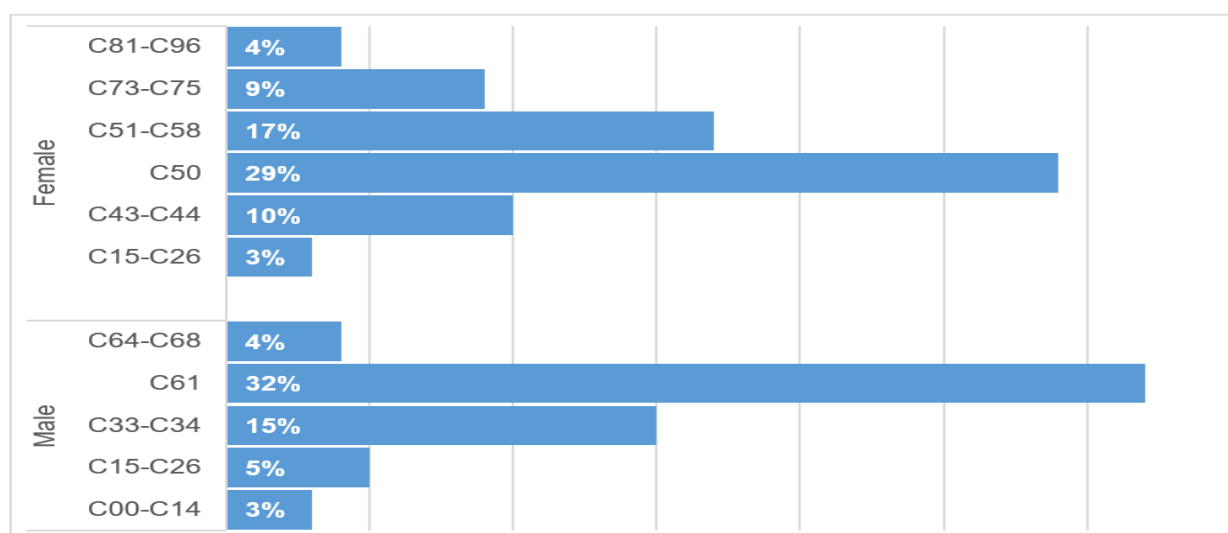
## Cancer

In the last five years about 25 people are diagnosed with cancer each year. The prevalence of cancer in the Cook Islands is a growing concern and has increased 30% since 2018.

This trend is seen as well with incident rates indicating more people are diagnosed with cancer each year. The highest number of cases diagnosed was seen in 2019 with a rate of 37 per 1000 population and fewer cases reported over 2020.

TMO screen and diagnose for cervical cancers while other types are diagnosed through health specialist visits or resulted in a laboratory overseas.

**Figure 23: Cook Islands, incidence of cancer types by ICD-10 coding, 2012-2020**



Prostate and neoplasms of the skin are the prevailing cancer types effecting males since 2012 as shown in **Figure 23**. Between both sex groups, only 18% of women were affected by neoplasms of the skin.

Breast, neoplasms of female genital organs and neoplasms of the skin are the dominant cancer types effecting the Cook Islands female population.

## Health facilities and service coverage

### Health facilities

The Cook Islands has capacity of services to provide basic primary and secondary care. New Zealand provides support for Cook Islanders who are medical referrals.

Services are provided at minimum costs including free medication, compared to other Pacific countries where health care is inaccessible due to location and resources.

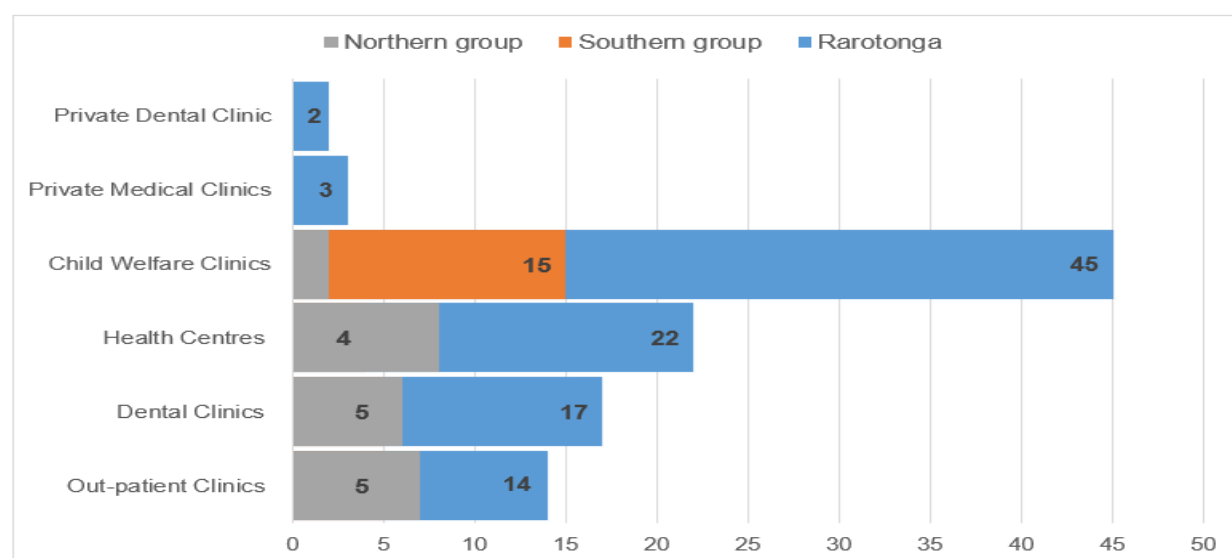
Those over the age of 60 and students aged 16 and under are provided with free healthcare and check-ups.

Overseas specialists' visits on an annual basis assist to aid healthcare provided by TMO. Much needed surgeries, screenings such as breast cancer and eye issues are completed during these annual visits. However, due to COVID-19 HSVs was suspended over 2020.

Capacity has improved across TMO facilities, policies and workforce over this year in preparation and response to COVID-19. **Figure 24** reflects the health facilities in the Cook Islands.

Key milestones include an increase of bed capacity at Rarotonga Hospital, Oxygen plant, two negative pressure rooms as well as acquisition and anticipated instalment of a CT scanner and RT-PCR lab early 2021.

**Figure 24: Health facilities available by region and island, 2020**



### Health workforce

Ending 2020, TMO health workforce density identified 26 doctors, 120 nurses and 96 allied health workers (headcount). As per 1000 population that is 1.7 doctors, 8.1 nurses and 6.5 allied health workers. A report by WHO indicates that a threshold of 4.1 doctors and nurses per 1000 is the minimum density of health workers to attain high coverage of maternal and new-born health.

This highlights the density of TMO nurses and allied health staff met as well as the shortage of doctors to maintain high coverage of skilled birth attendance. It is important to note that this threshold does not account for broader range of services and challenges including NCDs. Given the burden of NCDs in the Cook Islands, there remains a shortage of skilled health workers.

A shortage of skilled health personnel remains an ongoing challenge. The majority of clinicians are based on Rarotonga. The Pa Enua has a small number of doctors but primarily nurse practitioners provide the population with healthcare. Patients that require further care are medically referred accordingly to Rarotonga Hospital on to New Zealand.

## Health clinics

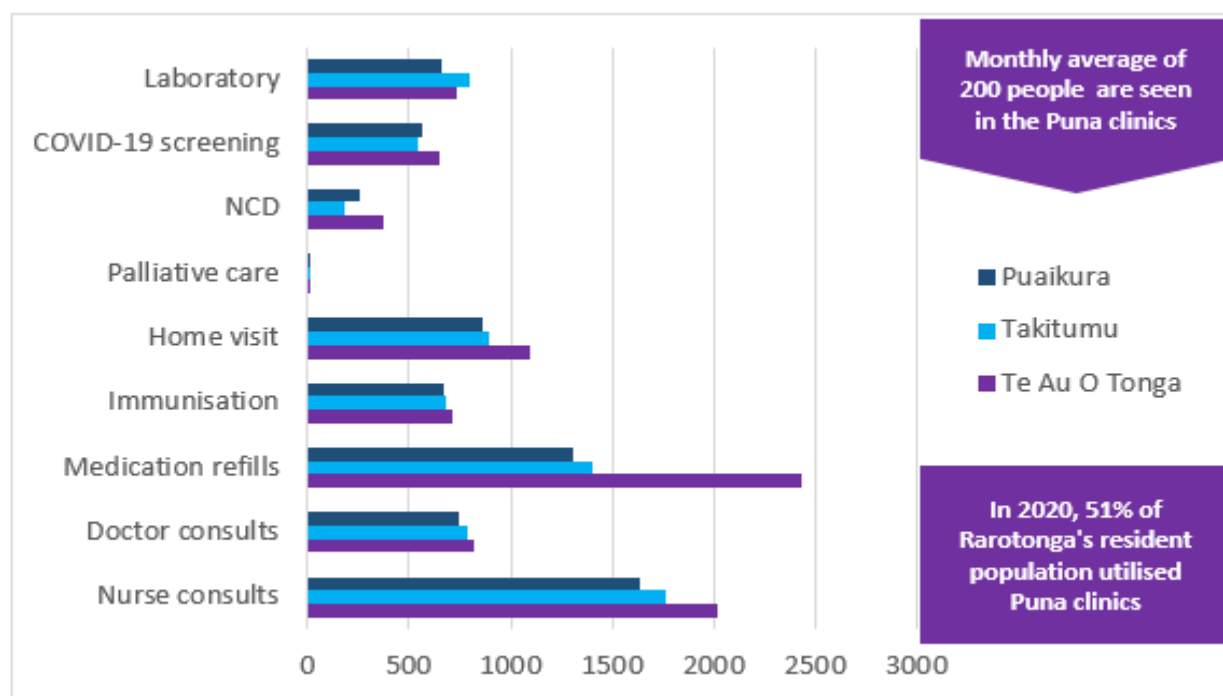
COVID-19 fast tracked the inception of Puna clinics during 2020 which saw 10 Puna clinics established on Rarotonga. The initiative was to move primary care into the local village settings, providing ease of access for elderly, the vulnerable and wider community.

Rarotonga hospital relocated all emergency activities to Tupapa Outpatients, and now only provides secondary care (except obstetrics cases for gynaecology appointments).

To alleviate overcrowding at the Tupapa emergency outpatients, patients were encouraged to see their local puna clinic. Majority of primary health care services are provided at the local Puna clinics. The clinics are managed by nurse practitioners supplemented by doctors' visits on alternate days.

Dental services are also being provided in the community clinics to ensure all have ease of access to this health service. Dental services provided through the Puna clinics are captured in oral health reporting.

**Figure 25: Rarotonga Puna service coverage by Vaka groups 2020**



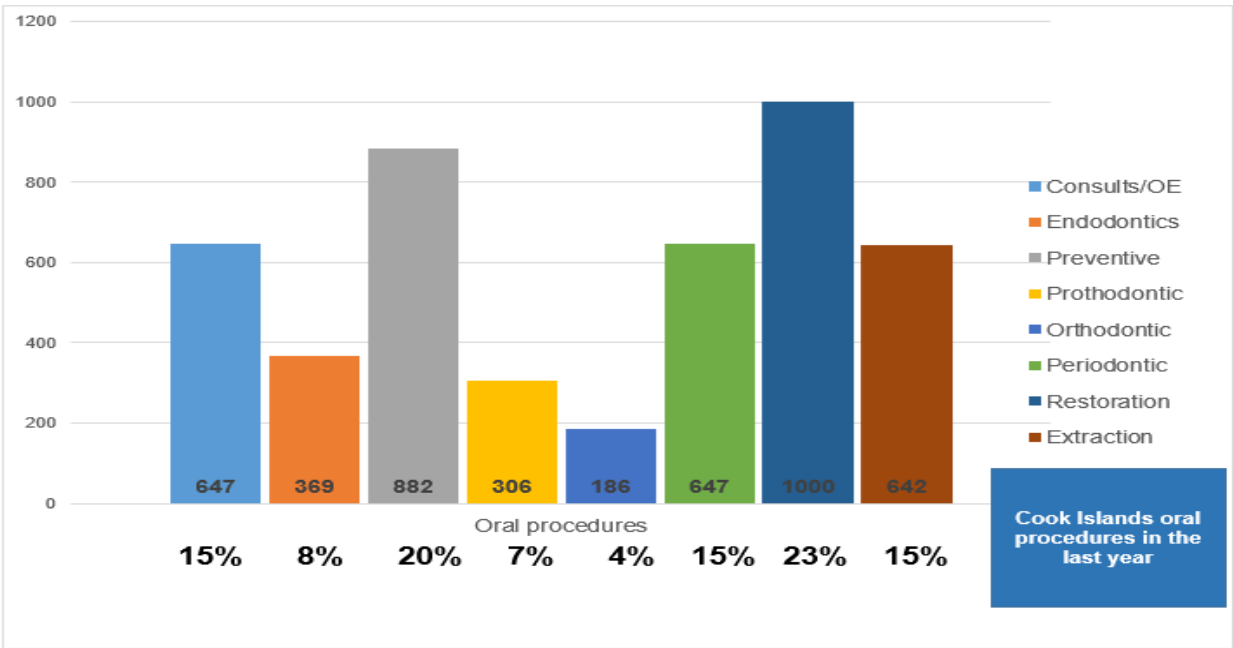
**Figure 25** shows the service coverage for Puna clinics by Vaka groups – over 22,000 consultations occurred consisting of dressings, home visits, medication refills to COVID-19 screening. Over the last year, a monthly service average of 200 people are seen in the Puna clinics indicating 51% utilisation and access by Rarotonga's resident population. **Note** laboratory for example consists of blood specimen collection.

