



National Health Information Bulletin 2021

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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 2021 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 131 national health indicators¹ to monitor and analyse the health status of the Cook Islands population. In 2020 this was reduced to 129 health indicators. 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 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 and managed to stay COVID-19 free for two years until the full border opening to New Zealand on 13 January 2022. The COVID-19 vaccination roll out commenced on the 17 May 2021.

Decentralisation of health services over 2020 - 2021, alleviated the impact of COVID-19 establishing ten local community health clinics and relocation of Outpatients Emergency Department from Rarotonga Hospital to Tupapa health clinic.

Local Puna health 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 2021 a total of 206 births occurred, decreasing live births by 20% from the 2019-2020 rate. 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). In 2021 the TFR is 2.1 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, migration, easing economic uncertainty and career posts for mothers².

¹ See **Appendix 1**

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

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.

Oral Health services over the last three years had an average of 4,410 consults aged two years and over. Twenty three percent of those consults were for oral restoration. In 2021, the data was collated by classifications for patients seeking oral health.

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 is the main provider of health care in the Cook Islands; and has a regulatory function through various legislations. Free healthcare is accessible to all students until the age of 18 years while they are still at school; 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 MedTech capability, but face ongoing connectivity, IT infrastructure and equipment challenges.

Under digital health initiatives, TMO have been investing towards digitising 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	2021
Overall	Cook Islands census	14,802					14,987
	Total Fertility Rate (TFR)	2.5	2.4	2.5	1.8	2.0	2.1
	<i>Total number of deaths</i>	101	92	123	113	126	127
	Crude Death Rate (CDR)	8.8	8.0	8.3	7.6	9.0	5.8
At Birth	Total number of births	243	231	228	232	257	206
	Life Expectancy at birth	73.6	74.1	75.7	75.9	77	80
	Crude Birth Rate (CBR)	16.4	15.6	15.4	15.7	17	13.7
	Fetal (neonatal)	4.1	0	13	8.6	3.9	9.6
Under 5 years	Cook Islands population	1,261	1,261	1,261	1,261	1,261	1,114
	Under 5 Mortality (per	4	4.1	7.2	12.9	8	9.7
	<i>Number of Inpatients</i>	212	141	204	94	77	61
	% under 5	16.8	11.2	16.2	7.5	6.1	7.5
	<i>Number Outpatient</i>	5,736	5,239	5,196	5,388	2,995	2,553
	Consult Per child	4.5	4.2	4.1	4.2	2.4	3.5
5 to 14 years	Cook Islands population	2,736	2,736	2,736	2,736	2,736	2,429
	Life Expectancy at 5			71.1	72.0	73.9	78.5
	Infant Mortality Rate	8.2	13	13.2	12.9	7.8	2.0
	<i>Number of Inpatients</i>	236	228	249	133	82	61
	% 5-14 year olds	8.6	8.3	9.1	4.9	3.0	5.7
	<i>Annual Outpatient</i>	5,800	6,955	7,018	6,871	3,910	3,534
	Consult Per child	2.1	2.5	2.6	2.5	1.4	3.5
15-34 years	Cook Islands population	3,867	3,867	3,867	3,867	3,867	3,583
	Life Expectancy at 15			61.3	63	64.5	68.5
	Teenage (adolescent,	41.7	43.4	38.2	13.0	25.3	43.9
	NCD Mortality (% of	25.7	24.2	18.9	27	32	23
	NCD Premature Death	23.9	22	19.9	30.6	27	29.9
	<i>Mental Disorder cases</i>	28	22	13	14	19	230
	<i>Number of Inpatients</i>	478	458	504	509	481	415
	% 15-34 year olds	12.4	11.8	13.0	13.1	12.4	11.5
	<i>Number Outpatient</i>	10,058	12,602	13,086	14,153	7,685	7,349
	Consult Per person	2.6	3.3	3.4	3.6	2.0	4.5
35-64 years	Cook Islands population	5,394	5,394	5,394	5,394	5,394	5,378
	Life Expectancy at 35			43.0	43.9	45.0	48.2
	<i>Number of Inpatients</i>	412	499	567	579	502	488
	% 35-64 year olds	7.6	9.3	10.5	10.7	9.3	9.0
	<i>Number Outpatient</i>	17,545	20,038	22,478	23,447	14,862	14,644
	Consult Per person	3.3	3.7	4.2	4.3	2.8	5.5
65 years and older	Cook Islands population	1,544	1,544	1,544	1,544	1,544	2,500
	Life Expectancy at 65			18.1	15.4	15.8	18.5
	NCD Mortality (%)	52.5	47.3	53.5	42.4	42.8	43.0
	<i>Number of Inpatients</i>	408	408	454	462	409	401
	% of people 65 year or	26.4	26.4	29.4	29.9	26.4	15.8
	<i>Number Outpatient</i>	7,450	7,472	8,440	8,289	6,083	7,168
	Consult Per person	4.8	4.8	5.5	5.3	4.0	5.5

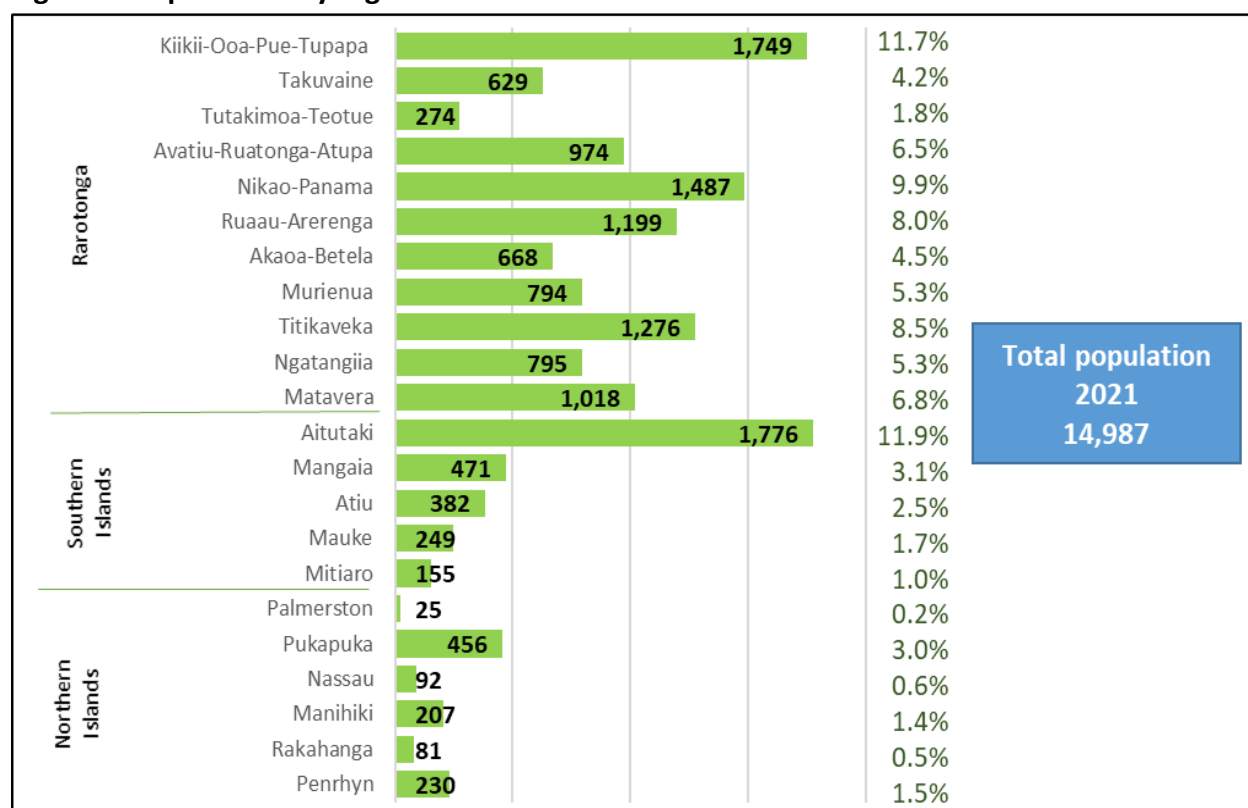
Cook Islands resident population

The 2021 Cook Islands Census reports a total population of 15,040 with 14,987 Cook Islands residents (people permanently living in the Cook Islands); and the remaining are visitors. The number of residents living in the Cook Islands has slightly increased by 1% from 14,802 in 2016 to 14,987 in 2021.

Seven out of ten (72.5%) of all Cook Islands residents live on the main island, Rarotonga; 27.5% live in the Pa enua. Of that figure 27.5% residents in the Pa Enua, 20.2% live in the southern islands of Aitutaki, Mangaia, Atiu, Mauke and Mitiaro. The remaining 7.3% live in the northern islands of Palmerston, Pukapuka, Nassau, Manihiki, Rakahanga, and Penrhyn (See figure 1).

While the majority of people reside on Rarotonga, one in four people aged 60 years plus live in the southern group islands of Aitutaki, Atiu, Mangaia, Mauke and Mitiaro. For those 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 2021

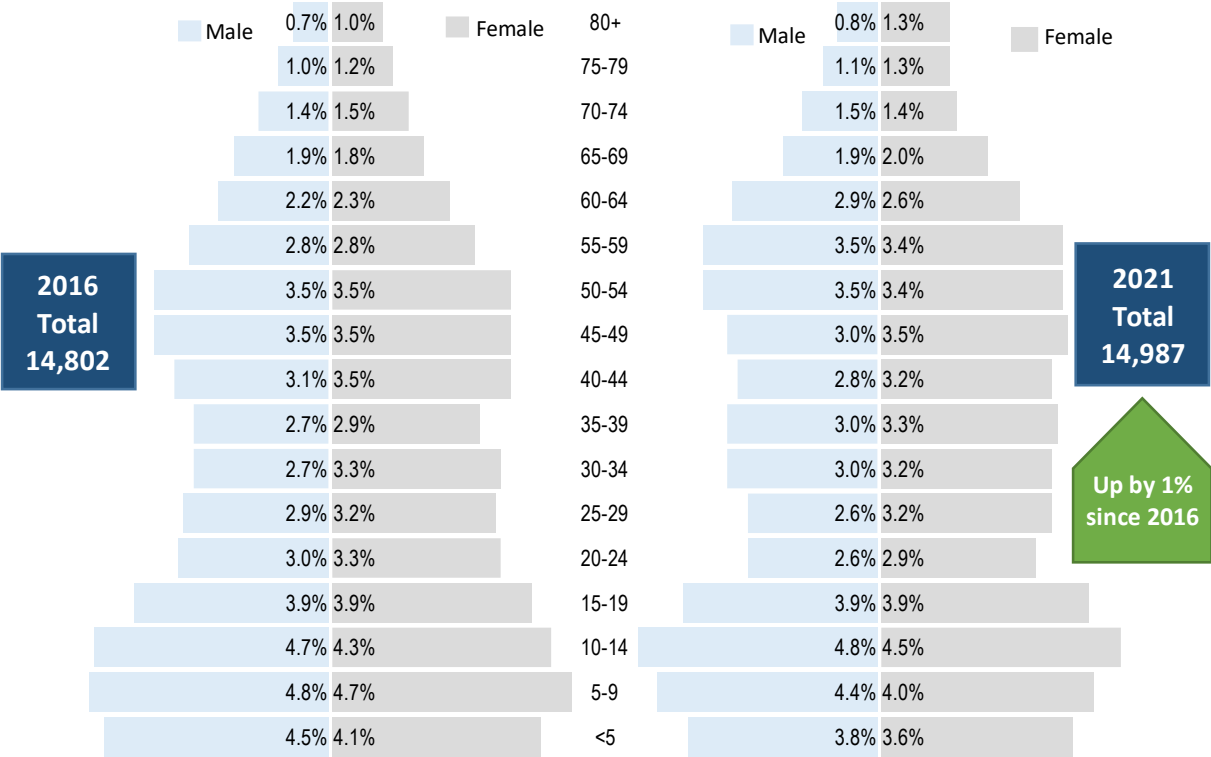


The population pyramids in Figure 2 show a slight increase in the resident population of the Cook Islands between 2016 and 2021. It highlights changes in the overall age distribution of Cook Islands residents, particularly among the age group under 45 years. This suggests the Cook Islands has an aging population.

There is not much change in numbers of people in 5 to 39 year age groups in 2016, to their respective cohorts of 2021. This suggests 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 from 28% in 2016 population to 31% in 2021. **Note:** Older people are living longer lives indicating increasing number of healthier older people.

Figure 2: The age distribution of the resident population by sex



Note: Repatriation flights hence the increase in population for 55yrs +. Decrease in 20-29 years old due to job opportunity overseas.

Fertility and maternal care

Obstetrics

By the end of 2021, 100% 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 mothers and their new-borns are consistent at 100%. This indicates women aged 15 - 49 years are attending their pre and postnatal care - four or more visits. Services for mother and infant are provided through public health services and 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 is essential to the maternal care of mother and infant. 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.

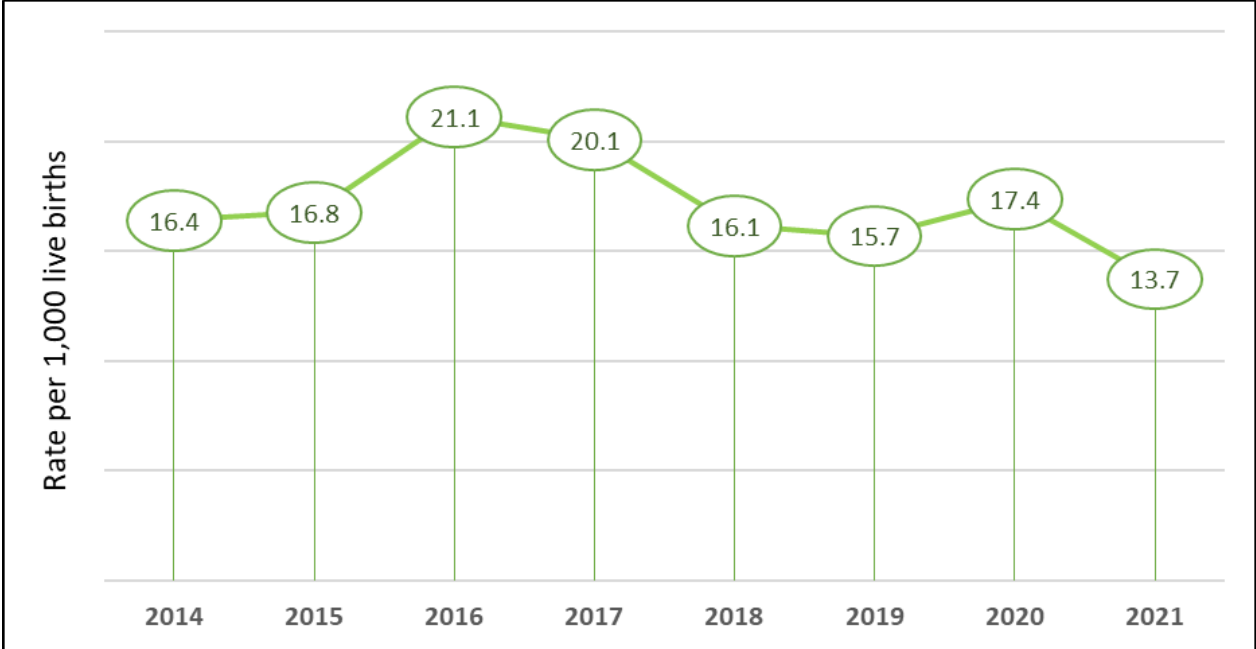
Maternal and new-born care indicators are crucial for assessing TMOs service coverage which allows insight to quality of care as well as health status of women and young children in the Cook Islands. Rates for these indicators generally show that maternal and new-born care coverage in the Cook Islands 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 two midwives; and a doctor when required. Over a ten-year period, 2,523 live births occurred in the Cook Islands – about 156 males for every 151 female live births. For this eight year period, an annual occurrence of 246 live births. A decrease of 3.7% live birth rate in 2021 whereby COVID-19 and migration may have contributed. Crude birth rates appear to fluctuate from 2014 through to 2021 as seen in **Figure 3**. However, the trend mostly shows a decline in live births since 2014 despite a 5% increase of live births in 2016.

Figure 3: Crude live birth rate per 1,000 Cook Islands 2014-2021

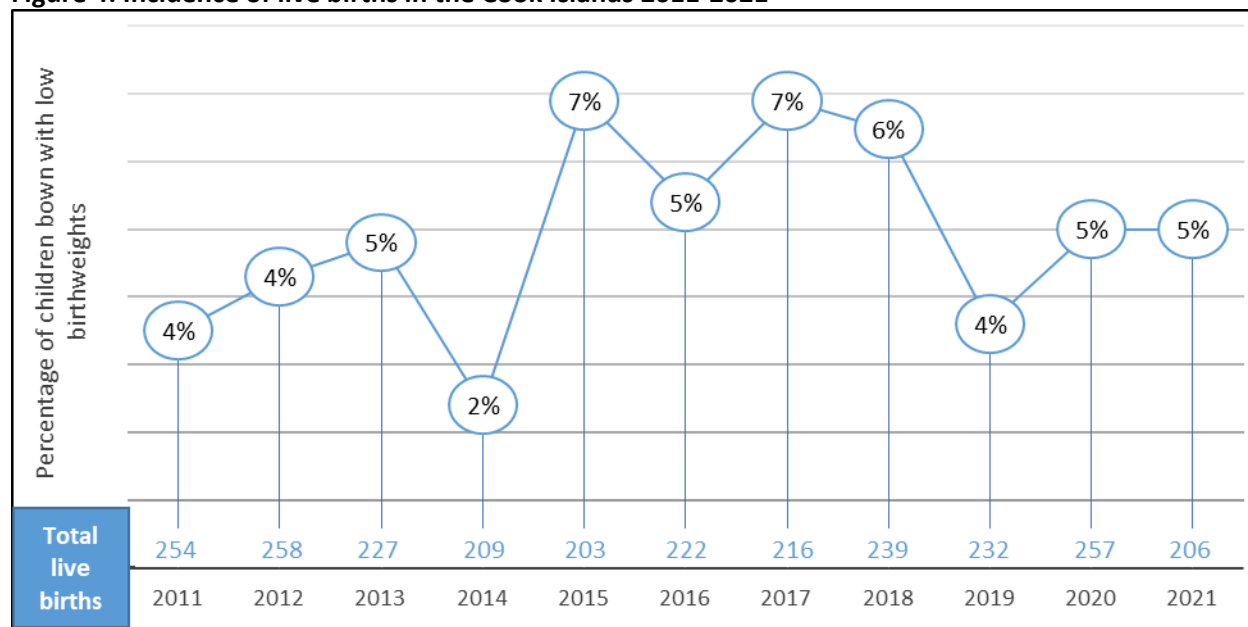


Low birth weight

Low birth weight is primarily caused by premature birth and a condition called intrauterine growth restriction, 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 2011-2021



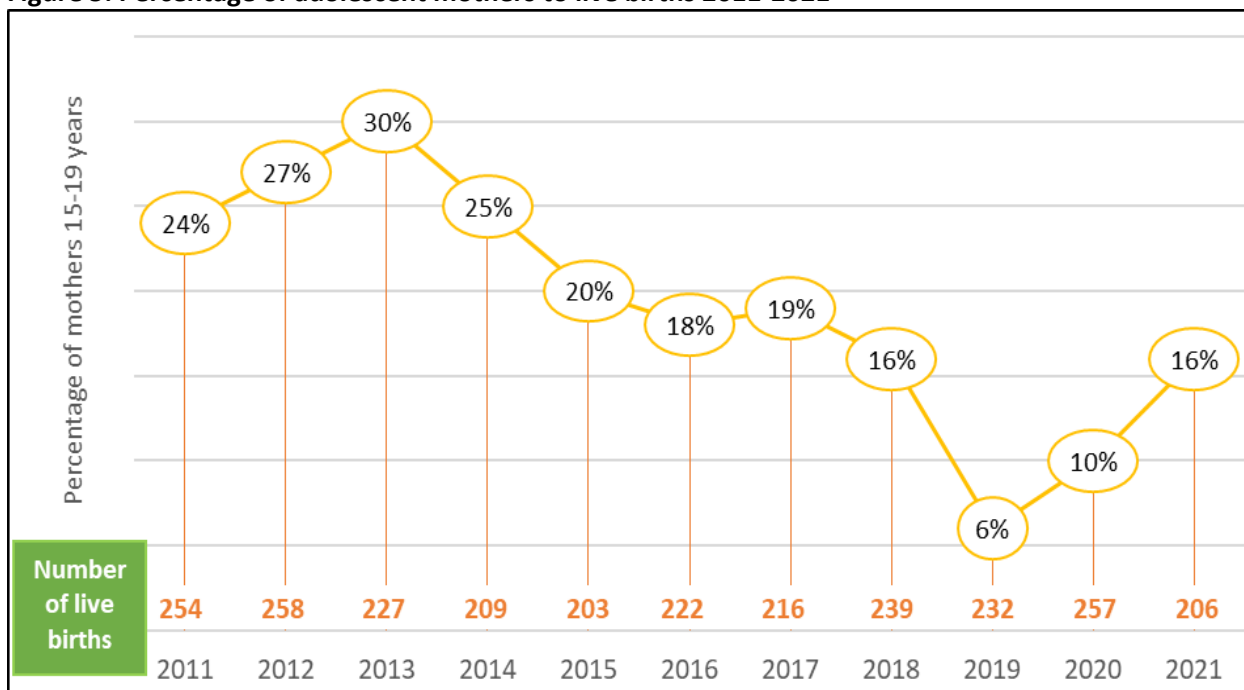
Exclusive breastfeeding

In the last two years data indicate over 90% of babies that were born in the Cook Islands were breastfeed. 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. Solid baby food is also introduced at this period; and between six to 12 months of age, 40% of babies remain breastfed.