Where practicable, ongoing support in response to COVID-19 amidst daily operations was provided by Puna clinics. For instance, COVID-19 screening includes swabbing and advising of test results.

**Oral health**

In the last three-years, an average of 4,410 dental consultations occurred – 99.8% of the dental patients seen were aged two-years and over, infants consulted were seen for oral examinations and preventive procedures. About 24% increase of consultations compared to years 2016 through to 2018. Restoration (23%), preventive (20%) and periodontics’ (15%) were the top three reasons for dental visits over 2019 and 2020 as seen in **Figure 26**.

**Figure 26: Number and percentage of oral procedures, 2019-2020**



This is steady with previous reporting where restoration and periodontal procedures are the most prevalent in the Cook Islands. More preventive procedures were completed compared to periodontics’ procedures over the last year.

Preventive oral health procedures include routine oral exams, x-rays, treatments and oral health advice to encourage and improve oral hygiene habits to those receiving care as well as the wider community.

This indicates a positive shift particularly for the trend in periodontal procedures declining over the last three years. Though the prevalence of periodontal diseases is common being one of the two major oral diseases effecting the Cook Islands. The number of periodontal procedures has decreased in the last three years suggesting that less people are being treated for this disease.

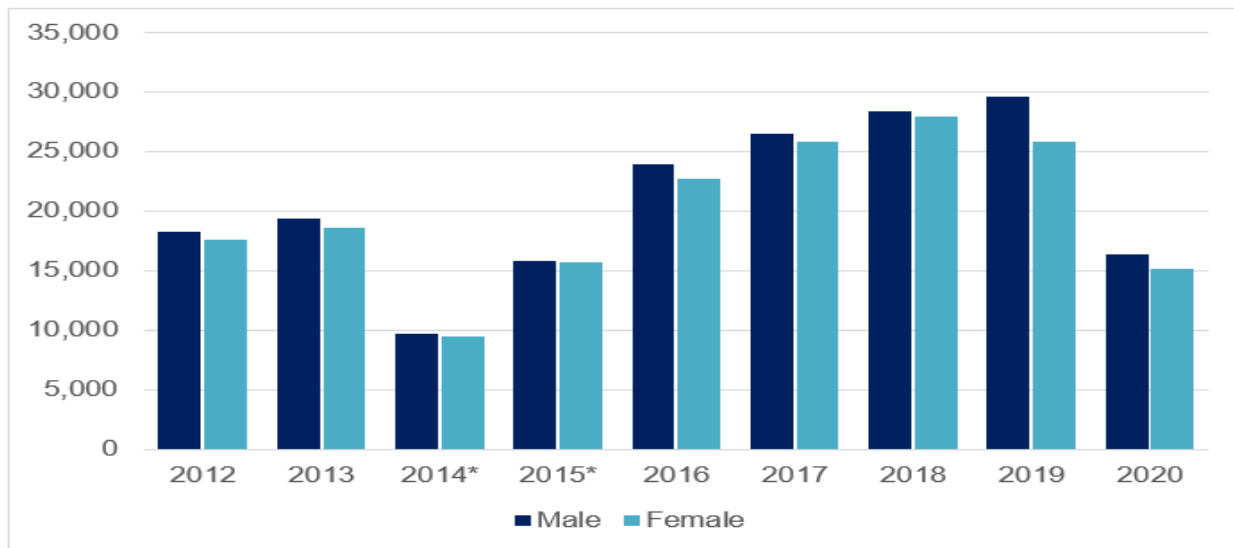
**Outpatient**

The outpatient unit in the Cook Islands provides consultations, dressings, injections, minor operations and other services required for specialised clinics and visiting specialists. The drop in

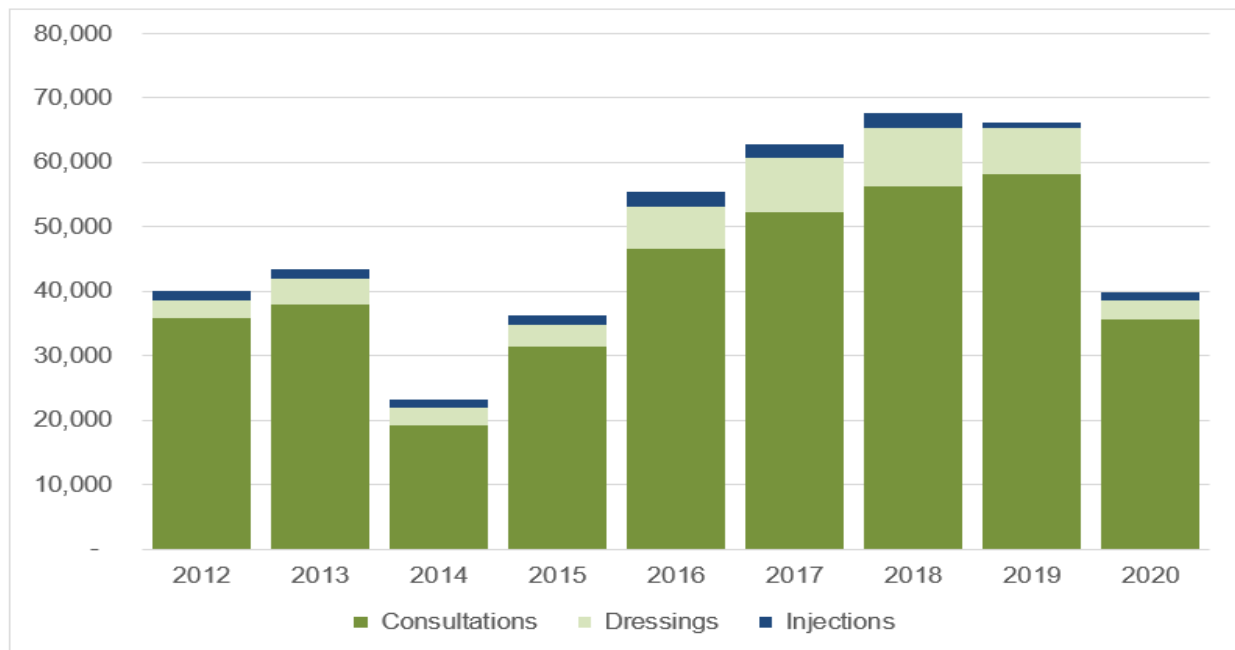


figures for outpatient consultations in 2020 is seen in **Figure 27 and 28**. This indicates the workload has been alleviated by the local Puna clinics. Furthermore, measures in response to COVID-19 were implemented over 2020 to limit face to face consultations by way of phone consultations, flu clinics and vehicle triaging for flu like symptoms.

**Figure 27: Outpatient consultations by sex, 2012-2020<sup>6</sup>**



**Figure 28: Proportion of outpatient visits 2012-2020**



### Health specialist visits (HSV)

The Health Specialists Visits (HSV) programme supplements primary, secondary and tertiary healthcare services in the Cook Islands. The HSV programme has evolved to provide increased

<sup>6</sup> Incomplete data for years 2014 & 2015 outpatient figures

accessibility to a broad range of specialists; strengthen health networks; and develop the clinical and professional capacity of TMO personnel.

The HSV programme was suspended in 2020 due to COVID-19. There were ten health specialist visits to the Cook Islands in 2019 – eight of which were service provision and two for training and capacity building for the TMO workforce as seen in **Table 3**. A total of 1,103 individuals were consulted and screened under the health specialist visits scheme, about 30% of patients were referrals from the Pa Enua, mostly Aitutaki and Atiu.

**Table 3: Health specialist visits 2019**

	Rarotonga	Pa Enua	Surgical intervention	Referred to NZ	Outcome
General paediatrics	32			4	Recommended for referral
Paediatric dermatology	22	29	3		
Adult dermatology	24	35			Diagnosed 1 melanoma & 1 non-skin melanoma
Gynaecology	24		16	1	NZ for hysterectomy
Diabetes	48	30			50% diagnosed with diabetes
Urology	*note				
Opthalmology	696	163	60		Cataract operations
Optometry					
Paediatric life support (PLS) training					Over 20 staff including nurses,
Ultrasound training					radiographers, physiotherapists, doctors
<b>Total</b>	<b>846</b>	<b>257</b>	<b>79</b>	<b>5</b>	

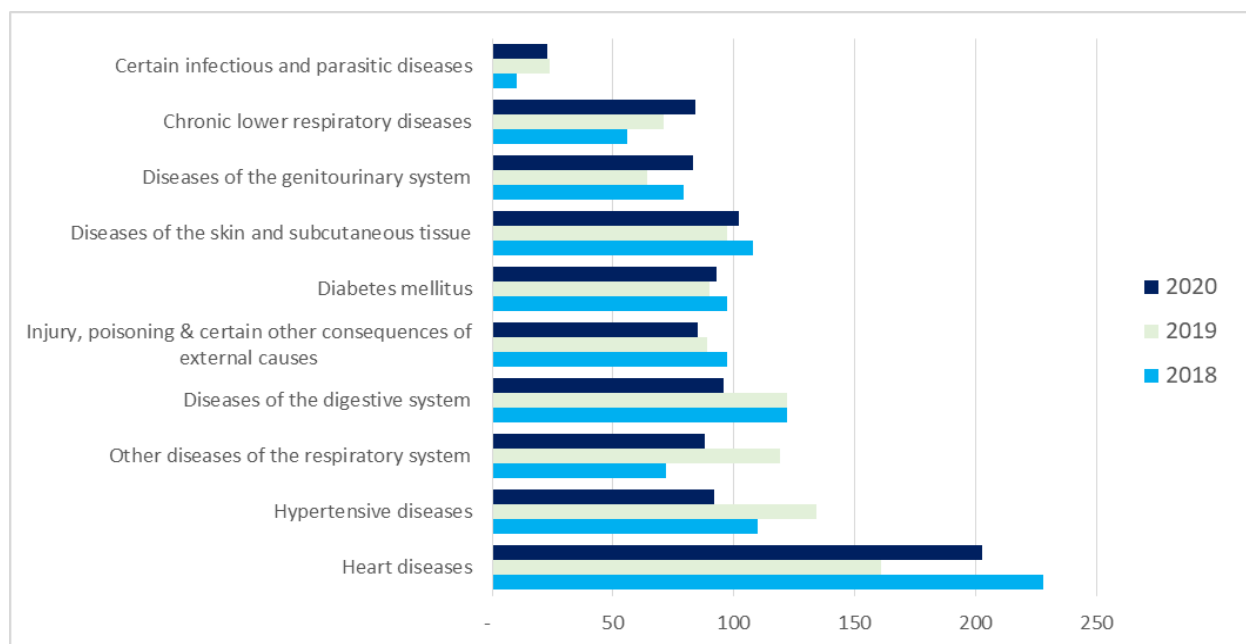
### Inpatient admissions

The last seven years show an annual average of 1925 admissions in the Cook Islands. Figures fluctuated over this period with 2450 admissions seen in 2013, 1866 in 2017 and 1551 in 2020. For the last three years, hospital admissions in the Cook Islands have dropped by 20%. **Figure 29** shows the ten leading causes for inpatient morbidity over 2018-2020 with heart diseases remaining prevalent.

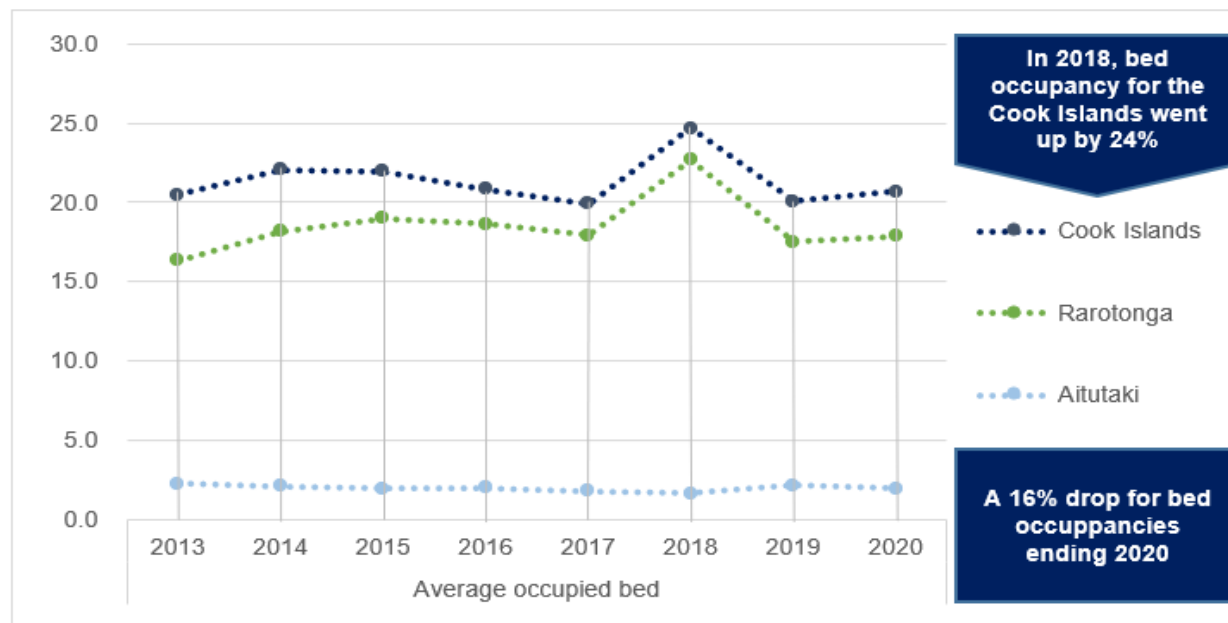
Pa Enua admissions have remained stable with an annual average of; top three 329 for Aitutaki, Mangaia at 29 followed by Atiu with 23 admissions. Aitutaki saw a decrease of 56% admissions following 2019.