Adolescent births

The number of births to adolescent mothers aged 15 to 19 in the last 11 years shows fluctuations from 62 in 2011 to 33 in 2021 (See **Figure 5**). There is a steady step up in the trend of adolescent mothers to live births being 6% more than the previous year.

Figure 5: Percentage of adolescent mothers to live births 2011-2021



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 (15-49 years) experiencing in the present-day age specific fertility rates.

Consistent with the steady decline seen across previous years, TFR for 2021 is reported at 2.1 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 2011-2021

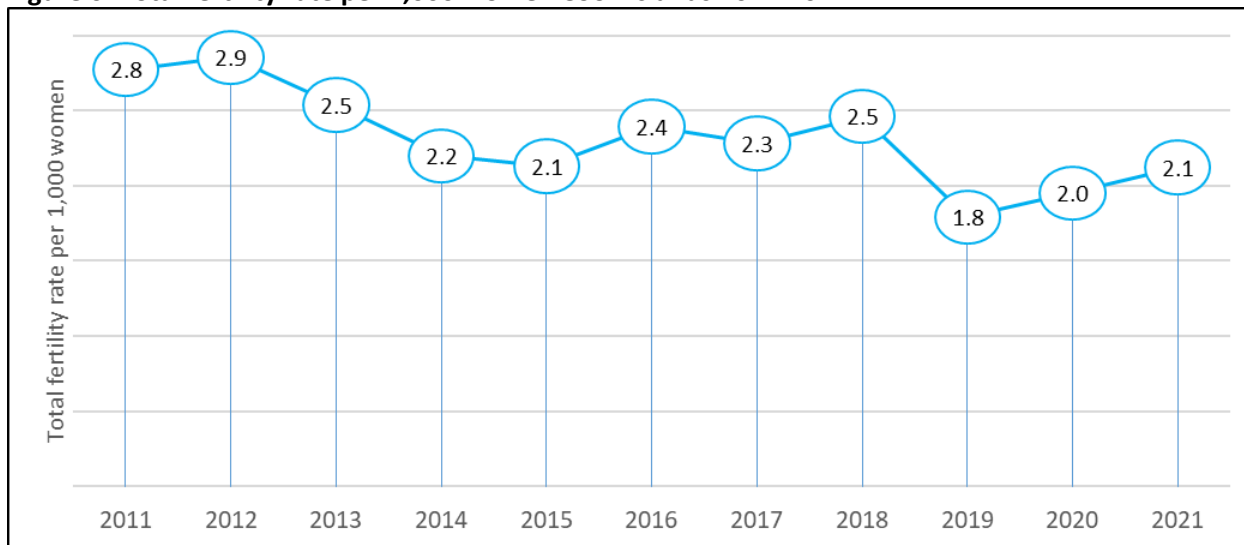
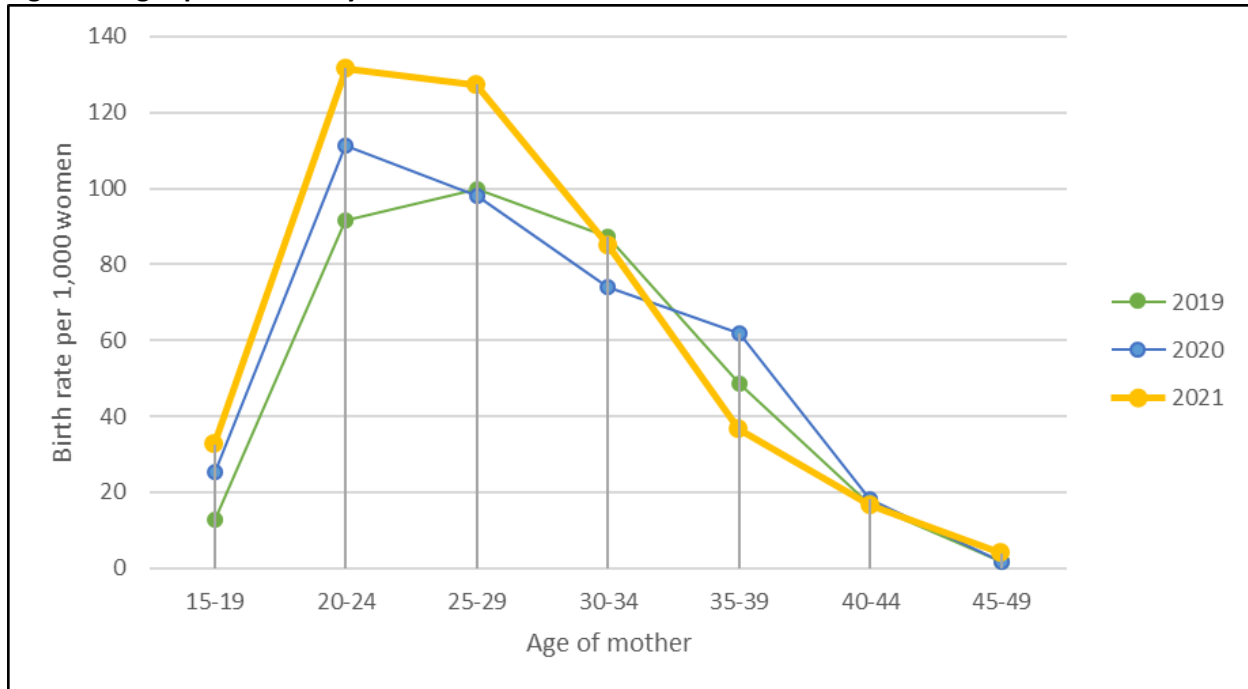


Figure 7 shows that the highest number of births in the Cook Islands in 2021 occurred between the ages of 20-24.

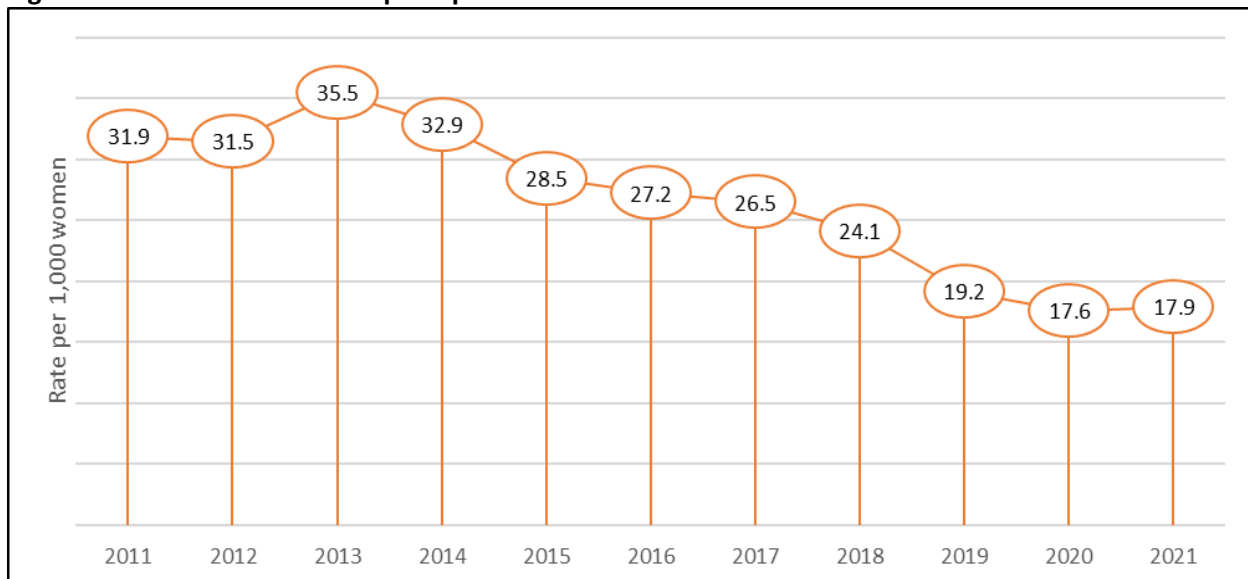
Figure 7: Age specific fertility rates 2019-2021



Contraceptives: Family planning demand

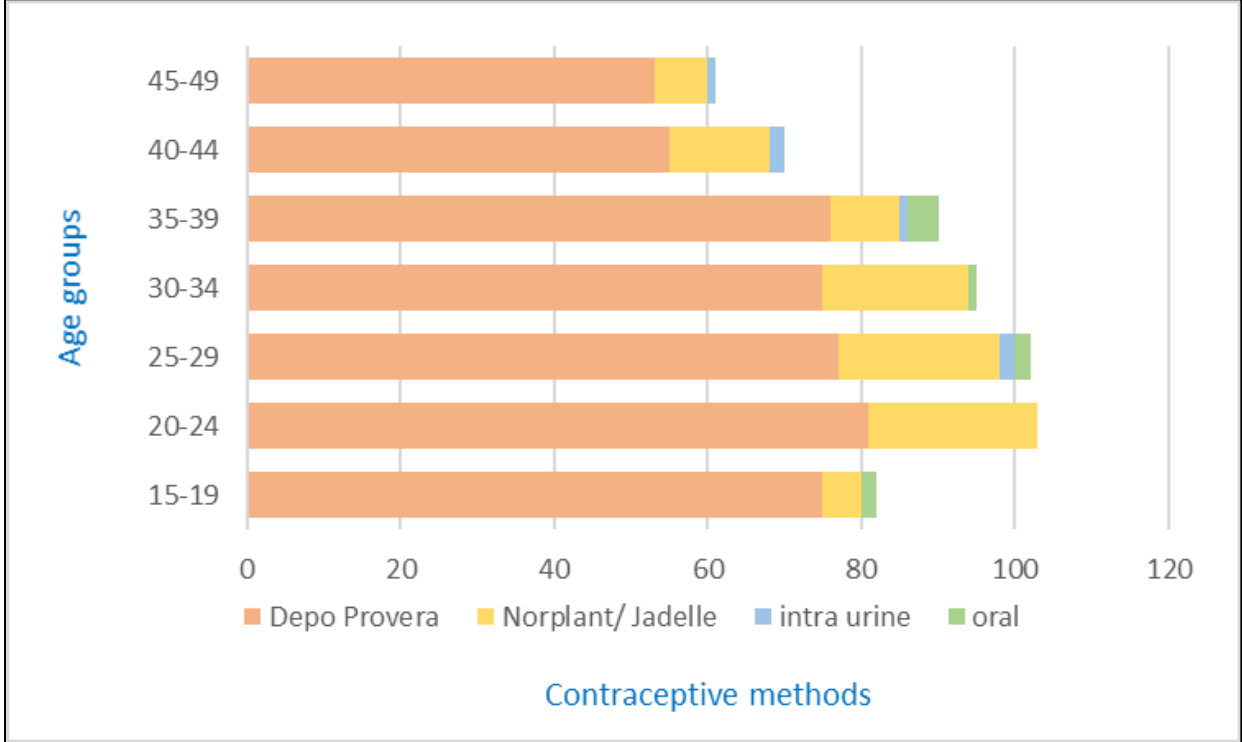
Te Marae Ora offers a variety of modern-day contraceptive methods to support individuals and couples to anticipate and attain their desired number of children as well as the spacing and timing of their births. In the last five years, the number and proportion of women in the childbearing ages of 15-49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

Figure 8: Cook Islands contraceptive prevalence rate 2011-2021



About 20% of female population have used some form of contraceptive in 2021. 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 2021 shows 50% of total reported contraceptive users range between ages 20 to 34, 40% for age groups 35 to 49 and 10% female teenage population.

Figure 9: females utilizing contraceptive methods by age group 2021



Female population utilising contraceptives 2021

Across all age groups there is a decrease in the number of women who are utilising contraceptives in 2021 (see **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. However, in Table 2, for the year 2021 more females are utilising contraceptives as compared to number of years previously in table 1.

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

Type	Oral	Intra Uterine Device	Depo Provera	Norplant/Jadelle	Other	Percent
Age group						
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%
Total	244	25	2036	319	12	100%

Table 2: Rarotonga contraceptive methods by age groups 2021

Type	Depo Provera	Norplant/Jadelle	Intra uterine Device	oral	Percent
Age group					
15-19	75	5	0	2	14%
20-24	81	22	0	0	17%
25-29	77	21	2	2	17%
30-34	75	19	0	1	16%
35-39	76	9	1	4	15%
40-44	55	13	2	0	12%
45-49	53	7	1	0	10%
Total	492	96	6	9	100%

Immunisation

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

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: Immunisation coverage for children under five

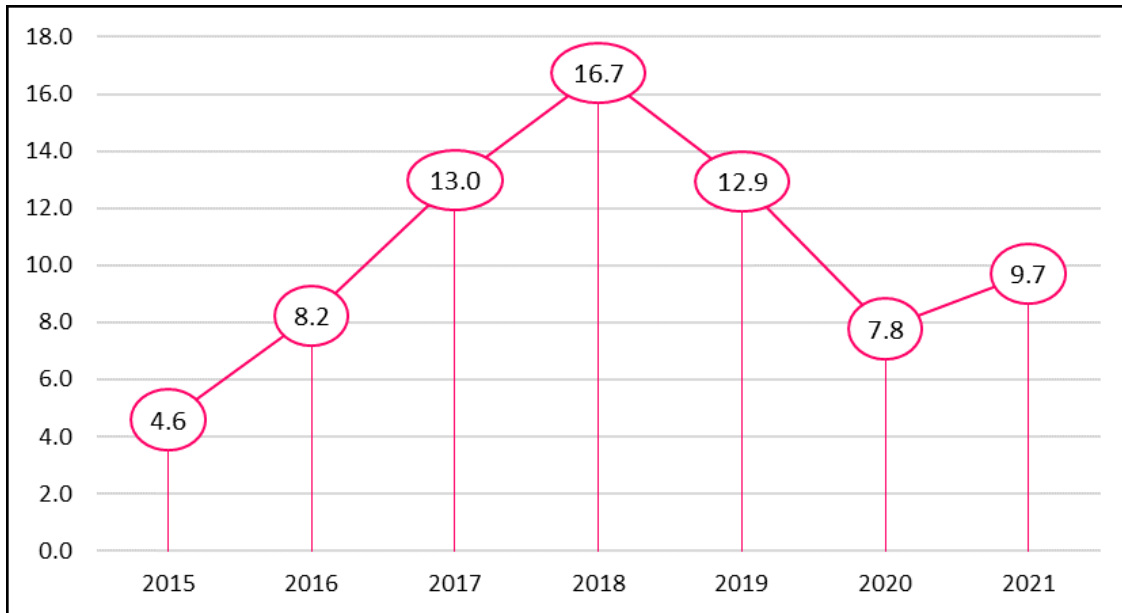
Vaccine	BCG	Oral Polio Virus (OPV1)	OPV2	OPV3	Measles Mumps Rubella (MMR1)	MMR2	DPT4
	Hep1	PENT1	PENT2	PENT3			OPV4
Age group							
Birth	98%						
	98%						
Six Weeks	93%						
	93%						
Three months	91%						
	91%						
Five months	90%						
	90%						
12 months	88%						
18 months	88%						
4 years	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

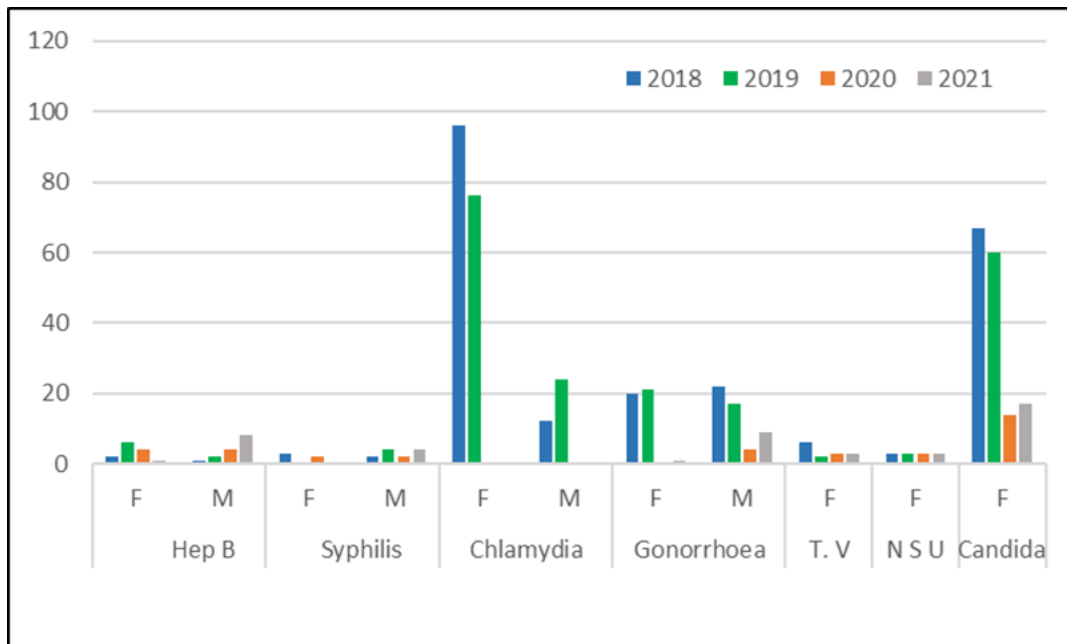


Blood borne pathogens and sexually transmitted diseases

Laboratory confirmed

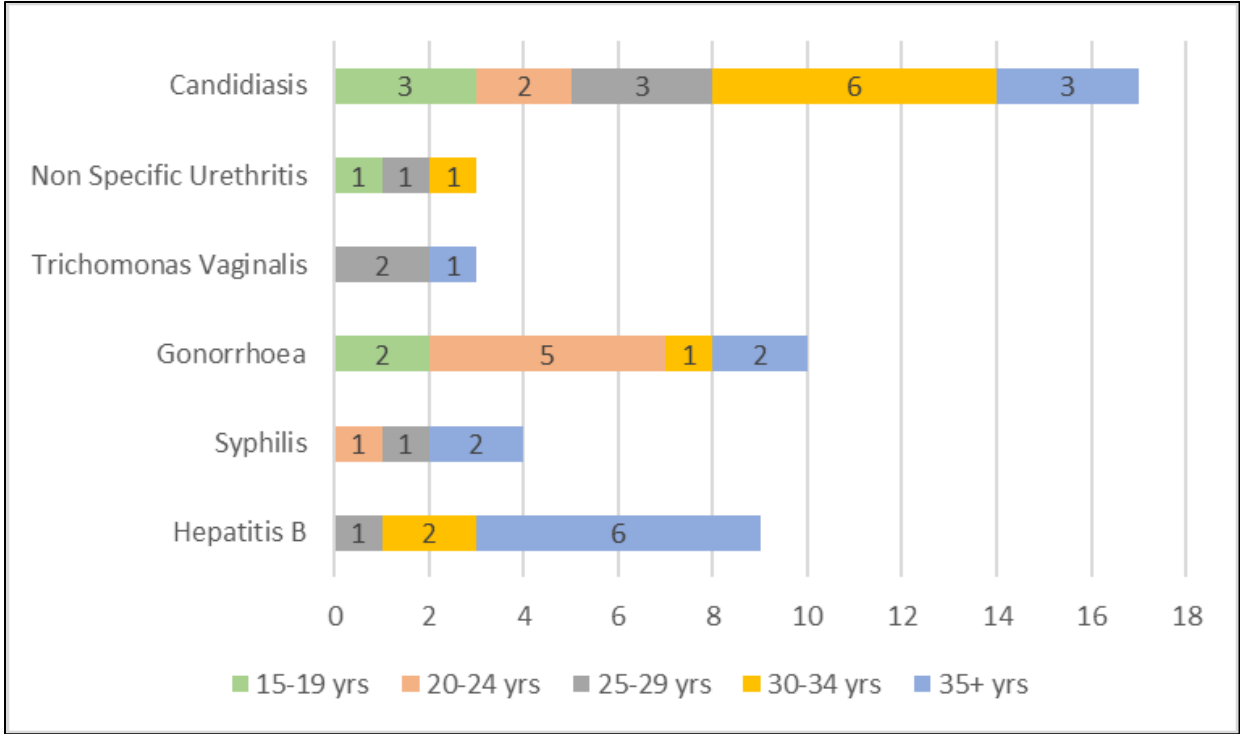
The number of laboratory confirmed Blood borne pathogens (BBP) and sexually transmitted diseases (STI) has been relatively high for the last three years. Prevalence of chlamydia in the Cook Islands is still prominent with a startlingly 90% increase of diagnosed cases since 2018 as seen in **Figure 11**. Gonorrhoea increased (67%) followed by Candida and Syphilis.