Bed occupancy for Rarotonga 2020 show an average of 26 beds occupied, a slight increase since 2018 with 22 bed occupancy.

**Figure 29: Ten leading causes of inpatient morbidity Rarotonga hospital 2018-2020**



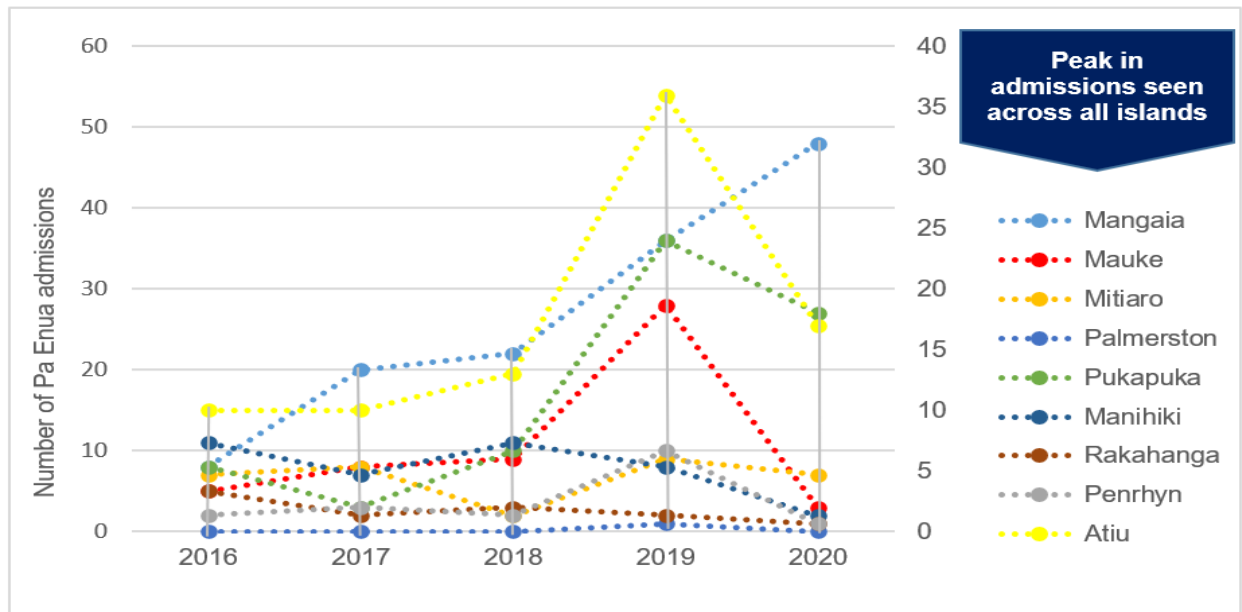
**Figure 30: Cook Islands bed occupancy rates, 2013-2020**



**Figure 30** shows that the average bed occupied has dropped by 16% since 2018. However, the last year saw a slight increase in bed occupancy. An average of 21 beds occupied for the Cook Islands, 19 beds for Rarotonga and at least two for Aitutaki. Little change is seen in with the trend compared to the last seven years.

The drop seen in bed occupancies (56%) for Aitutaki is also reflective of the increase of referrals received by Rarotonga Hospital and/or internationally, peak in 2019. Admissions for Atiu and Mauke have since dropped with Mangaia peaking in 2020, as shown in **Figure 31**.

Figure 31: Number of Pa Enua admissions, by island 2016-2020



**Domestic and international patient referrals**

Patients residing in the Outer Islands (Pa Enua) are referred to the main Island of Rarotonga for further secondary level health care and management. More complicated cases are referred overseas to New Zealand.

Figure 32: Number of patients received from the Pa Enua and/or referred overseas, 2010-2020

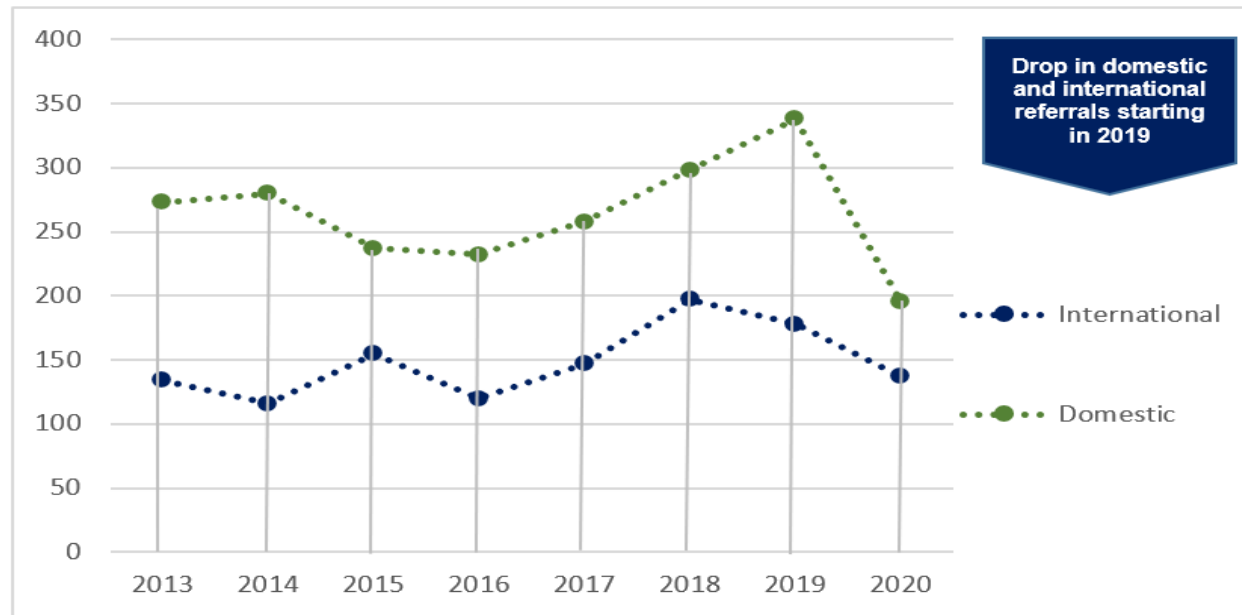


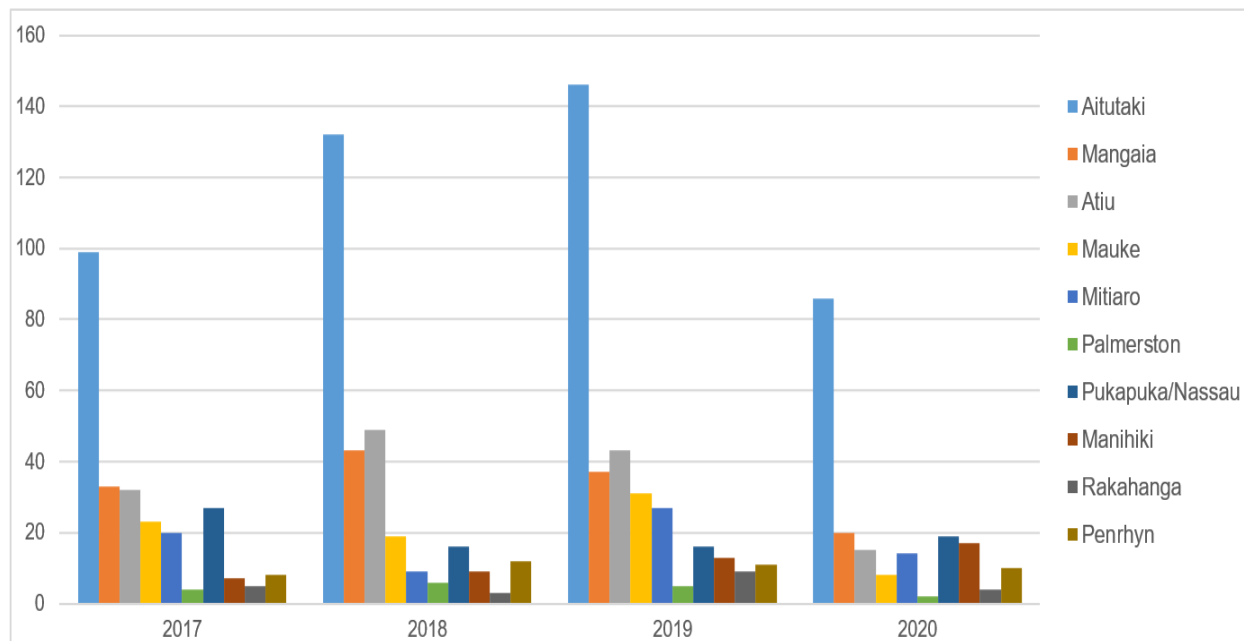
Figure 32 shows the number of patients referred from the Pa Enua to Rarotonga Hospital and those referred overseas for the last seven years.

For the Pa Enua, numbers show a steady increase from 2015 (237 referrals) to a peak of 338 in 2019. In the last year domestic referrals have dropped by 73%.

International referrals for this period show the lowest cases of 116 reported in 2014, whereas the highest of 197 was reported in 2018, averaging 148 patients per year. Fewer international referrals occurred over 2020 as seen in **Figure 33**.

Furthermore, majority of referrals to Rarotonga Hospital and/or referred internationally for the past 3 years were from Aitutaki with an average of 116 patients per year, followed by two other Southern Pa Enua, Atiu and Mangaia with a respective average of 35 and 33 patients per year.

**Figure 33: Number of domestic referrals to Rarotonga and/or international 2017-2020**



For the Northern Pa Enua, Pukapuka and Nassau take the lead with an average of slightly over 19 patients per year, followed by Manihiki and Penrhyn with 11 and 10 patients a year, respectively.

Over the last two years, referrals decreased across all Pa Enua islands, with the exception of Pukapuka, Nassau and Manihiki which saw a slight increase in numbers.

## Life expectancy and mortality

In the Cook Islands, all deaths that occur in a hospital or health centre are issued a death certificate with a copy provided to the family before burial. For those who died outside a health facility, a Coroner's investigation and report is provided to the health officer in charge, before the deceased can be released to the family for burial.

## Life expectancy

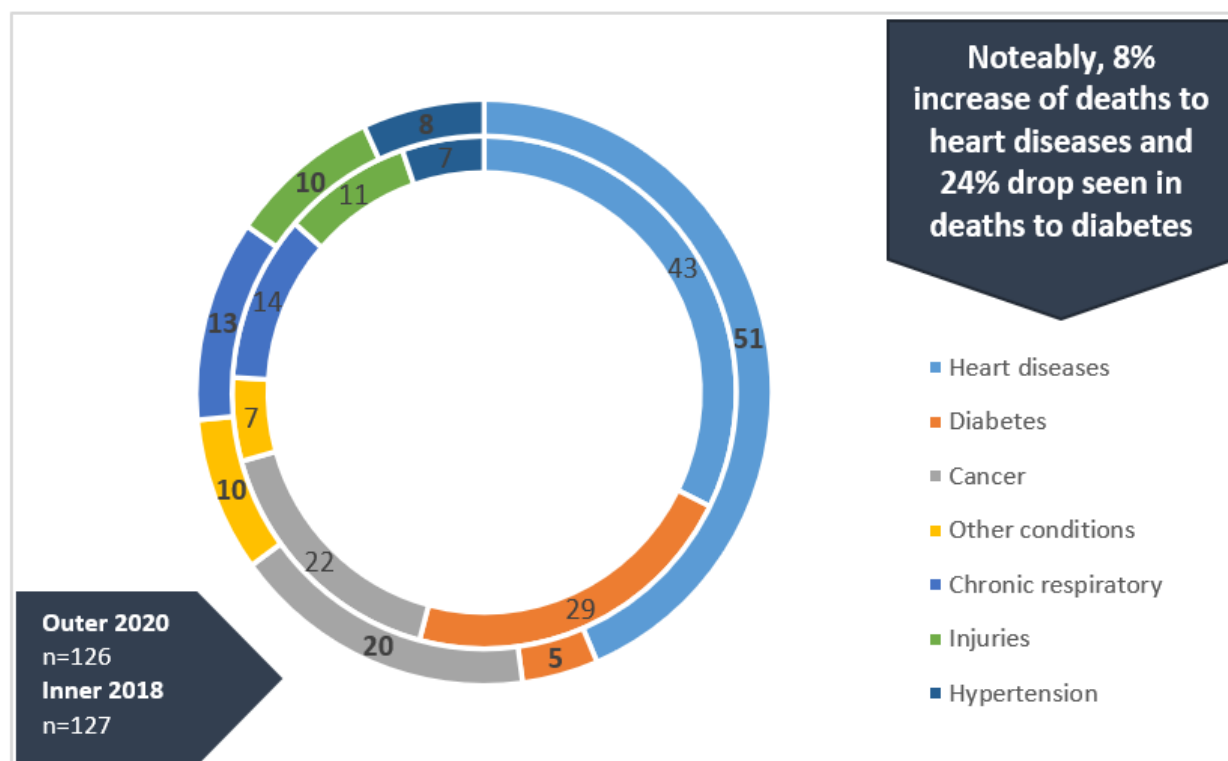
Over 2019 and 2020 life expectancy at birth increased to 82 years for males and 86 years for females. These rates are positive and have passed the desired thresholds TMO is striving towards. Considering the NCD burden and the increase of life expectancy. This suggests that people living with NCDs could suffer longer or have more time for intervention and control measures.

## Main cause of death

The main causes of death of people in the Cook Islands are influenced by the age profile of the population as well as common causes of morbidity. Diseases of the circulatory system groupings (hypertension, stroke and diseases associated with the heart) were the main underlying cause of deaths in the Cook Islands from 2016 to 2020.