Figure 11: Laboratory cases by sex 2018-2021



Sexually transmitted diseases incidence for 2021 is reported by age group from 15 to 35 years and older in **Figure 12**.

Figure 12: Laboratory new cases by disease by age group 2021



There was no chlamydia test in 2021, and azithromycin treatment given for chlamydia was administered for other medical health reasons.

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.

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 2021 there remains no reported cases on congenital syphilis since the early 2000’s.

Human immune deficiency virus (HIV)

There were two cases detected of Human Immune Deficiency Virus (HIV) in the Cook Islands in 2021 - one local and one imported. The incidence and prevalence of HIV is two. 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.

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 do provide ART funded by Global Fund and UNDP, and 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 community screening (SD Duo test kits). 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 six cases per 1,000 population. A total of 7615 appointments were conducted with total of 966 patients. Increase in key facts table is likely due to strategic focus on improving data collection.

Figure 13 shows 2021 new cases recorded from Mental Health clinic both for Rarotonga and Pa Enuā, including in **Figure 14** in age groups. The most common disorders were psychosocial issues related disorders and the next common disorders were anxiety and depression. Majority of mental health patients seen are between the ages of 35-64 years. 44% identified as women, with a further 51% identifying as men, and 2% as nonspecific.

Figure 13: Number and proportion of mental and behavioural diagnoses 2021

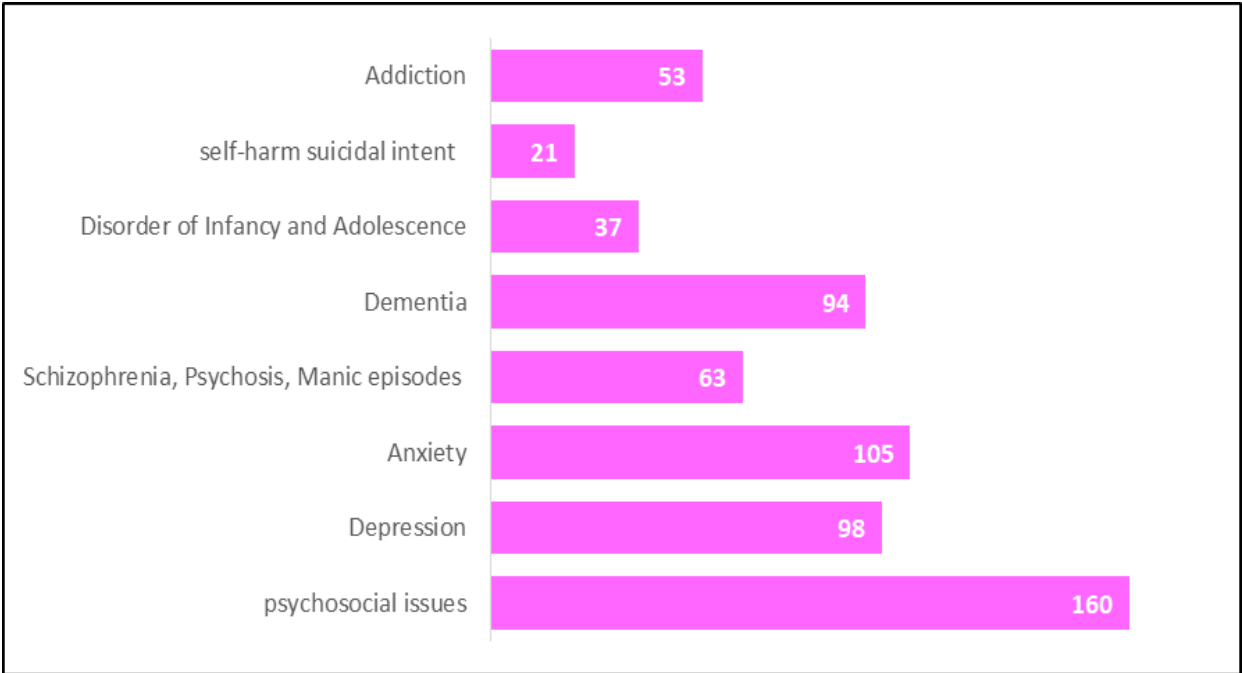
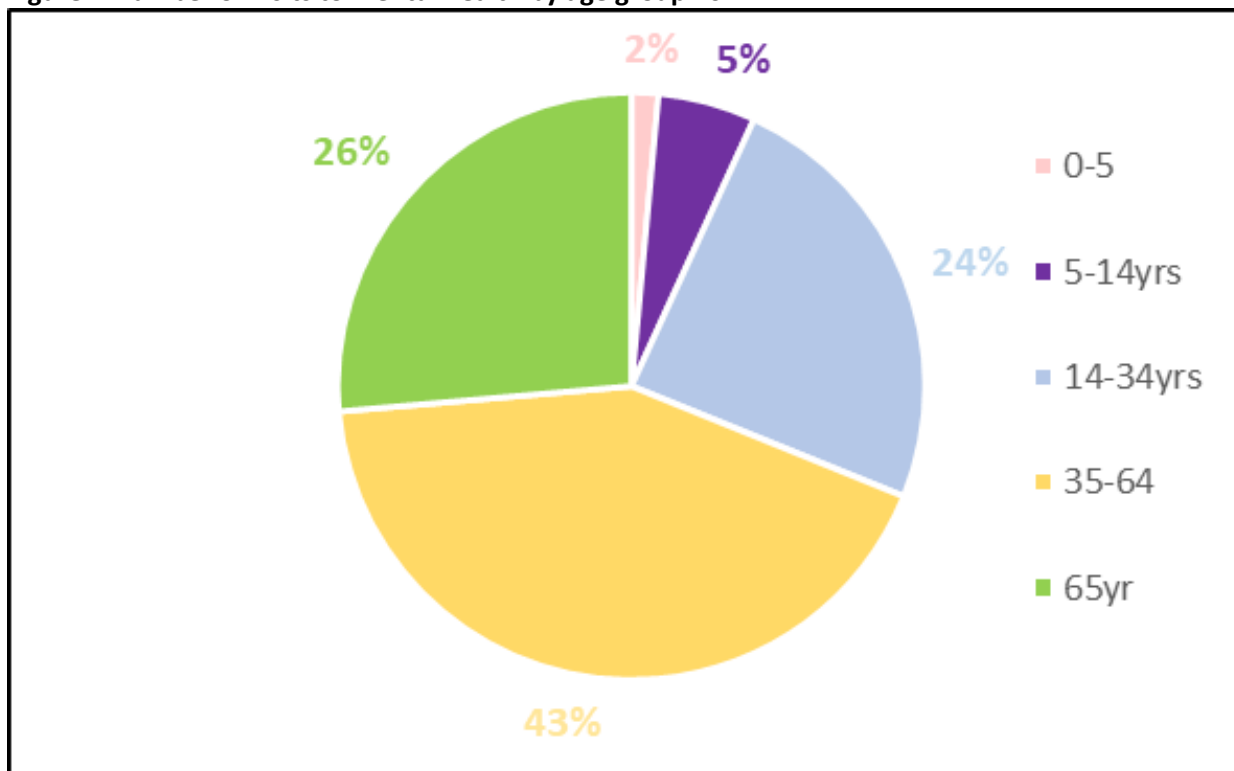


Figure4: Number of visits to mental health by age group 2021

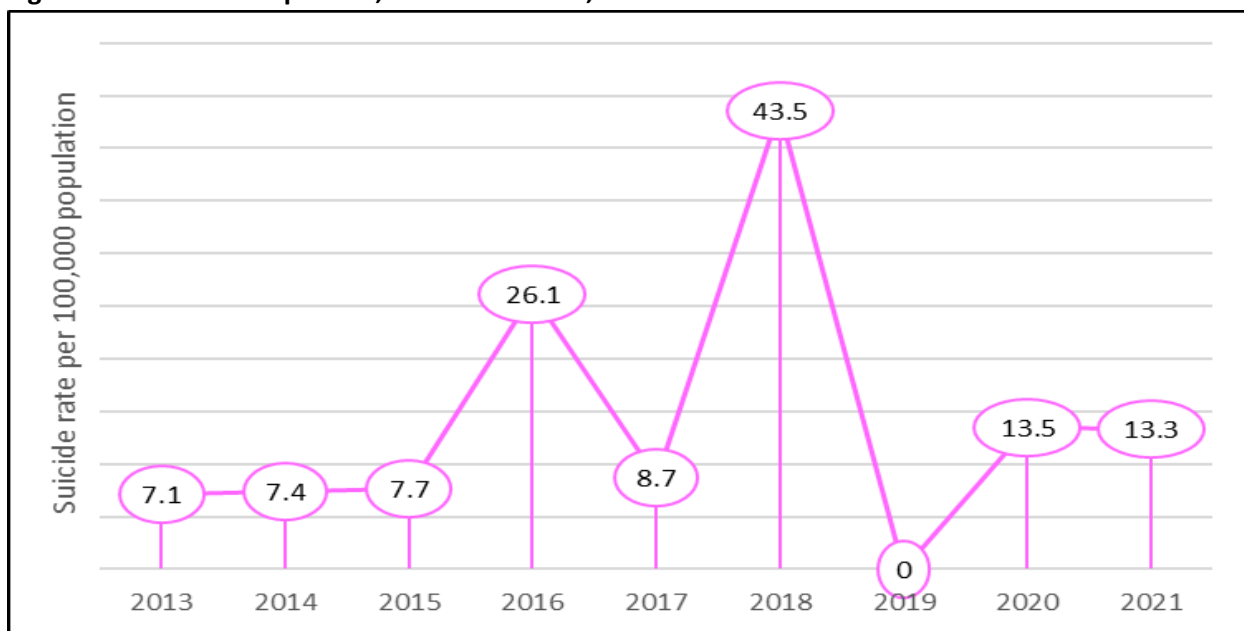


Suicide

Over the last 16 years, a total of 36 deaths occurred from intentional self-harm – an annual occurrence of two intentional self-harm deaths to per year. A majority of the cases occur on Rarotonga.

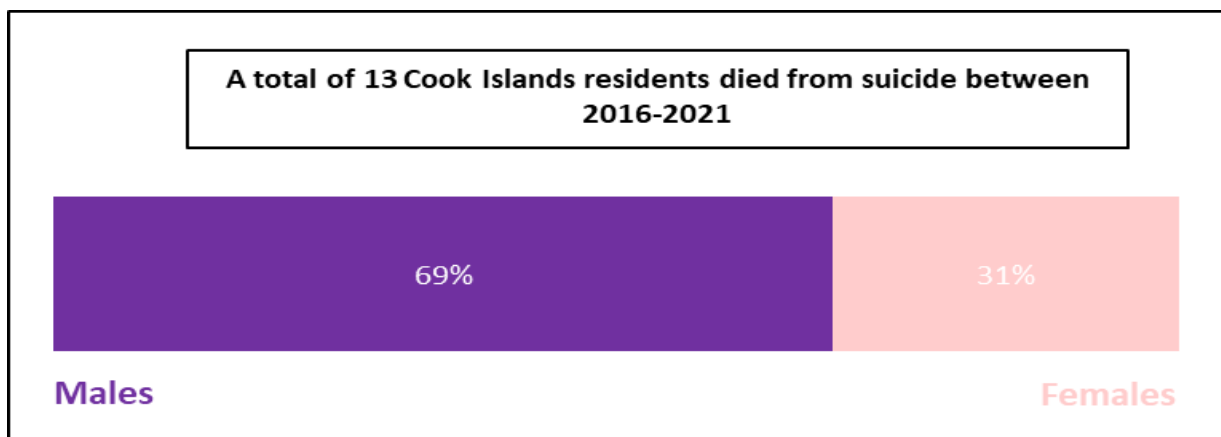
Figure 15 shows suicide rates expressed per 100,000 for the Cook Islands, two key findings over this period generally show the trend has remained stationary with a spike of five deaths occurring in 2018 to a drop of zero deaths the following year. Two deaths occurred in 2020 also in 2021. In 2021, both deaths were in the Pa Enea.

Figure 15: Suicide rate per 100,000 Cook Islands, 2013-2021



Suicide in the Cook Islands is more dominant among males (69%). In 2021, two deaths occurred in the Pa Enea, one male and one female.

Figure 16: Suicide by sex, Cook Islands 2016-2021



Injuries, motor vehicle accidents and other

Cook Islands Injury Surveillance

The collection of data describing the occurrence of, and factors associated with injury in the Cook Islands for the last three years. **Figure 17** 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 18** – almost half of those admissions attributed to motor vehicle accidents to which 40%

were alcohol related. Data indicates males aged 15-34 years to be the most affected. Due to the compulsory helmet wearing in 2021 number of alcohol and vehicle accident rate reduced.

Figure 17: Cook Islands Injury Surveillance proportion of reported injuries 2019-2021

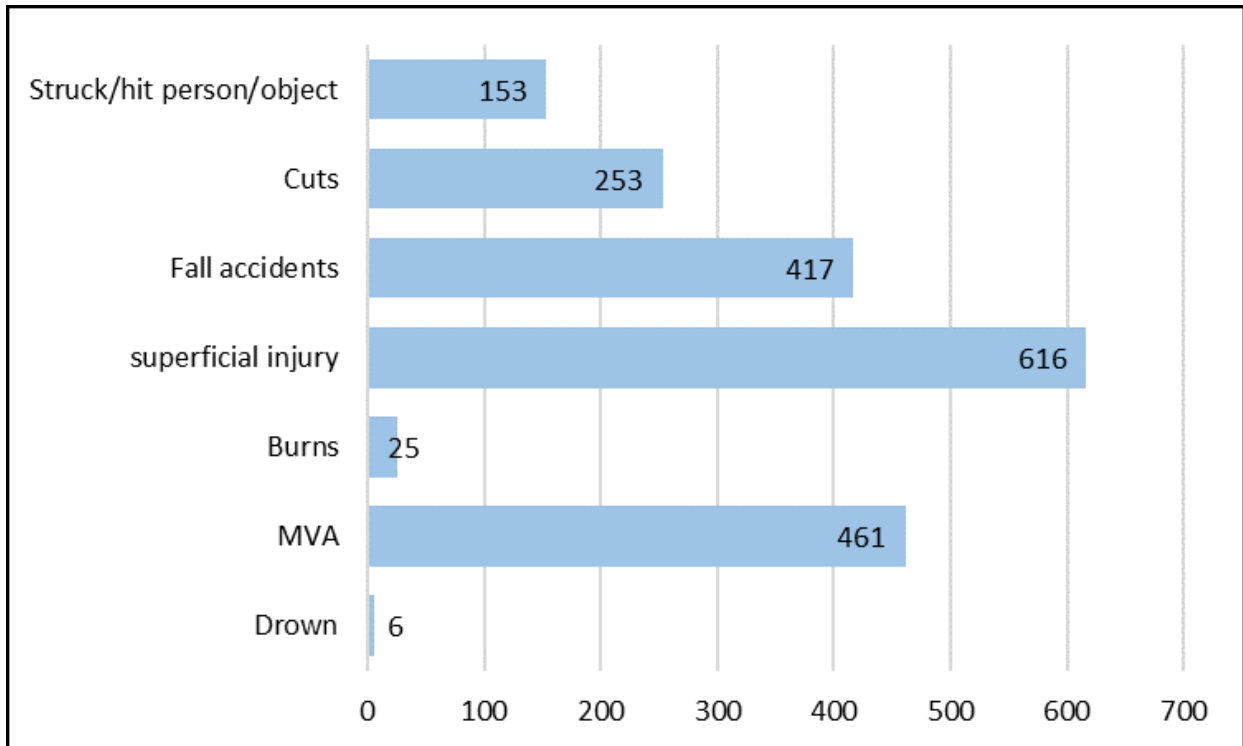


Figure 18: Death rate to motor vehicle accidents 2011-2021

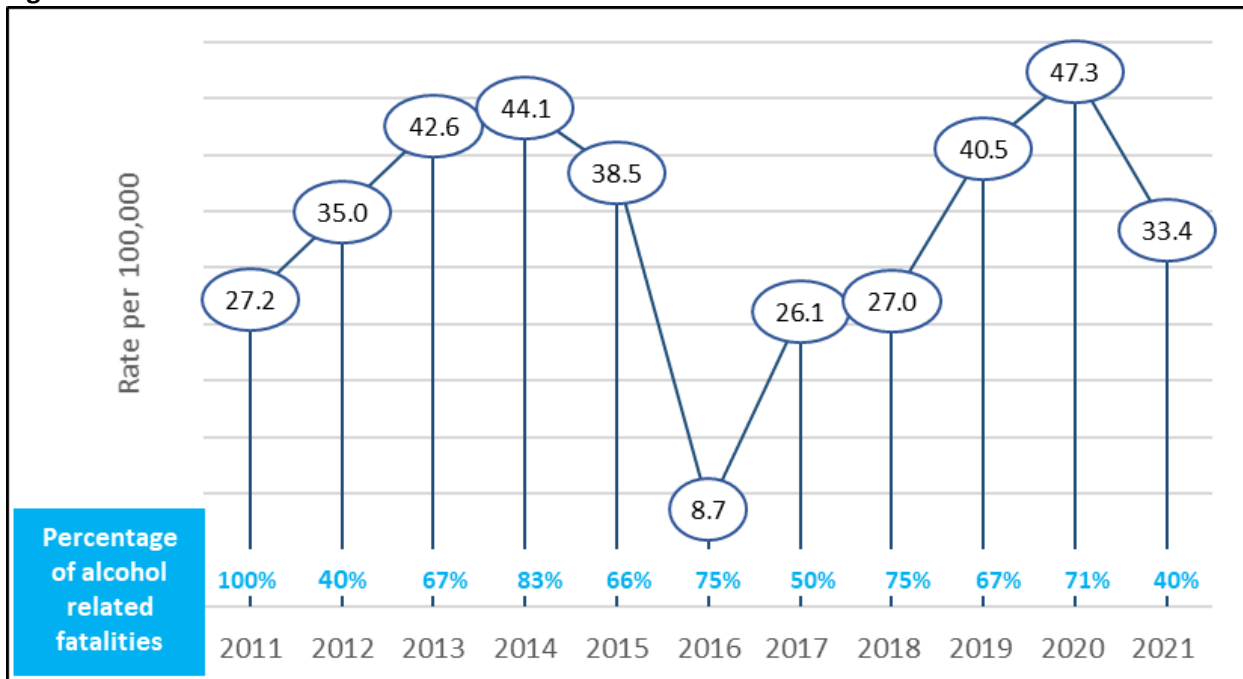
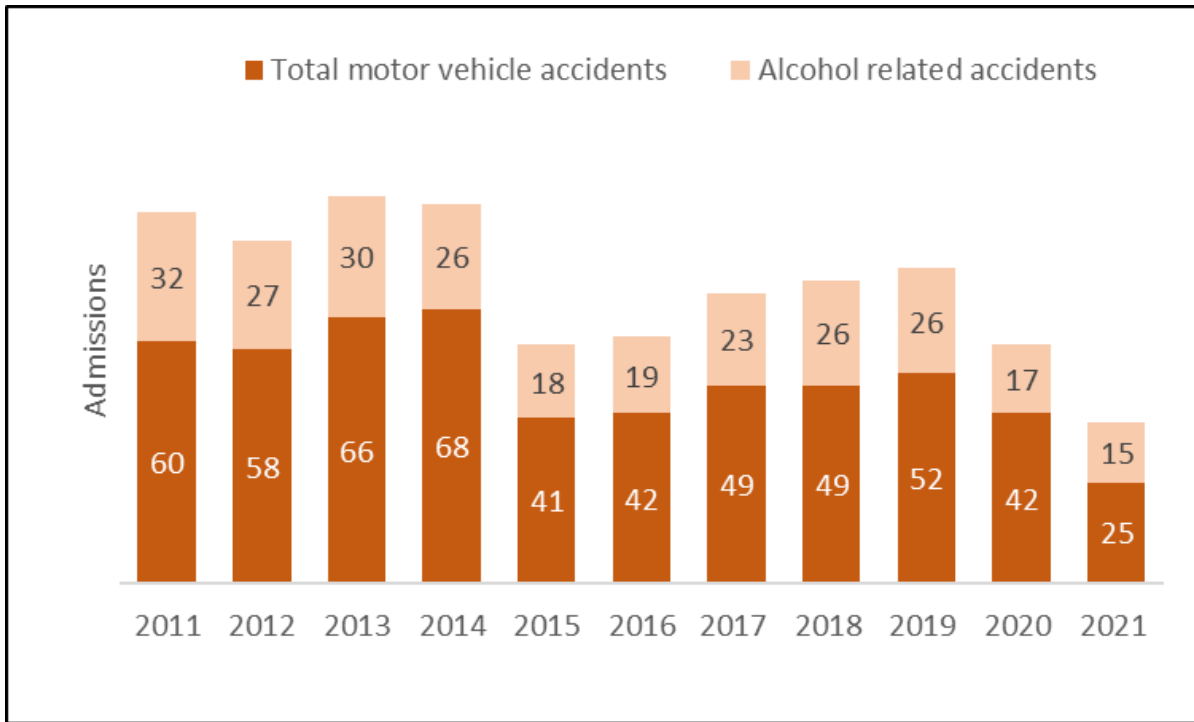