In 2018, heart diseases and diabetes accounted for 50-56% of all deaths in the Cook Islands. A similar trend is seen in 2020 with heart diseases the leading underlying cause – up 8% in cases accounting for 40% of all deaths as seen in **Figure 34**.

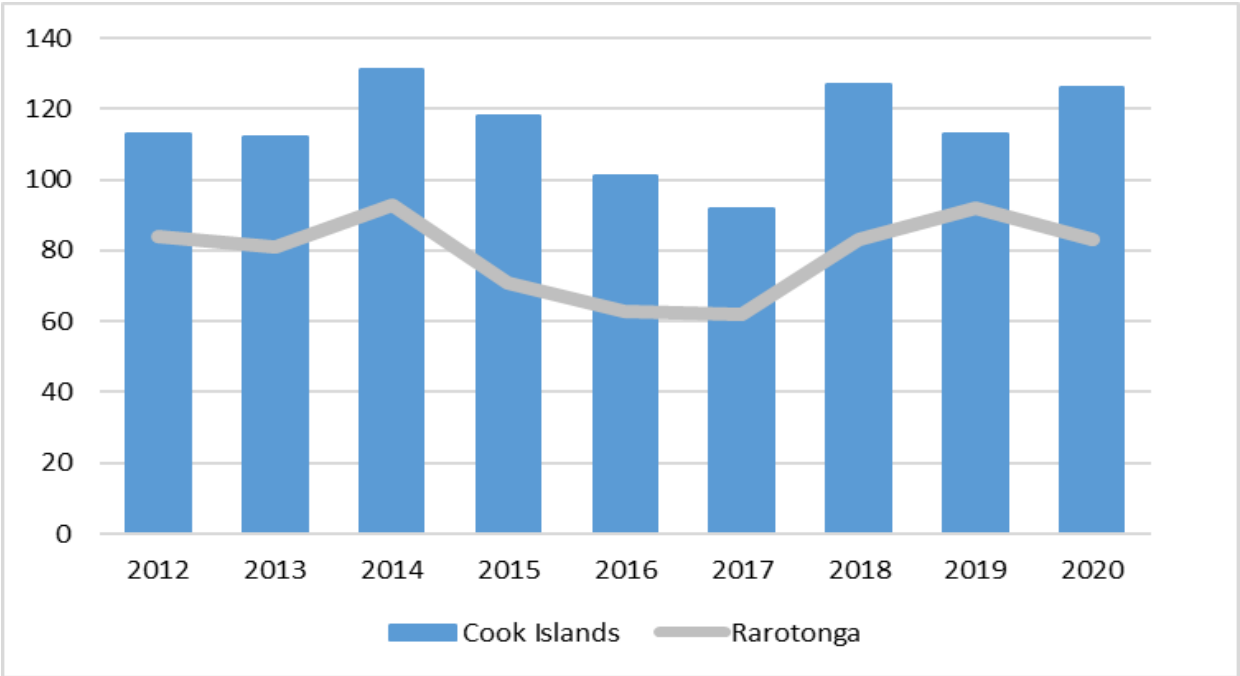
**Figure 34: Main cause of deaths by groupings, 2018-2020**



A 24% drop in deaths to diabetes compared to 2018 where diabetes was the second biggest killer in the Cook Islands. Though a decrease of deaths to this disease is somewhat positive about 20% of people that died reported to have been living with diabetes.

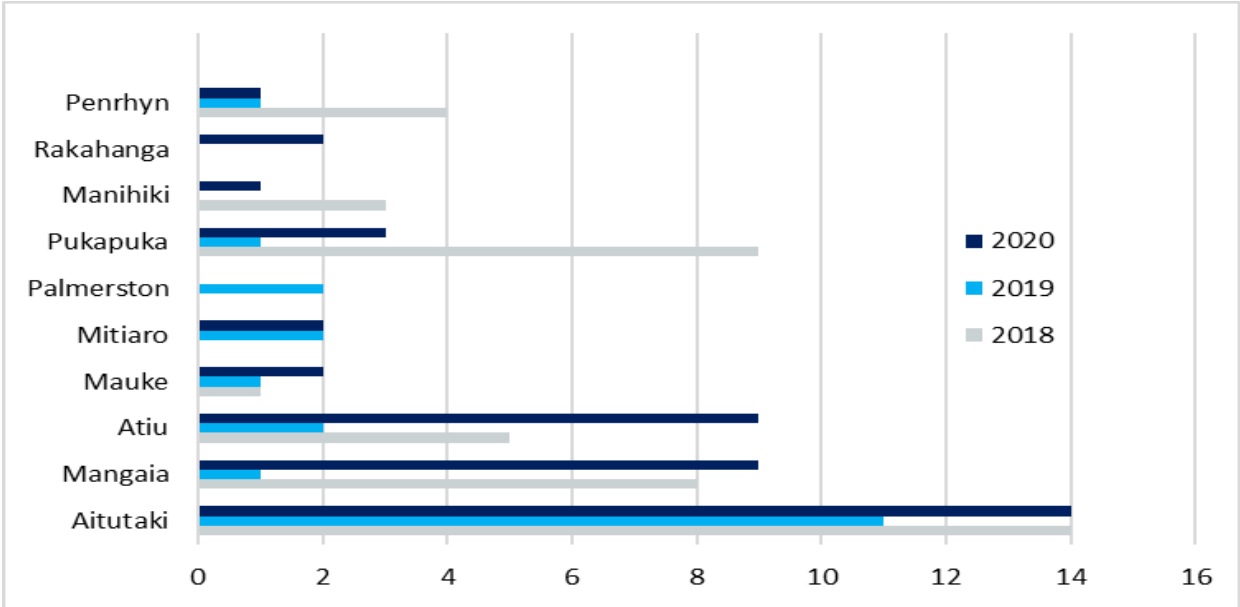
This is consistent with previous reporting and alludes to the reality of NCDs as the leading cause for mortality accounting for 70% of all deaths occurring in the Cook Islands.

Figure 35: Total deaths Cook Islands - Rarotonga 2012-2020



The trend seen in **Figure 35** for deaths in the Cook Islands have been stable with majority of cases occurring on the mainland of Rarotonga. **Figure 36** shows deaths for Pa Enua with majority occurring in the Southern group with Aitutaki leading.

Figure 36: Mortality by Pa Enua 2018-2020



## Appendices

### Appendix 1: Te Marae Ora 129 national health indicators

The 129 national health indicators summary table is below.

Short term <12 months
Medium term >1-5 years
Long term >10 years

HEALTH STATUS	RISK FACTORS	SERVICE COVERAGE	HEALTH SYSTEMS
<b>Mortality by age and sex</b>	<b>Nutrition</b>	<b>Reproductive maternal, new-born, child and adolescent</b>	<b>Quality and safety of care</b>
Life expectancy at birth	Exclusive breastfeeding rate 0-5 months of age	Demand for family planning satisfied with modern methods	Perioperative mortality rate
Crude death rate	Incidence of low birth weight among new-borns	Contraceptive prevalence rate	Institutional maternal mortality ratio
Adolescent mortality rate	Children <5 years who are overweight	Antenatal care coverage	Maternal death reviews
Adult mortality rate 15-60 years of age	Anaemia prevalence in children	Births attended by skilled health personnel	ART retention rate
Under-five mortality rate	Anaemia prevalence in women of reproductive age	Postpartum care coverage – women	TB treatment success
Infant mortality rate	Children <5 years who are stunted	Postpartum care coverage – new-born	Clinical protocols and guidelines for all specialty areas
Neonatal mortality rate	Children <5 years who are wasted	<b>Immunisation</b>	Availability of essential medicines and commodities
Stillbirth rate	<b>Environmental risk factors</b>	Immunisation coverage rate by vaccine for each vaccine in the national schedule <5 years	Rate of adverse events among specialty areas
<b>Mortality by case</b>	Population using safely managed drinking water services	Availability of vaccines against human papillomavirus, according to national programmes and policies	Complication rate among long term care patient population
Suicide rate	Population using safely managed sanitation services	<b>HIV</b>	Number and proportion of domestic patient referrals
Death rate due to road traffic injuries	Population with handwashing facility with soap and water	People living with HIV who know their status	Number and proportion of international patient referrals
Mortality rate due to homicide	Number and proportion of reported foodborne illnesses	Prevalence of mother-to-child transmission	ASH rates for 0-4 year olds
Maternal mortality ratio	Number and proportion of reported waterborne illnesses	ART coverage	% of compliance with PEN guidelines
TB mortality rate	Population with primary reliance on clean fuels and technologies	HIV viral load suppression	<b>Utilisation and access</b>
AIDS-related mortality rate	<b>Non communicable diseases</b>	<b>HIV/TB</b>	Access to primary health care
Premature NCD mortality	Insufficient physical activity in adults	Coverage of treatment for latent TB infection (LTB)	Access to palliative care
Unconditional probability of dying between ages 30-70 from CVD, cancer, diabetes	Insufficient physical activity in adolescents	HIV test results for TB patients	Proportion of patients who have seen a primary provider/GP within 7 days of discharge



HEALTH STATUS	RISK FACTORS	SERVICE COVERAGE	HEALTH SYSTEMS
or chronic respiratory disease			
Mortality from unsafe water, unsafe sanitation and lack of hygiene	Total alcohol per capita (age 15+ years) consumption	HIV-positive new and relapse TB patients on ART during TB treatment	Number and proportion of outpatient consultations
Mortality from unintentional poisoning	Age-standardised prevalence of heavy episodic drinking among adolescents and adults as appropriate, within the national context	<b>Tuberculosis</b>	Number and proportion of consultations for oral health services
<b>Fertility</b>	Alcohol-related morbidity and mortality among adolescents and adults, as appropriate, within the national context	Drug susceptibility testing coverage for TB patients	Number and proportion of people aged two and over who had a dental visit within the last 12 months
Crude birth rate	Tobacco use among persons aged 15+ years	TB treatment coverage	Inpatient admissions
Adolescent birth rate	Raised blood pressure among adults	Treatment coverage for drug-resistant TB	30-day readmission rate after hospital discharge
Total fertility rate	Raised blood glucose/diabetes in adults	<b>Vector borne diseases</b>	Surgical volume
<b>Morbidity</b>	Raised blood glucose/diabetes in adolescents	Intermittent preventive therapy for vector borne diseases during pregnancy	Health facility density and distribution
New cases of vaccine-preventable diseases	Age-standardised mean proportion of total energy intake from saturated fatty acids in persons aged 18+ years	Use of insecticide treated nets	Hospital bed density
New cases of IHR-notifiable diseases and other notifiable diseases	Age-standardised prevalence of raised total cholesterol among persons aged 18+ years (defined as total cholesterol >5mmol/L) and mean total cholesterol concentration	Treatment of confirmed dengue cases	<b>Health workforce</b>
NCD morbidity rate	Age-standardised prevalence of persons consuming less than 5 total servings (400grams) of fruits and vegetables per day	Indoor residual spraying coverage for dengue	Health worker density and distribution
HIV incidence rate	Salt intake	<b>Screening and preventive care</b>	<b>Health information</b>
Hepatitis B incidence	Overweight and obesity in adults	Breast cancer screening	Birth registration
Sexually transmitted infections (STIs) incidence rate	<b>Injuries/harmful traditional practices</b>	Cervical cancer screening	Death registration
Congenital syphilis rate	Intimate partner violence number and prevalence	Proportion of women between the ages of 30-49 years screened for cervical cancer at least once, or more often, and for lower or higher age groups according to national programmes or policies	<b>Health security</b>
TB incidence rate	Non-partner sexual violence number and prevalence	<b>Mental health</b>	International Health Regulations (IHR) core capacity index

HEALTH STATUS	RISK FACTORS	SERVICE COVERAGE	HEALTH SYSTEMS
TB notification rate	Sexual violence against children (number and prevalence)	Number and proportion of mental health disorders	Health financing
Cancer incidence, by type of cancer	Frequency rates of occupation injuries	Coverage of services for severe mental health disorders	Health Care Expenditure (HCE) as a percentage of GDP
HIV prevalence rate	% of injury related fatalities across all patient groups	NCD	HCE per capita
Hepatitis B surface antigen prevalence rate		% of diabetes patients receiving eye care visits/treatment from a specialist within one year	HCE as a percentage of Govt. Expenditure
NCD prevalence rate		Admission rates for conditions that are sensitive to outpatient (ambulatory) care delivery	
		Policies to reduce the impact on children of marketing of foods and non-alcoholic beverages high in saturated fats, trans-fatty acids, free sugars, or salt	
		Adoption of national policies that limit saturated fatty acids and virtually eliminate partially hydrogenated vegetable oils in the food supply, as appropriate, within the national context and national programmes	
		Substance abuse	
		Treatment coverage for alcohol and drug dependence	
		Health Specialist Visits	
		Number and proportion of population accessing health services by area of specialty	

## **Appendix 2: Data Sources**

There are several indicators used in the Cook Islands and many are not completely compatible due to differences in indicator definitions, hence 20 national core indicators were developed to give a broader picture of health, and the operation of TMO activities identified in the National Health Information Strategy 2015-2019.

Such activities include the continuous capacity building with certifiers and coders to reduce the proportion of deaths coded to ill-defined causes; and to improve on completions of several specifically designed MedTech32 templates, to become the main data source register and act as the main data collection tools as well for most of these indicators.

### **MedTech32**

This is a highly modular fully featured practice management system. MedTech32 provides the stability required to maintain the integrity of your data. It features a very stable database and has become integral in optimizing the efficiency of many medical practices. It can also be utilised in both primary and secondary health care environments.