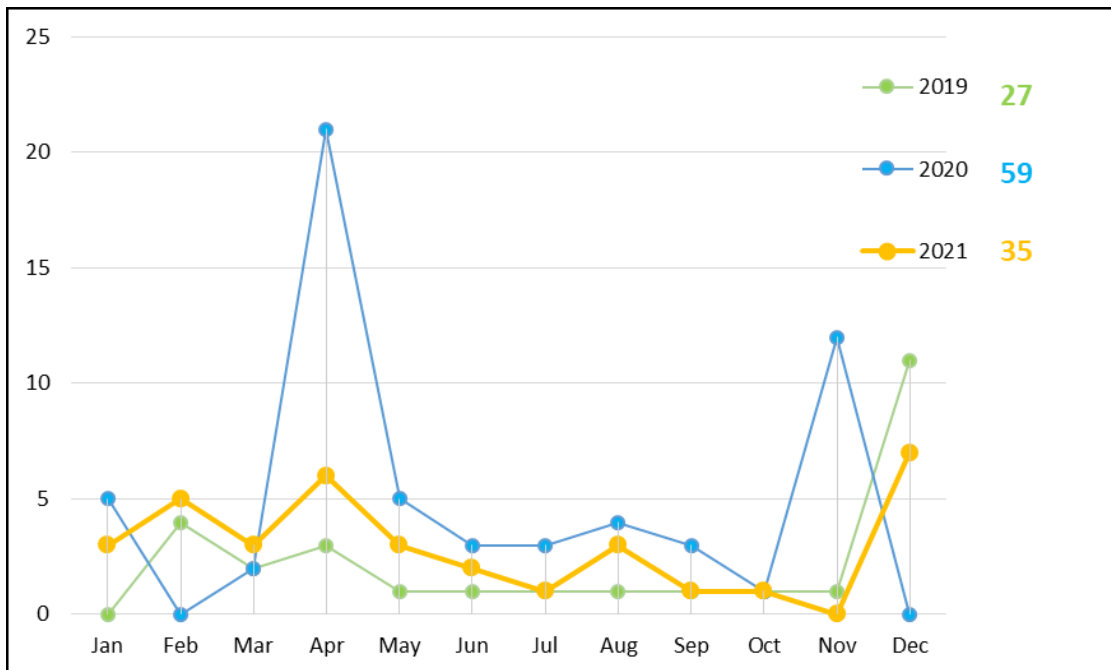
Figure 19: Motor vehicle accident admissions vs alcohol related 2011-2021



Fish poisoning

The years 2020 and 2021 follow a similar trend throughout the months and creating a peak in December. Over 60% of cases being males while the rest being female cases.

Figure 20: Fish poisoning cases by month 2019-2021



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 in 2020. Public health control measures were ongoing during this period.

While most of the cases were reported in Rarotonga, some cases were identified in the Pa Enea – 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 Enea. 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.

Te Marae Ora has a procedural preventive measure 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, drinking a lot of fluids, 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 six weeks (Epi weeks 38-43), the Dengue outbreak in the Cook Islands was declared over in October. Also in 2021, about 219 probable cases in which include seven in Aituaki; one in Mauke and one in Managia. Sixty-one dengue cases were admitted to Rarotonga Hospital.

Concluding in 2020 and 2021, no fatalities to dengue occurred in the Cook Islands for over 40 years where a few lives succumbed to DENV-4 in the 1980's. Te Marae Ora public health control and response measures have advanced since then.

Non-communicable diseases

Prevalence and incidence rate

The Cook Islands has a high prevalence and incidence rates of non-communicable diseases (NCDs). Non-communicable diseases 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, sex and age have remained steady over the last 20 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 over 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 group and sex 2021

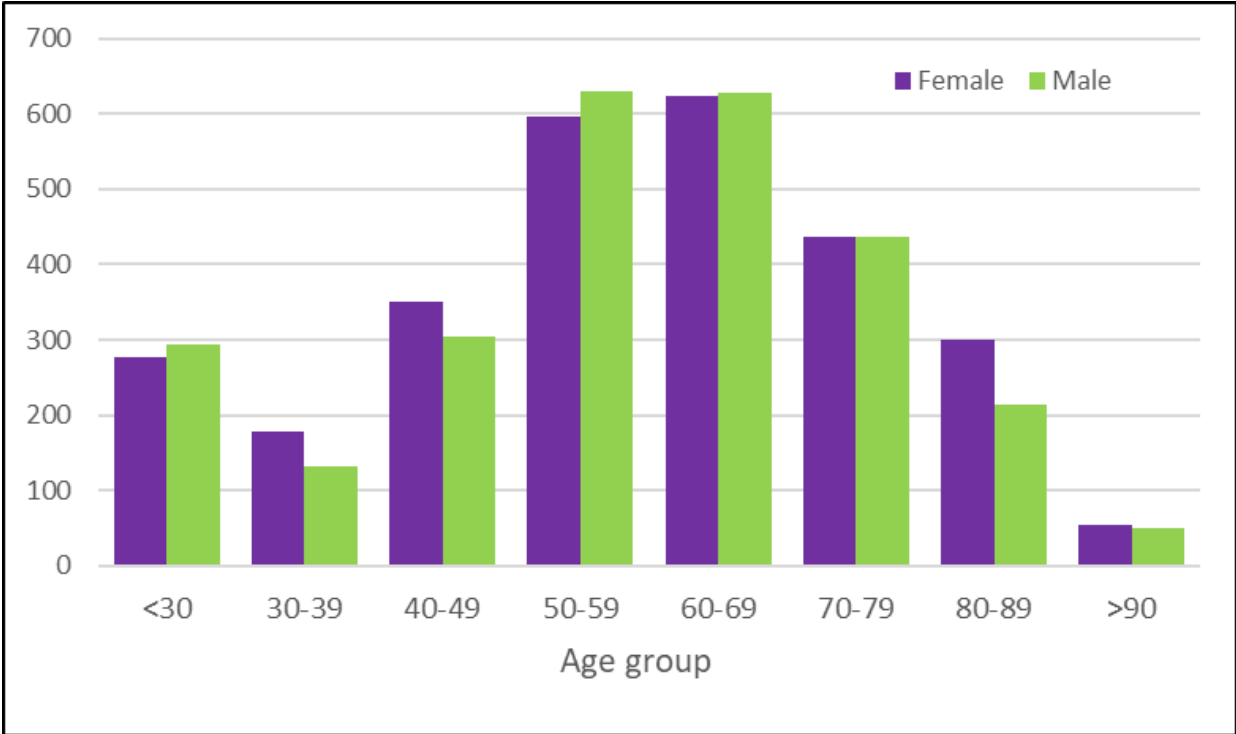
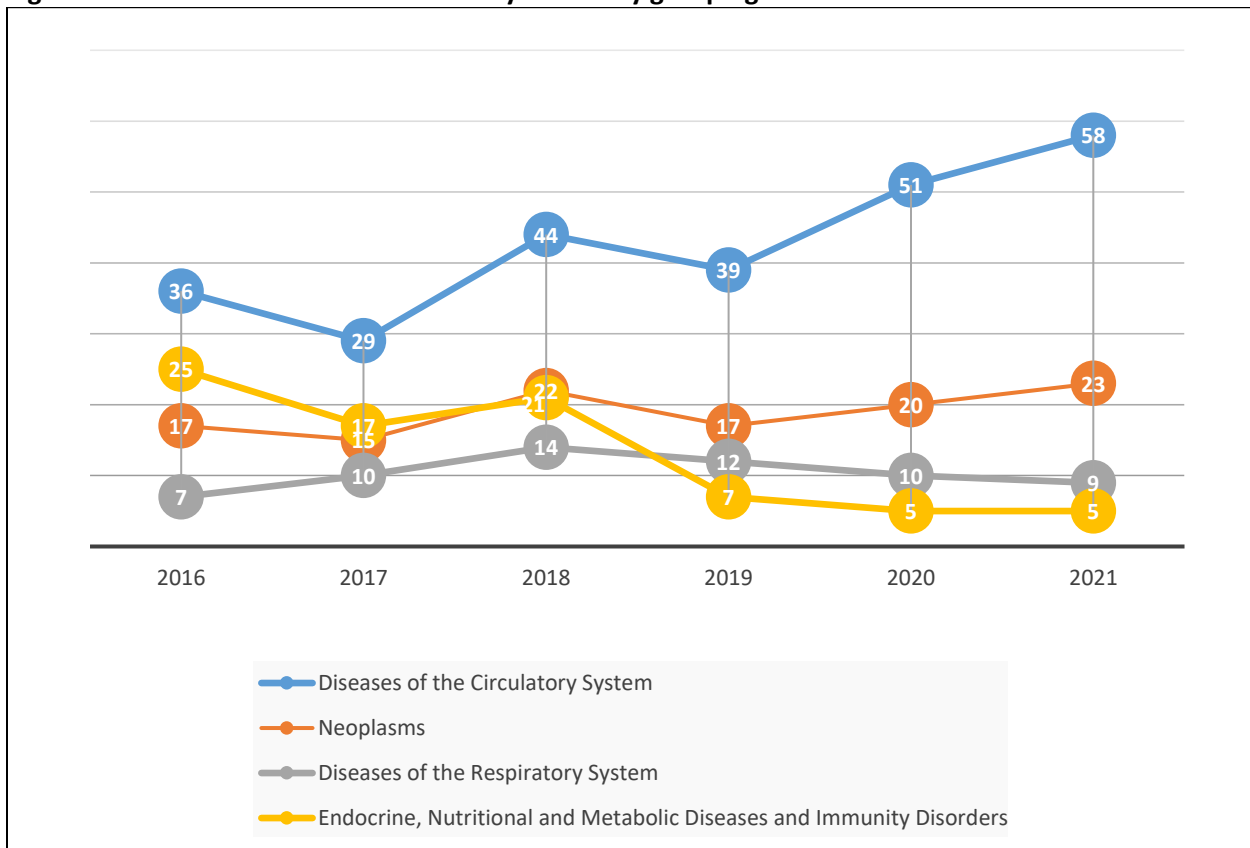