#### **Its major core functionality includes:**

- Demographics – records containing extensive information on patient demographic;
- Clinical Notes – covers medications, disease classifications and electronic receipt of pathology and radiology results, an outbox
- Recalls and Screening – templates necessary for any special requirements, as well as the basic recalls including: hypertension, cervical screening, and diabetes. The recall function vastly increases practice efficiency and the facility is available to automatically generate recall letters
- Prescribing
- Accounts – provides comprehensive accounting functions and is able to generate a wide range of standard and customized reports.

#### **MedTech32 also provides other functions such as:**

- Health Assessment and Management Tools – includes a cardiovascular risk assessment tool, growth charts, and Ministry of Health treatment guidelines
- A Drawing Tool for Anatomical References
- Attachments Manager – able to link files directly to an individual patient record
- Interface with Laboratory Results – to receive electronic lab results that can then be charted and graphed
- Query Builder – useful reporting tool that provides the ability to integrate most of the data that has been entered into MedTech32
- Immunisation – interfaces with the national immunization register
- Interfacing with Third Party Applications.

Also apart from data entry, training on the use of these data are provided to users enabling them to analyse what they have inputted or documented as a means of developing a culture of information use among data collectors and users.

**These MedTech32 templates are specifically the:**

- Outpatient triaging and cardiovascular risk assessment, clinics triaging (CVR1)
- NCD register (NCDREG)
- Cancer (CANCER)
- Fish Poisoning (FISH)
- Dengue-Zika-Chickungunya (DENZIK)
- Syndrome (SYND) - for acute fever and rash, diarrhea, prolonged fever and influenza like-illness (ILI)
- Admission (ADM)
- Discharged (DIS)
- Death (D)
- Injury Surveillance (CIIS)
- Road Traffic accident (MVA)
- Baby birth details (BIRTH)
- Mothers details (BIRTH2)
- Antenatal clinic (ANC)
- Post Natal clinic (PNC)
- Gestational Diabetic (GDMN)
- Outpatient Stats (OPD)
- OPD Triage Template (TRIAGE)
- Body Mass Index (BMI)
- Patient Referral NZ (REFER)
- Patient Referral OI (REFOI)
- Dental details (DENT1, DENT2, DENT3, DENT4, DENT5, DENT6)

Furthermore, through the read codes of MedTech32 for disease classifications on all patients consulted at any of the health facility in the Cook Islands, and other modules associated with MedTech32, such as the appointment books system and the invoicing system used to capture any health data

## Appendix 3: Data tables

**Table 1.4: Resident population by sex, usual residence and five year age groupings**

**COOK ISLANDS 2016**

**Sex: Both**

Location	Age Groups																	
	Total	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	>79
<b>RAROTONGA</b>	<b>10,649</b>	<b>850</b>	<b>940</b>	<b>862</b>	<b>822</b>	<b>742</b>	<b>700</b>	<b>683</b>	<b>644</b>	<b>742</b>	<b>769</b>	<b>746</b>	<b>605</b>	<b>487</b>	<b>384</b>	<b>293</b>	<b>221</b>	<b>159</b>
Kiikii-Ooa-Pue-Tupapa	1,716	139	143	140	146	125	115	113	112	114	121	114	84	92	59	45	29	25
Takuvaine	702	57	63	60	61	61	39	50	42	47	47	50	44	31	16	11	8	15
Tutakimoa-Teotue	286	35	24	22	15	24	15	17	17	20	18	19	15	17	15	4	6	3
Avatiu-Ruatonga-Atupa	891	61	85	65	61	65	63	61	43	63	66	60	52	52	30	22	23	19
Nikao-Panama	1,311	113	128	115	118	87	66	87	89	106	104	84	62	52	55	21	13	11
Ruaau-Arerenga	1,158	81	82	93	74	95	87	85	77	79	75	77	74	47	42	36	35	19
Akaoa-Betela	730	61	73	53	67	54	47	35	44	39	69	48	46	33	23	20	10	8
Murienua	813	74	62	65	54	68	59	45	52	53	61	56	42	36	25	29	19	13
Titikaveka	1,167	84	111	90	85	51	74	67	69	78	82	102	79	47	51	44	34	19
Ngatangia	896	64	74	64	68	56	60	63	47	60	78	62	64	34	38	28	23	13
Matavera	979	81	95	95	73	56	75	60	52	83	48	74	43	46	30	33	21	14
<b>SOUTHERN ISLANDS</b>	<b>3,072</b>	<b>275</b>	<b>327</b>	<b>331</b>	<b>222</b>	<b>142</b>	<b>137</b>	<b>144</b>	<b>139</b>	<b>170</b>	<b>214</b>	<b>224</b>	<b>177</b>	<b>152</b>	<b>144</b>	<b>116</b>	<b>87</b>	<b>71</b>
Aitutaki	1,712	168	184	179	108	93	93	102	97	88	115	117	89	72	70	66	44	27
Mangaia	493	34	46	69	45	21	5	9	19	25	38	37	37	27	26	25	16	14
Atiu	423	37	51	45	29	9	25	15	14	26	37	29	22	24	23	13	13	11
Mauke	289	23	22	28	27	10	11	14	6	23	9	25	24	18	15	11	9	14
Mitiaro	155	13	24	10	13	9	3	4	3	8	15	16	5	11	10	1	5	5
<b>NORTHERN ISLANDS</b>	<b>1,081</b>	<b>136</b>	<b>138</b>	<b>138</b>	<b>108</b>	<b>52</b>	<b>56</b>	<b>61</b>	<b>52</b>	<b>53</b>	<b>61</b>	<b>70</b>	<b>56</b>	<b>32</b>	<b>21</b>	<b>17</b>	<b>9</b>	<b>21</b>
Palmerston	57	6	5	9	8	3	1	3	4	3	3	-	1	2	3	1	1	4
Pukapuka	425	62	61	58	46	22	26	19	11	15	20	30	19	13	4	7	2	10
Nassau	78	12	12	10	13	4	2	4	1	5	3	5	4	-	-	2	1	-
Manihiki	212	24	21	21	13	5	14	10	10	12	18	23	19	8	8	4	-	2
Rakahanga	83	6	8	6	7	4	2	9	6	8	7	1	5	5	3	2	2	2
Penrhyn	226	26	31	34	21	14	11	16	20	10	10	11	8	4	3	1	3	3
<b>COOK ISLANDS</b>	<b>14,802</b>	<b>1,261</b>	<b>1,405</b>	<b>1,331</b>	<b>1,152</b>	<b>936</b>	<b>893</b>	<b>888</b>	<b>835</b>	<b>965</b>	<b>1,044</b>	<b>1,040</b>	<b>838</b>	<b>671</b>	<b>549</b>	<b>426</b>	<b>317</b>	<b>251</b>

**Table 1.4: Resident population by sex, usual residence and five year age groupings (continued)**

**COOK ISLANDS 2016**

**Sex: Male**

	Age Groups																	
Location	Total	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	>79
RAROTONGA	5,199	438	474	439	407	342	330	309	309	351	382	365	305	242	198	144	96	68
Kiikii-Ooa-Pue-Tupapa	857	68	80	78	70	61	48	47	59	50	67	54	48	49	34	18	14	12
Takuvaine	341	28	30	27	34	33	22	23	17	21	25	27	19	15	9	5	2	4
Tutakimoa-Teotue	144	21	12	13	5	15	6	6	9	10	8	8	8	7	10	2	4	-
Avatiu-Ruatonga-Atupa	431	31	34	32	34	28	34	26	21	28	36	33	21	30	16	9	8	10
Nikao-Panama	612	56	65	45	57	35	37	38	41	48	50	41	30	23	25	10	7	4
Ruaau-Arerenga	565	42	43	50	40	42	37	35	34	43	37	40	29	30	20	20	13	10
Akaoa-Betela	363	35	34	30	32	24	24	17	21	17	29	25	27	18	13	12	3	2
Murienua	400	36	30	37	26	27	30	26	21	29	32	25	22	19	11	14	10	5
Titikaveka	564	48	57	42	44	23	33	30	38	37	34	50	43	16	26	20	15	8
Ngatangia	438	32	39	33	27	26	29	32	23	23	44	30	33	17	20	15	9	6
Matavera	484	41	50	52	38	28	30	29	25	45	20	32	25	18	14	19	11	7
SOUTHERN ISLANDS	1,524	145	174	176	108	72	62	71	67	73	106	118	89	67	72	52	40	32
Aitutaki	860	97	101	95	50	44	41	51	47	40	52	63	42	32	34	32	25	14
Mangaia	253	18	29	38	20	15	1	4	10	8	23	17	22	14	14	11	4	5
Atiu	202	16	22	20	17	4	11	10	5	14	18	17	9	12	10	6	7	4
Mauke	136	11	13	18	17	5	6	4	4	8	3	10	12	4	10	3	2	6
Mitiaro	73	3	9	5	4	4	3	2	1	3	10	11	4	5	4	-	2	3
NORTHERN ISLANDS	569	76	65	77	61	27	31	25	26	29	32	43	26	18	13	8	5	7
Palmerston	28	4	2	4	5	2	1	1	1	2	1	-	-	2	3	-	-	-
Pukapuka	221	38	32	29	26	13	11	6	6	8	11	19	8	5	1	3	2	3
Nassau	36	5	3	8	6	3	1	2	1	1	-	5	-	-	-	1	-	-
Manihiki	120	13	10	13	8	1	9	4	6	7	9	13	11	7	5	2	-	2
Rakahanga	41	3	3	3	2	2	1	6	2	5	4	1	2	2	2	1	1	1
Penrhyn	123	13	15	20	14	6	8	6	10	6	7	5	5	2	2	1	2	1
COOK ISLANDS	7,292	659	713	692	576	441	423	405	402	453	520	526	420	327	283	204	141	107

**Table 1.4: Resident population by sex, usual residence and five year age groupings (continued)**

**COOK ISLANDS 2016**

**Sex: Female**

Location	Age Groups																	
	Total	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	>79
<b>RAROTONGA</b>	<b>5,450</b>	<b>412</b>	<b>466</b>	<b>423</b>	<b>415</b>	<b>400</b>	<b>370</b>	<b>374</b>	<b>335</b>	<b>391</b>	<b>387</b>	<b>381</b>	<b>300</b>	<b>245</b>	<b>186</b>	<b>149</b>	<b>125</b>	<b>91</b>
Kiikii-Ooa-Pue-Tupapa	859	71	63	62	76	64	67	66	53	64	54	60	36	43	25	27	15	13
Takuvaine	361	29	33	33	27	28	17	27	25	26	22	23	25	16	7	6	6	11
Tutakimoo-Teotue	142	14	12	9	10	9	9	11	8	10	10	11	7	10	5	2	2	3
Avatiu-Ruatonga-Atupa	460	30	51	33	27	37	29	35	22	35	30	27	31	22	14	13	15	9
Nikao-Panama	699	57	63	70	61	52	29	49	48	58	54	43	32	29	30	11	6	7
Ruaau-Arerenga	593	39	39	43	34	53	50	50	43	36	38	37	45	17	22	16	22	9
Akooa-Betela	367	26	39	23	35	30	23	18	23	22	40	23	19	15	10	8	7	6
Murienua	413	38	32	28	28	41	29	19	31	24	29	31	20	17	14	15	9	8
Titikaveka	603	36	54	48	41	28	41	37	31	41	48	52	36	31	25	24	19	11
Ngatangia	458	32	35	31	41	30	31	31	24	37	34	32	31	17	18	13	14	7
Matavera	495	40	45	43	35	28	45	31	27	38	28	42	18	28	16	14	10	7
<b>SOUTHERN ISLANDS</b>	<b>1,548</b>	<b>130</b>	<b>153</b>	<b>155</b>	<b>114</b>	<b>70</b>	<b>75</b>	<b>73</b>	<b>72</b>	<b>97</b>	<b>108</b>	<b>106</b>	<b>88</b>	<b>85</b>	<b>72</b>	<b>64</b>	<b>47</b>	<b>39</b>
Aitutaki	852	71	83	84	58	49	52	51	50	48	63	54	47	40	36	34	19	13
Mangaia	240	16	17	31	25	6	4	5	9	17	15	20	15	13	12	14	12	9
Atiu	221	21	29	25	12	5	14	5	9	12	19	12	13	12	13	7	6	7
Mauke	153	12	9	10	10	5	5	10	2	15	6	15	12	14	5	8	7	8
Mitiaro	82	10	15	5	9	5	-	2	2	5	5	5	1	6	6	1	3	2
<b>NORTHERN ISLANDS</b>	<b>512</b>	<b>60</b>	<b>73</b>	<b>61</b>	<b>47</b>	<b>25</b>	<b>25</b>	<b>36</b>	<b>26</b>	<b>24</b>	<b>29</b>	<b>27</b>	<b>30</b>	<b>14</b>	<b>8</b>	<b>9</b>	<b>4</b>	<b>14</b>
Palmerston	29	2	3	5	3	1	-	2	3	1	2	-	1	-	-	1	1	4
Pukapuka	204	24	29	29	20	9	15	13	5	7	9	11	11	8	3	4	-	7
Nassau	42	7	9	2	7	1	1	2	-	4	3	-	4	-	-	1	1	-
Manihiki	92	11	11	8	5	4	5	6	4	5	9	10	8	1	3	2	-	-
Rakahanga	42	3	5	3	5	2	1	3	4	3	3	-	3	3	1	1	1	1
Penrhyn	103	13	16	14	7	8	3	10	10	4	3	6	3	2	1	-	1	2
<b>COOK ISLANDS</b>	<b>7,510</b>	<b>602</b>	<b>692</b>	<b>639</b>	<b>576</b>	<b>495</b>	<b>470</b>	<b>483</b>	<b>433</b>	<b>512</b>	<b>524</b>	<b>514</b>	<b>418</b>	<b>344</b>	<b>266</b>	<b>222</b>	<b>176</b>	<b>144</b>

**Table 2.1: Number and rate of births, deaths, infant deaths, maternal deaths and fetal deaths COOK ISLANDS 2010-2020.**

YEAR	Live Births		Deaths		Deaths under 1 yr		Maternal Deaths		Fetal Deaths	
	Number	Crude Rate	Number	Crude Rate	Number	Rate	Number	Rate	Number	Rate
2010	289	24.3	97	8.2	1	3.5	0	0	2	6.9
2011	284	19.3	108	7.3	2	7.0	0	0	1	3.5
2012	292	20.4	113	7.9	2	6.8	0	0	0	0.0
2013	261	18.5	112	7.9	0	0.0	0	0	0	0.0
2014	223	16.4	131	9.6	0	0.0	0	0	0	0.0
2015	218	16.8	118	9.1	1	4.6	0	0	1	4.6
2016	243	21.1	101	8.8	2	8.2	0	0	1	4.1
2017	231	20.1	91	7.9	3	13.0	0	0	0	0.0
2018	239	16.1	123	8.3	4	16.7	0	0	0	0.0
2019	232	15.7	113	7.6	3	12.9	0	0	0	0.0
2020	257	17	126	9	2	8	0	0	1	3.9



**Table 2.2: Live births to low birth weight cases**  
**COOK ISLANDS: 2011-2020**

Year	Births	Number of cases	% to live births
2010	255	7	3
2011	254	9	4
2012	258	11	4
2013	227	11	5
2014	209	5	2
2015	203	14	7
2016	222	12	5
2017	216	15	7
2018	228	14	6
2019	225	8	4
2020	251	12	5

**Table 2.3: Mothers Given Birth and Fertility Rates by Age Groupings**

**COOK ISLANDS 2011 - 2020**

Age Group	Female Resident Population				Number of Mothers									
	2001	2006	2011	2016	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
15-19	656	630	597	711	37	41	40	31	24	24	25	22	9	18
20-24	491	545	512	656	70	80	76	54	59	63	56	74	60	73
25-29	524	473	493	612	71	65	64	57	53	56	76	63	61	60
30-34	541	554	462	595	47	56	38	49	45	59	42	43	52	44
35-39	524	551	521	533	40	33	31	21	21	29	20	26	26	33
40-44	449	540	542	601	17	16	10	11	13	9	12	11	10	11
45-49	353	457	528	625	1	0	1	0	1	1	0	0	1	1
Total	3,538	3,750	3,655	4333	283	291	260	223	216	241	231	239	219	240
Age-Specific Fertility Rate (per 1'000 Women) 1.115														
15-19					62	69	67	52	40	40	42	38	13	25
20-24					137	156	148	105	115	123	109	149	91	111
25-29					144	132	130	116	108	114	154	134	100	98
30-34					102	121	82	106	97	128	91	89	87	74
35-39					77	63	60	40	40	56	38	60	49	62
40-44					31	30	18	20	24	17	22	21	17	18
45-49					2	0	2	0	2	2	0	0	2	2
General Fertility Rate (per 1'000 Women)					77	80	71	61	59	66	63	68	51	55
Total Fertility Rate					2.8	2.9	2.5	2.2	2.1	2.4	2.3	2.5	1.8	2.0

**Table 2.4: CURRENT USERS - Women on family planning contraceptives by year**  
**COOK ISLANDS: 2008-2020**

Contraceptive Type	YEAR												
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
All Methods	1,263	1,237	1,290	1,166	1,150	1,296	1,201	1,040	990	963	1,044	830	762
Prevalence Rate (%)	33.7	33.0	34.4	31.9	31.5	35.5	32.9	28.5	27.2	26.5	24.1	19.2	17.6
Oral Contraceptive (Pills)	581	575	588	514	436	505	448	428	393	380	130	65	49
Intra Uterine Device	15	9	12	40	59	14	6	2	7	2	13	6	6
Depo Provera (Injections)	571	565	576	494	487	677	630	515	482	472	772	651	613
Norplant/Jadelle	24	29	35	70	86	65	60	58	81	98	125	100	94
Condom	38	34	42	38	35	32	41	31	22	2	-	-	-
Others	34	25	37	10	47	3	16	6	5	9	4	-	-

**Table 2.5: Suspected cases of notifiable diseases by year**

**COOK ISLANDS 2010-2020**

Disease	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Acute Respiratory Infection	5,878	7,076	9,879	9,181	9,933	9,235	8,753	8,774	8,297	4,364	3,201
Asthma	102	102	116	84	52	31	66	78	133	337	329
Bronchitis	737	546	450	465	450	435	303	337	141	187	133
Chickenpox	13	22	44	37	51	19	50	44	145	8	54
Chikungunya						11	0	0	0	0	0
Conjunctivitis	307	842	246	199	152	171	100	40	70	53	29
Dengue	0	0	6	4	5	0	0	0	1	380	458
Diarrhoea child/adult	127	128	260	221	182	143	204	109	129	75	60
Diarrhoea infant	4	11	19	17	5	7	3	3	7	4	2
Diphtheria	0	0	0	0	0	0	0	0	0	0	0
Filariasis	0	0	0	0	0	0	0	0	0	0	0
Fish Poisoning	78	102	90	90	65	41	69	69	29		
Food Poisoning	32	30	46	40	34	28	54	49	14	20	17
Gastroenteritis	677	683	1,085	725	653	594	655	646	585	349	383
Influenza & Viral Illness	221	648	420	514	420	324	424	605	670	638	472
Leprosy	0	0	0	0	0	0	0	0	0	0	0
Measles	1	0	0	1	0	0	0	0	4	8	0
Meningitis	3	2	0	2	1	0	1	0	1	3	0
Mumps	7	4	4	5	1	0	2	0	9	1	1
Otitis Media	186	226	300	270	268	317	231	242	256	319	227
Pneumonia	286	505	901	813	725	637	397	192	266	154	40
Rheumatic fever (acute & chronic)	28	18	40	15	7	10	24	10	64	29	86
Scabies	83	216	285	317	162	140	206	145	123	48	80
Skin Sepsis	1,256	1,363	2,032	2,746	1,152	938	2,046	2,278	1,641	1,575	1,357
Whooping Cough (Pertussis)	0	7	7	4	0	0	1	0	1	0	0
Yaws	0	0	0	0	0	0	0	0	0	0	0

**Table 2.6: Inpatient morbidity (diseases) by year and sex  
COOK ISLANDS 2015 - 2020**

ICD 10 Code	CAUSE	2015		2016		2017		2018		2019		2020	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Number of Hospital Admissions	696	955	756	993	703	1,031	845	1,140	839	911	617	934
A00-B99	Certain infectious and parasitic diseases	67	54	27	40	21	25	5	5	15	9	10	13
C00-D48	Neoplasms	12	5	9	3	11	12	15	14	8	12	6	9
D50-D89	Diseases of blood & blood-forming organs & certain disorders involving the immune mechanism	10	21	10	19	5	21	13	17	20	9	8	15
E00-E90	Endocrine, nutritional and metabolic diseases	73	66	82	71	63	74	79	71	98	83	76	65
F00-F99	Mental and behavioural disorders	20	11	21	15	15	15	20	14	22	19	14	21
G00-G99	Diseases of the nervous system	14	14	13	10	8	15	9	16	29	22	11	9
H00-H59	Diseases of the eye and adnexa	11	22	23	34	21	24	16	34	36	23	14	18
H60-H95	Diseases of the ear and mastoid process	1	3	0	0	1	0	3	5	2	1	2	3
I00-I99	Diseases of the circulatory system	216	170	192	164	148	189	175	163	156	139	134	161
J00-J99	Diseases of the respiratory system	134	131	125	81	75	104	97	108	122	68	78	94
K00-K93	Diseases of the digestive system	54	41	67	38	58	48	68	54	65	57	44	52
L00-L99	Diseases of the skin and subcutaneous tissue	41	33	56	35	51	31	76	32	71	26	67	35
M00-M99	Diseases of the musculoskeletal system and connective tissue	21	7	35	10	21	8	18	8	17	6	23	12
N00-N99	Diseases of the genitourinary system	24	42	43	42	14	54	26	53	48	16	36	47
O00-O99	Pregnancy, childbirth and the puerperium	0	229	0	275	0	256	0	288	0	338	0	321
P00-P96	Certain conditions originating in the perinatal period	0	4	0	2	1	1	0	0	0	3	0	1
Q00-Q99	Congenital malformations, deformations and chromosomal abnormalities	0	1	0	0	1	0	0	0	0	0	0	0
R00-R99	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	73	78	33	45	18	37	17	24	39	33	20	15
S00-T98	Injury, poisoning and certain other consequences of external causes	76	65	86	38	64	40	58	39	54	35	59	26
V01-Y98	External causes of morbidity and mortality	26	24	27	26	48	37	19	19	37	12	15	17

**TABLE 2.7: Patients Admitted and Discharged from Hospital  
by Region & Island and Bed Occupancy.  
COOK ISLANDS 2020**

REGION & ISLAND	Number of				Average Occupied Bed	% Bed Occupancy
	Admissions	Discharges	Bed Days Used	Bed Days Available		
COOK ISLANDS	1,551	1,597	7,571	50,736	20.7	14.9
RAROTONGA	1,310	1,428	6,550	25,550	17.9	25.6
SOUTHERN GROUP excluding Rarotonga	210	127	956	18,615	2.6	5.1
Aitutaki	135	102	743	9,490	2.0	7.8
Mangaia	48	13	28	2,920	0.1	1.0
Atiu	17	5	167	3,285	0.5	5.1
Mauke	3	1	2	2,190	0.0	0.1
Mitiaro	7	6	16	730	0.0	2.2
NORTHERN GROUP	31	15	65	6,571	0.2	1.0
Palmerston	0	0	0	1	0.0	0.0
Pukapuka/Nassau	27	11	33	1,460	0.1	2.3
Manihiki	2	3	13	2,920	0.0	0.4
Rakahanga	1	1	19	730	0.1	2.6
Penrhyn	1	0	0	1,460	0.0	0.0

**TABLE 2.7: Patients Admitted and Discharged from Hospital  
by Region & Island and Bed Occupancy.  
COOK ISLANDS 2019**

REGION & ISLAND	Number of				Average Occupied Bed	% Bed Occupancy
	Admissions	Discharges	Bed Days Used	Bed Days Available		
COOK ISLANDS	1,750	1,813	7,329	50,735	20.1	14.4
RAROTONGA	1,276	1,675	6,380	25,550	17.5	25.0
SOUTHERN GROUP excluding Rarotonga	418	127	864	18,615	2.4	4.6
Aitutaki	309	102	803	9,490	2.2	8.5
Mangaia	36	13	54	2,920	0.1	1.8
Atiu	36	5		3,285	0.0	0.0
Mauke	28	1	5	2,190	0.0	0.2
Mitiaro	9	6	2	730	0.0	0.3
NORTHERN GROUP	57	11	85	6,570	0.2	1.3
Palmerston	1	0	0	0	0.0	0.0
Pukapuka/Nassau	36	2	25	1,460	0.1	1.7
Manihiki	8	3	40	2,920	0.1	1.4
Rakahanga	2	6	19	730	0.1	2.6
Penrhyn	10	0	1	1,460	0.0	0.1

**Table 2.8: Selected common underlying causes of mortality by year and rate**  
**COOK ISLANDS: 2015-2020**

Underlying cause of death	2015		2016		2017		2018		2019		2020	
	Number of death	Rate per 100,000	Number of death	Rate per 100,000	Number of death	Rate per 100,000	Number of death	Rate per 100,000	Number of death	Rate per 100,000	Number of death	Rate per 100,000
Diseases of the Circulatory System	56	430.8	36	313.0	29	252.2	44.0	382.6	39	263.5	51	344.5
Hypertension	15	115.4	7	60.9	2	17.4	1.0	8.7	0	0.0	8	54.0
Ischaemic heart disease	14	107.7	5	43.5	9	78.3	14.0	121.7	10	67.6	14	94.6
Cerebrovascular Disease	9	69.2	13	113.0	10	87.0	11.0	95.7	15	101.3	10	67.6
Heart Failure	9	69.2	0	0.0	0	0.0	0.0	0.0	14	94.6	10	67.6
Other	9	69.2	11	95.7	8	69.6	18.0	156.5	0	0.0	9	60.8
Neoplasms	16	123.1	17	147.8	15	130.4	22.0	191.3	17	114.8	20	135.1
Liver and intrahepatic bile ducts	1	7.7	1	8.7	2	17.4	3.0	26.1	0	0.0	3	20.3
Trachea, Bronchus & Lungs	1	7.7	6	52.2	5	43.5	4.0	34.8	1	6.8	3	20.3
Prostate	4	30.8	3	26.1	4	34.8	3.0	26.1	2	13.5	3	20.3
Female Breast	1	7.7	2	17.4	0	0.0	0.0	0.0	4	27.0	0	0.0
Other	9	69.2	5	43.5	4	34.8	12.0	104.3	10	67.6	11	74.3
Diseases of the Respiratory System	10	76.9	7	60.9	10	87.0	14.0	121.7	12	81.1	10	67.6
Pneumonia	5	38.5	2	17.4	5	43.5	7.0	60.9	6	40.5	5	33.8
Bronchitis, Emphysema & Asthma	4	30.8	4	34.8	5	43.5	5.0	43.5	4	27.0	1	6.8
Other	1	7.7	1	8.7	0	0.0	2.0	17.4	2	13.5	4	27.0
Endocrine, Nutritional & Metabolic Diseases & Immunity Disorders	23	176.9	25	217.4	17	147.8	21.0	182.6	7	47.3	5	33.8
Diabetes Mellitus	23	176.9	22	191.3	16	139.1	21.0	182.6	6	40.5	5	33.8
Other	0	0.0	3	26.1	1	8.7	0.0	0.0	1	6.8	0	0.0
Symptoms, Signs & Ill-Defined Conditions	1	7.7	0	0.0	0	0.0	4.0	34.8	14	94.6	5	33.8
Certain Infectious and Parasitic Diseases	2	15.4	3	26.1	4	34.8	2.0	17.4	1	6.8	7	47.3
Septicaemia	2	15.4	3	26.1	3	26.1	2.0	17.4	1	6.8	6	40.5
Other	0	0.0	0	0.0	1	8.7	0.0	0.0	0	0.0	1	6.8
Injury, poisoning and certain other consequences of external causes	7	53.8	8	69.6	3	26.1	11.0	95.7	0	0.0	1	6.8
Injuries to the head	7	53.8	5	43.5	2	17.4	8.0	69.6	0	0.0	0	0.0
Other	0	0.0	3	26.1	1	8.7	3.0	26.1	0	0.0	1	6.8
Mental and behavioural disorders due to use of alcohol	0	0.0	0	0.0	0	0.0	0.0	0.0	0	0.0	0	0.0
Diseases of the Nervous System	0	0.0	1	8.7	3	26.1	2.0	17.4	3	20.3	3	20.3
Diseases of the Digestive System	0	0.0	0	0.0	2	17.4	2.0	17.4	4	27.0	6	40.5
Ulcer of Stomach and Duodenum	0	0.0	0	0.0	0	0.0	0.0	0.0	2	13.5	2	13.5
Chronic Liver disease and Cirrhosis	0	0.0	0	0.0	2	17.4	0.0	0.0	2	13.5	4	27.0
Other	0	0.0	0	0.0	0	0.0	2.0	17.4	0	0.0	0	0.0
Certain Conditions Originating in the Perinatal Period	1	7.7	0	0.0	2	17.4	2.0	17.4	3	20.3	2	13.5
Congenital malformations, deformations & chromosomal abnormalities	0	0.0	2	17.4	1	8.7	0.0	0.0	0	0.0	0	0.0
Diseases of the Genitourinary System	2	15.4	0	0.0	5	43.5	2.0	17.4	6	40.5	6	40.5
<b>EXTERNAL CAUSES OF INJURY AND POISONING</b>	7	53.8	8	69.6	3	26.1	11.0	95.7	7	47.3	10	67.6
Transport accidents	5	38.5	1	8.7	1	8.7	4.0	34.8	6	40.5	7	47.3
Intentional self-harm	1	7.7	3	26.1	1	8.7	5.0	43.5	0	0.0	2	13.5
Other	1	7.7	4	34.8	1	8.7	2.0	17.4	1	6.8	1	6.8

Note: 1. Rates are calculated per 100,000 resident population

2. Source for population data is Statistics Cook Islands Quarterly Vital Statistics and Population Estimates

TABLE 2.9: Death by Cause, Age Groupings and Sex.  
COOK ISLANDS 2020

ICD-10		Causes group		All Age		<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	
Tab Code	Underlying Cause of Death	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
ALL CAUSES				81	45	2	0	0	0	1	0	0	1	5	1	3	1
A00-B99	Certain infectious and parasitic diseases	6	0	0	0												
A40-A41	Septicaemia			6	0												
C00-D48	Neoplasms	14	6	0	0												
C15	Malignant neoplasm of oesophagus			1	0												
C16	Malignant neoplasm of stomach			0	1						1				1		
C18-C21	Malignant neoplasm of colon, rectum and anus			2	0												
C22	Malignant neoplasm of liver and intrahepatic bile ducts			0	1								1			1	
C23	Malignant neoplasm of gallbladder			2	0										1		1
C33-C34	Malignant neoplasm of trachea, bronchus and lung			2	1										1		2
C56	Malignant neoplasm of ovary			0	1									1			
C61	Malignant neoplasm of prostate			3	0											2	
C71	Malignant neoplasm of brain			1	0					1							1
C78.0	Secondary malignant neoplasm of lung			1	0												
C83.3	Diffuse large B-cell lymphoma			0	1					1					1		
C85.1	B-cell lymphoma, unspecified			1	0												
C94.2	Acute megakaryoblastic leukaemia			1	0										1		
D00.2	Carcinoma in situ of oral cavity, oesophagus and stomach			0	1											1	
E00-E90	Endocrine, nutritional and metabolic diseases	3	2	0	0												
E10-E14	Diabetes Mellitus			3	2								1	1	1	1	1
G00-G99	Diseases of the nervous system	0	3	0	3								1				
I00-I99	Diseases of the circulatory system	30	21	1	0												1
I10-I13	Hypertension Disease			6	2												
I20-I25	Ischaemic heart diseases			8	6							1		1	1	2	3
I26-I51	Other heart diseases			10	9								1	2	1	3	2
I60-I69	Cerebrovascular Disease			5	4											2	1
J00-J99	Diseases of the respiratory system	8	2	4	0									1	2	1	
J12-J18	Pneumonia			1	0										1		
J40-J47	Chronic lower respiratory diseases			1	1											1	1
J80-J84	Other respiratory diseases principally affecting the interstitium			0	1												
J95-J99	Other diseases of the respiratory system			2	0										1		
K00-K93	Diseases of the digestive system	4	2	4	2												
L00-L99	Diseases of the skin and subcutaneous tissue	0	1	0	1												
N00-N99	Diseases of the genitourinary system	4	2	4	2										1	1	
P00-P96	Certain conditions originating in the perinatal period	2	0	0	0												
P20-P29	Respiratory and cardiovascular disorders specific to the perinatal period			1	0		1										
P90-P96	Other disorders originating in the perinatal period			1	0		1										
R00-R99	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	1	4	1	4									2		1	1
S00-T98	Injury, poisoning and certain other consequences of external causes	1	0	1	0								1				
V01-Y98	External causes of morbidity and mortality	8	2	0	0												
V01-V99	Transport accidents			7	0												
V01-X59	Accidents			0	1			1				3		2		1	
X60-X84	Intentional self-harm			1	1							1				1	

TABLE 2.9: Death by Cause, Age Groupings and Sex.  
COOK ISLANDS 2019

ICD-10		Causes group		All Age		<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	
Tab Code	Underlying Cause of Death	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
ALL CAUSES				63	50	2	1	0	0	0	0	2	1	1	0	3	1
A00-B99	Certain infectious and parasitic diseases	0	1	0	0												
A40-A41	Septicaemia			0	1												
C00-D48	Neoplasms	12	5	0	0												
C18-C21	Malignant neoplasm of colon, rectum and anus			1	0								1				
C22	Malignant neoplasm of liver and intrahepatic bile ducts			0	0												
C23	Malignant neoplasm of gallbladder			0	0												
C25	Malignant neoplasm of pancreas			1	0												
C33-C34	Malignant neoplasm of trachea, bronchus and lung			0	1								1				
C43	Malignant melanoma of skin			1	0									1			
C50.9	Malignant neoplasm of breast, unspecified			0	4								1				3
C61	Malignant neoplasm of prostate			2	0											1	
C64	Malignant neoplasm of kidney, except renal pelvis			1	0								1				
C73	Malignant neoplasm of thyroid gland			1	0											1	
C78.0	Secondary malignant neoplasm of lung			1	0												
C79.3	Secondary malignant neoplasm of bone and bone marrow			1	0											1	
C83.3	Diffuse large B-cell lymphoma			0	0												
C85.1	B-cell lymphoma, unspecified			1	0											1	
C90	Multiple myeloma and malignant plasma cell neoplasms			1	0												
D09.1	Carcinoma in situ of other and unspecified organs, urinary organs			1	0											1	
E00-E90	Endocrine, nutritional and metabolic diseases	4	3	0	0												
E10-E14	Diabetes Mellitus			3	3												
E16.2	Hypoglycaemia, unspecified			1	0								1				
I00-I99	Diseases of the circulatory system	20	19	0	0												
I10-I13	Hypertension Disease			0	0												
I20-I25	Ischaemic heart diseases			5	5									1	2	1	1
I26-I51	Other heart diseases			8	6									1	2	1	3
I60-I69	Cerebrovascular Disease			7	8									1	2	4	1
J12-J18	Pneumonia			3	3												
J40-J47	Chronic lower respiratory diseases			0	3												
J80-J84	Other respiratory diseases principally affecting the interstitium			1	1											2	3
J95-J99	Other diseases of the respiratory system			0	1											2	1
K00-K93	Diseases of the digestive system	1	3	1	3												
L00-L99	Diseases of the skin and subcutaneous tissue	0	0	0	0												
N00-N99	Diseases of the genitourinary system	4	2	4	2												
P00-P96	Certain conditions originating in the perinatal period	2	1	2	1												
P20-P29	Respiratory and cardiovascular disorders specific to the perinatal period			0	0												
P90-P96	Other disorders originating in the perinatal period			0	0												
R00-R99	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	8	6	8	6												
S00-T98	Injury, poisoning and certain other consequences of external causes	0	0	0	0												
V01-Y98	External causes of morbidity and mortality	6	1	0	0												
V01-V99	Transport accidents			5	1												
V01-X59	Accidents			1	0												
X60-X84	Intentional self-harm			0	0												



Table 3: Admissions due to road traffic crashes

RAROTONGA: 2008-2020													
Type of Accident	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Transport Crashes	51	52	46	60	58	66	68	41	42	49	49	52	42
Male	24	35	28	41	35	46	42	22	24	31	33	29	27
Female	27	17	18	19	23	20	26	19	18	18	16	23	15
Alcohol Related	32	30	26	32	27	30	26	18	19	23	26	25	17
Percentage Alcohol Related	63%	58%	57%	53%	47%	45%	38%	44%	45%	47%	53%	48%	40%
Alcohol Related Deaths	4	2	2	4	2	4	4	3	1	3	3	4	5
Non Alcohol Related Deaths	0	0	0	0	2	2	1	2	0	0	0	0	0
Transport Crashes - Outer Islands									4	3	0	0	0
COOK ISLANDS													
Number of Deaths	4	3	2	4	5	6	6	5	1	3	4	6	7
Resident population	14,300	13,300	11,900	14,700	14,300	14,100	13,600	13,000	11,500	11,500	14,802	14,802	14,802
Rate /100 000 pop	28.0	22.6	16.8	27.2	35.0	42.6	44.1	38.5	8.7	26.1	27.0	40.5	47.3

Table 3.1: Admissions due to alcohol related transport crashes  
by age groupings and year

RAROTONGA: 2008-2017													
Age Group	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
0 - 14	1	0	2	0	5	0	0	0	0	0	0	0	1
15 - 24	19	15	12	16	9	13	12	8	6	13	11	12	8
25 - 34	5	7	5	7	7	12	8	7	8	3	9	9	4
35 - 44	3	6	5	4	6	1	1	2	2	4	3	3	1
45 - 54	3	1	1	3	0	2	3	1	1	3	2	1	2
55 +	1	1	1	2	0	2	2	0	2	0	1	1	1
Total	32	30	26	32	27	30	26	18	19	23	26	26	17

Table 3.2: Number of Patients referred Overseas and received from the Outer Islands  
COOK ISLANDS: 2010-2020

Period	Overseas	Island										
		TOTAL	Aitutaki	Mangaia	Atiu	Mauke	Mitiaro	Palmerston	Nassau	Manihiki	Rakahanga	Penrhyn
2010	158	289	98	62	27	17	27	8	22	8	4	16
2011	150	228	70	41	20	18	13	9	17	13	10	17
2012	172	280	132	37	19	16	20	5	18	15	1	17
2013	134	273	98	40	30	22	22	5	24	17	7	8
2014	116	280	117	35	32	26	16	0	13	22	4	15
2015	155	237	99	25	27	29	15	9	11	8	2	12
2016	120	232	68	32	26	25	13	3	21	19	4	21
2017	147	258	99	33	32	23	20	4	27	7	5	8
2018	197	298	132	43	49	19	9	6	16	9	3	12
2019	178	338	146	37	43	31	27	5	16	13	9	11
2020	137	195	86	20	15	8	14	2	19	17	4	10
2018 Mar	39	66	29	5	16	2	0	3	9	0	0	2
Jun	34	90	34	16	15	5	3	3	2	8	0	4
Sep	71	70	35	11	6	9	5	0	2	0	0	2
Dec	53	72	34	11	12	3	1	0	3	1	3	4
2019 Mar	42	83	22	6	6	16	5	2	12	2	6	6
Jun	40	147	77	18	18	10	11	0	4	6	2	1
Sep	58	51	21	10	4	3	3	0	2	3	0	5
Dec	38	67	29	4	15	2	8	3	3	2	1	0
2020 Mar	42	53	22	8	4	1	4	1	1	5	2	5
Jun	20	39	19	2	3	4	1	1	4	2	0	3
Sep	35	56	27	7	5	2	3	0	3	7	1	1
Dec	40	47	18	3	3	1	6	0	11	3	1	1

**Table 3.3: Laboratory positive new cases by disease and year**  
**RAROTONGA, COOK ISLANDS: 2013-2020**

STI	2013	2014	2015	2016	2017	2018	2019	2020
Gonorrhoea	6	2	1	2	11	14	38	4
Syphilis	0	0	1	1	1	5	6	6
Candidiasis	7	4	0	0	20	51	0	0
Non Specific Urethritis	6	0	0	0	0	0	0	0
Trichomonas Vaginalis	9	1	0	0	0	5	2	3
Chlamydia	39	28	30	37	108	105	100	0
Hepatitis B	5	6	6	8	9	7	12	11
Total	72	41	38	48	149	187	158	24

**Table 3.4: Ciguatera (Fish poisoning) cases seen by year and month**  
**COOK ISLANDS: 2000-2020**

Year	MONTH												TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2000	9	14	17	9	14	11	0	5	15	9	24	11	138
2001	13	24	7	8	7	6	7	17	13	15	12	4	133
2002	32	25	18	22	19	7	3	4	9	22	13	9	183
2003	20	20	16	28	12	14	5	9	22	19	33	29	227
2004	65	40	45	44	47	23	26	33	39	22	46	39	469
2005	25	17	49	59	50	41	29	33	26	32	31	29	421
2006	25	16	27	27	20	13	12	15	30	31	24	18	258
2007	24	25	20	27	27	23	18	12	20	24	7	18	245
2008	28	36	15	14	20	13	14	14	17	19	18	15	223
2009	19	13	13	9	11	8	7	8	5	11	16	9	129
2010	5	10	10	7	11	9	11	2	4	1	5	3	78
2011	5	3	9	20	8	4	13	10	6	9	6	9	102
2012	10	13	4	4	6	5	6	6	8	11	12	5	90
2013	11	8	6	13	0	3	6	6	4	8	21	4	90
2014	6	8	5	4	2	1	3	2	12	6	7	9	65
2015	4	5	3	2	1	2	1	3	6	4	5	5	41
2016	5	8	9	2	3	12	6	4	5	3	5	7	69
2017	13	9	12	3	5	10	2	4	5	4	0	2	69
2018	2	1	4	2	0	0	2	4	3	2	3	1	24
2019	0	4	2	3	1	1	1	1	1	1	1	11	27
2020	5	0	2	21	5	3	3	4	3	1	12	0	59

**Table 3.5: Incidence of cancer cases by site, sex and age groupings.**  
**COOK ISLANDS 2020**

ICD 10 CODE	SITE	MALE									% Distribution
		0-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	Total	
C00- D48	ALL SITES	0	0	0	1	0	3	0	1	5	100.0
C33-C34	Malignant neoplasm of trachea, bronchus and lung				1	0	1	0	0	2	40.0
C61	Malignant neoplasms of prostate				0	0	2	0	1	3	60.0
FEMALE											
C00- D48	ALL SITES	0	0	1	0	0	4	1	0	6	100.0
C53	Malignant neoplasm of cervix uteri			0	0	0	0	1	0	1	16.7
C69-C72	Malignant neoplasms of eye, brain and other parts of central nervous system			0	0	0	1	0	0	1	16.7
C81-C96	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue			0	0	0	3	0	0	3	50.0
C82-C85	Non-Hodgkin's lymphoma			1	0	0	0	0	0	1	16.7

**Table 3.5: Incidence of cancer cases by site, sex and age groupings.**  
**COOK ISLANDS 2019**

ICD 10 CODE	SITE	MALE									% Distribution
		0-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	Total	
C00- D48	ALL SITES	0	0	0	0	1	3	7	4	15	100.0
C02	Malignant neoplasm of other and unspecified parts of tongue					0	0	1	0	1	6.7
C16	Malignant neoplasm of stomach					0	1	1	0	2	13.3
C23	Malignant neoplasm of gallbladder					0	0	0	1	1	6.7
C33-C34	Malignant neoplasm of trachea, bronchus and lung					0	1	1	0	2	13.3
C43-C44	Melanoma and other malignant neoplasms of skin					0	1	1	3	5	33.3
C61	Malignant neoplasms of prostate					0	0	2	0	2	13.3
C64-C68	Malignant neoplasms of urinary tract					1	0	1	0	2	13.3
FEMALE											
C00- D48	ALL SITES	0	0	0	2	5	6	4	3	20	100.0
C16	Malignant neoplasm of stomach				1	0	0	0	0	1	5.0
C43-C44	Melanoma and other malignant neoplasms of skin				0	0	2	0	2	4	20.0
C50	Malignant neoplasm of breast				0	1	2	0	0	3	15.0
C53	Malignant neoplasm of cervix uteri				0	1	1	0	0	2	10.0
C56	Malignant neoplasm of ovary				0	1	0	2	1	4	20.0
C57.9	Female genital organ, unspecified				0	0	0	1	0	1	5.0
C73-C75	Malignant neoplasms of thyroid and other endocrine glands				1	0	0	1	0	2	10.0
C82-C85	Non-Hodgkin's lymphoma				0	1	0	0	0	1	5.0
C92	Myeloid leukaemia				0	0	1	0	0	1	5.0
D07.0	Endometrium				0	1	0	0	0	1	5.0

Table 3.6: Incidence and prevalence of NCDs in the COOK ISLANDS

2009-2020

Year	Resident Population Estimate	Total number with NCD	new cases	Incidence	Prevalence	Cardiovascular diseases (CVD)	new cases	Incidence	Prevalence	Diabetes	new cases	Incidence	Prevalence	Cancer	new cases	Incidence	Prevalence	chronic respiratory diseases (COPD)	new cases	Incidence	Prevalence
before 2009						1,543				681				148				600			
2009	13,300	2,634				1,402				658				145				590			
2010	11,900	2,923	289	24	246	1,571	169	14	132	740	82	7	62	171	26	2	14	640	50	4	54
2011	14,700	3,226	303	21	219	1,730	159	11	118	831	91	6	57	200	29	2	14	709	69	5	48
2012	14,300	3,578	352	25	250	1,944	214	15	136	927	96	7	65	228	28	2	16	767	58	4	54
2013	14,100	3,895	317	22	276	2,140	196	14	152	1,030	103	7	73	245	17	1	17	815	48	3	58
2014	13,600	4,032	137	10	296	2,310	170	13	170	1,140	110	8	84	264	19	1	19	879	64	5	65
2015	13,000	4,312	280	22	332	2,475	165	13	190	1,267	127	10	97	282	18	1	22	925	46	4	71
2016	11,500	4,600	288	25	400	2,646	171	15	230	1,413	146	13	123	313	31	3	27	981	56	5	85
2017	11,500	4,879	279	24	424	2,743	97	8	239	1,473	60	5	128	338	25	2	29	1000	19	2	87
2018	10,649	5,000	121	11	470	2,953	210	20	277	1,596	123	12	150	361	23	2	34	1050	50	5	99
2019	10,649	5,216	216	20	490	3,305	352	33	310	1,679	83	8	158	396	35	3	37	1075	25	2	101
2020	10,649	5,498	282	26	516	3,803	498	47	357	1,711	32	3	161	407	11	1	38	1091	16	2	102

TABLE 3.7: Outpatient indicators  
COOK ISLANDS 2010-2020

Year	Consultations	Dressings	Injections	Total Attendance
2010	40,708	2,802	926	54,941
2011	46,033	3,066	985	61,277
2012	35,836	2,830	1,373	50,156
2013	37,906	4,045	1,515	52,309
2014	19,087	2,804	1,322	26,122
2015	31,401	3,288	1,649	46,902
2016	46,601	6,545	2,196	75,104
2017	52,316	8,369	2,138	78,121
2018	56,218	9,182	2,147	79,946
2019	58,148	7,145	901	66,194
2020	35,535	3,091	1,147	39,773

TABLE 3.8 Outpatient consultations by year, sex and age groups

## COOK ISLANDS 2012-2020

Cook Islands 2012-2020																	
Year	Total	Age Groups															
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	Unknown
	Sex: Both																
2012	35,836	4,097	4,279	2,232	2,204	2,291	1,752	1,839	1,661	2,018	2,183	2,338	1,735	1,693	1,727	3,763	24
2013	37,906	5,033	3,573	2,323	2,455	2,202	1,905	1,918	1,675	2,206	2,399	2,658	1,993	1,930	1,806	3,815	15
2014	19,087	1,597	1,942	1,247	1,160	1,180	1,100	1,063	926	1,118	1,299	1,413	1,210	1,033	842	1,949	8
2015	31,401	3,571	2,834	1,757	1,790	1,708	1,619	1,599	1,513	1,704	2,161	2,375	2,007	1,815	1,510	3,433	5
2016	46,601	5,736	3,134	2,666	2,771	2,695	2,475	2,117	2,188	2,585	3,187	3,599	3,344	2,642	2,406	5,044	12
2017	52,316	5,239	4,200	2,755	2,975	3,129	3,430	3,068	3,017	3,128	3,704	3,845	3,619	2,725	2,386	5,086	10
2018	56,218	5,196	4,054	2,964	3,210	3,154	3,511	3,211	3,368	3,481	3,717	4,236	4,436	3,240	2,708	5,732	0
2019	58,148	5,388	4,035	2,836	3,112	3,556	4,044	3,441	3,626	3,651	3,912	4,411	4,555	3,292	2,557	5,732	0
2020	35,535	2,995	2,154	1,756	1,674	1,856	2,081	2,074	2,174	2,017	2,591	2,883	2,950	2,247	1,968	4,115	0
	Sex: Male																
2012	18,243	2181	2169	1181	1157	1025	828	812	708	976	1092	1337	882	979	944	1962	10
2013	19,320	2640	1834	1218	1221	1002	829	840	718	1107	1228	1473	1020	1083	982	2116	9
2014	9,673	891	990	651	592	557	544	449	479	480	709	737	622	517	439	1,012	4
2015	15,770	2,001	1,442	912	882	777	773	603	678	789	1,126	1,254	982	945	812	1,793	1
2016	23,897	3,067	1,579	1,411	1,320	1,187	1,166	940	1,087	1,221	1,827	1,857	1,810	1,435	1,332	2,653	5
2017	26,491	2,720	2,195	1,400	1,340	1,478	1,576	1,442	1,442	1,558	2,003	1,935	1,898	1,482	1,294	2,724	4
2018	28,316	2,732	2,137	1,476	1,440	1,409	1,617	1,513	1,665	1,830	1,958	2,124	2,268	1,657	1,548	2,942	0
2019	29,544	2,965	2,093	1,485	1,443	1,574	1,866	1,655	1,689	1,894	2,165	2,221	2,436	1,714	1,427	2,917	0
2020	16,325	1,479	1,180	967	780	855	1,011	1,036	1,124	972	1,366	1,561	1,700	1,218	1,076	2,104	0
	Sex: Female																
2012	17,593	1916	2110	1051	1047	1266	924	1027	953	1042	1091	1001	853	714	783	1801	14
2013	18,586	2393	1739	1105	1234	1200	1076	1078	957	1099	1171	1185	973	847	824	1699	6
2014	9,414	706	952	596	568	623	556	614	447	638	590	676	588	516	403	937	4
2015	15,631	1,570	1,392	845	908	931	846	996	835	915	1,035	1,121	1,025	870	698	1,640	4
2016	22,704	2,669	1,555	1,255	1,451	1,508	1,309	1,177	1,101	1,364	1,360	1,742	1,534	1,207	1,074	2,391	7
2017	25,825	2,519	2,005	1,355	1,635	1,651	1,854	1,626	1,575	1,570	1,701	1,910	1,721	1,243	1,092	2,362	6
2018	27,902	2,464	1,917	1,488	1,770	1,745	1,894	1,698	1,703	1,651	1,759	2,112	2,168	1,583	1,160	2,790	0
2019	25,756	2,411	1,936	1,350	1,669	1,978	2,178	1,785	1,933	1,757	1,744	2,189	2,118	1,578	1,130	2,803	0
2020	15,082	1,515	969	788	892	998	1,070	1,038	1,050	1,045	1,225	1,321	1,250	1,029	892	2,023	0

## Lifetables 2018-2020

## Males

x	dx	nx	lx	mx	Lx	Tx	ex	Females								
x	dx	nx	lx	mx	Lx	Tx	ex	x	dx	nx	lx	mx	Lx	Tx	ex	
<1	6.0	211	1.0000	0.02844	208.00	1735.50	82.25	<1	2.0	154	1.0000	0.01299	153.00	1325.00	86.03	
1--4	0.0	205	0.9716	0.00000	205.00	1527.50	74.51	1--4	0.0	152	0.9870	0.00000	152.00	1172.00	77.10	
5--14	2.0	205	0.9716	0.00976	204.00	1322.50	64.51	5--14	1.0	152	0.9870	0.00658	151.50	1020.00	67.10	
15--24	3.0	203	0.9621	0.01478	201.50	1118.50	55.10	15--24	2.0	151	0.9805	0.01325	150.00	868.50	57.51	
25--34	9.0	200	0.9479	0.04500	195.50	917.00	45.85	25--34	1.0	149	0.9675	0.00671	148.50	718.50	48.22	
35--44	7.0	191	0.9052	0.03665	187.50	721.50	37.77	35--44	3.0	148	0.9610	0.02027	146.50	570.00	38.51	
45--54	10.0	184	0.8720	0.05435	179.00	534.00	29.02	45--54	10.0	145	0.9416	0.06897	140.00	423.50	29.20	
55--64	28.0	174	0.8246	0.16092	160.00	355.00	20.40	55--64	28.0	135	0.8766	0.20741	121.00	283.50	21.00	
65--74	54.0	146	0.6919	0.36986	119.00	195.00	13.36	65--74	27.0	107	0.6948	0.25234	93.50	162.50	15.18	
75--84	62.0	92	0.4360	0.67391	61.00	76.00	8.26	75--84	51.0	80	0.5195	0.63750	54.50	69.00	8.62	
85+	30.0	30	0.1422	1.00000	15.00	15.00	5.00	85+	29.0	29	0.1883	1.00000	14.50	14.50	5.00	

## NOTE

x	Age interval
dx	Number of people that died in the age interval
nx	Number of people alive at the start of the age interval
lx	Survivorship - Percentage of people that were alive in the age interval
mx	Mortality - Percentage of people that died in the age interval
Lx	Average number of people that lived in the age interval
Tx	Number of total years available to live in the age interval
ex	Life expectancy - Expected number of years of life remaining in the age interval