Figure 22: Non Communicable diseases by deaths by groupings 2016-2021



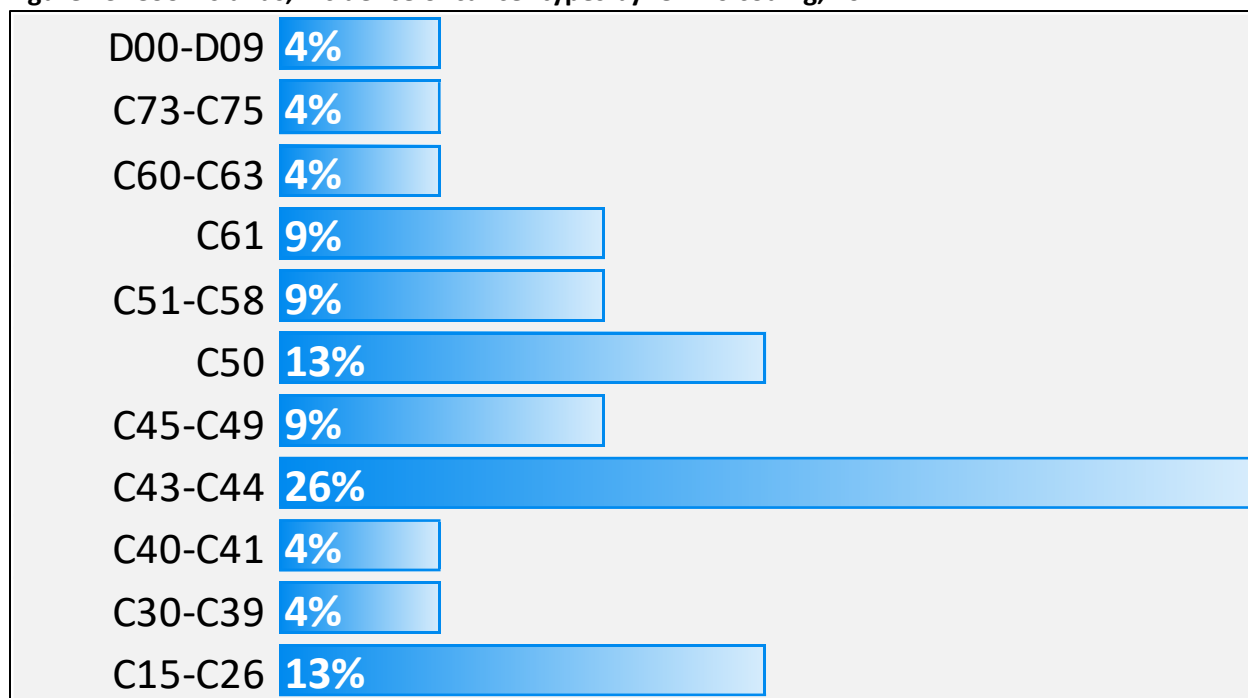
Cancer

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, 2021



There are 23 cases in 2021 with neoplasm of the skin being the prevailing cancer type of which 17% are males and the remaining 9% are females.

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 workforce density

Te Marae Ora health workforce density identified 22 doctors, 129 nurses and 72 allied health workers. 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. 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 Enea has primarily nurse practitioners and registered nurses to provide the population with healthcare while only Aitutaki has doctors. Patients that require further care are medically referred accordingly to Rarotonga Hospital on to New Zealand.

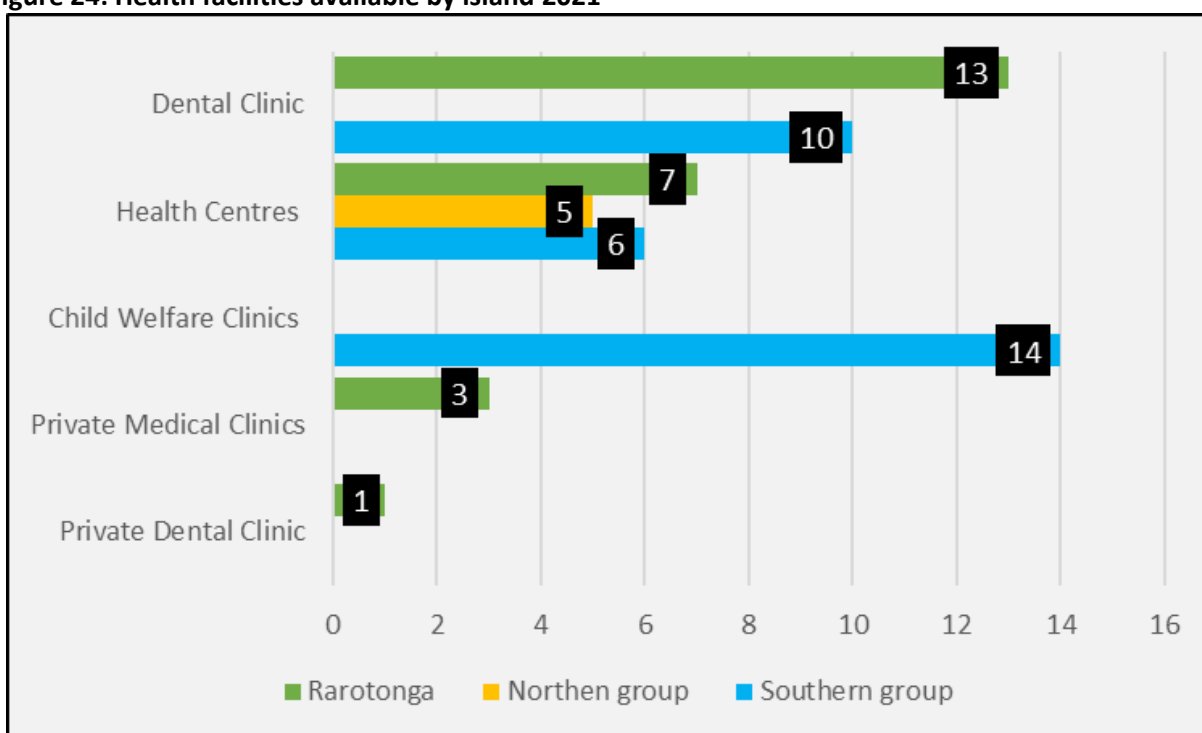
Health facilities

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 often inaccessible due to location and resources. 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. 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 problems are completed during these annual visits. However, due to COVID-19 this service was suspended over 2020 to 2021 period.

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 computed tomography (CT) scanner and Polymerase Chain Reaction (RT-PCR) laboratory early 2021.

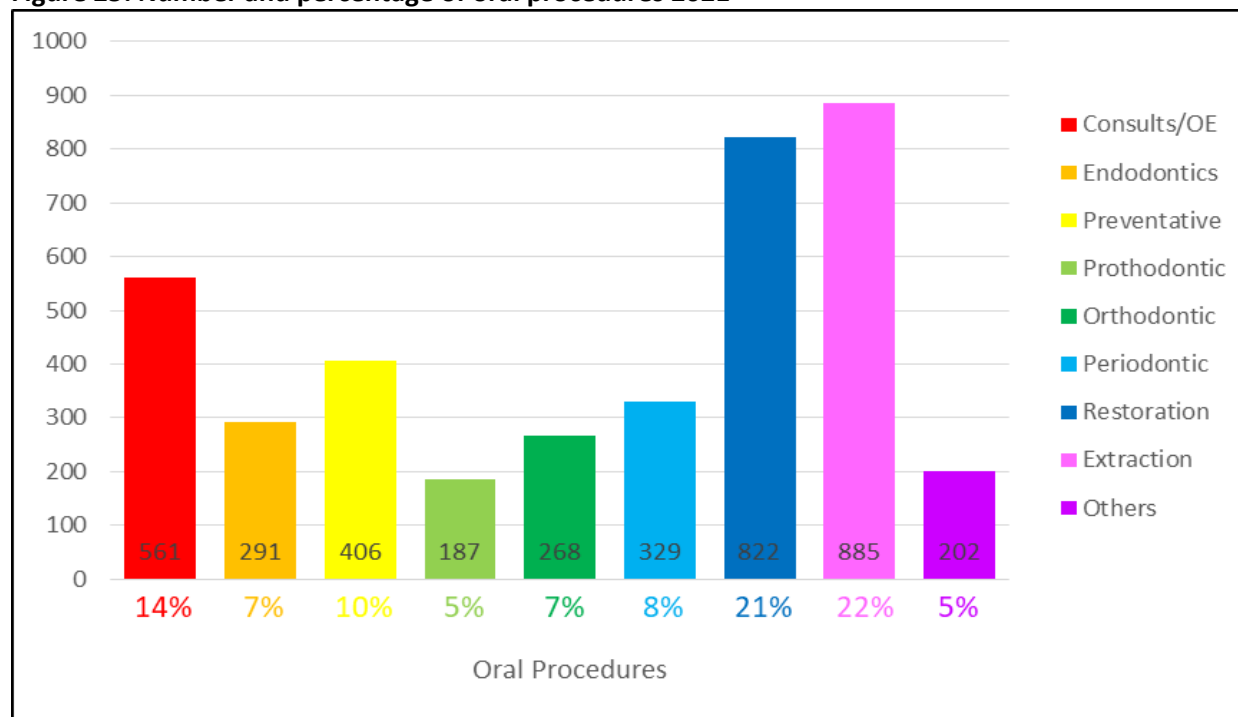
Figure 24: Health facilities available by island 2021



Oral Health

Oral health in the Cook Islands provides oral procedures to prevent, manage and treat infections of the mouth. A total of 3,951 oral procedures conducted in the clinic with majority of the visits mainly for extraction (22%) and restoration (21%) of the tooth as seen in Figure 25.

Figure 25: Number and percentage of oral procedures 2021

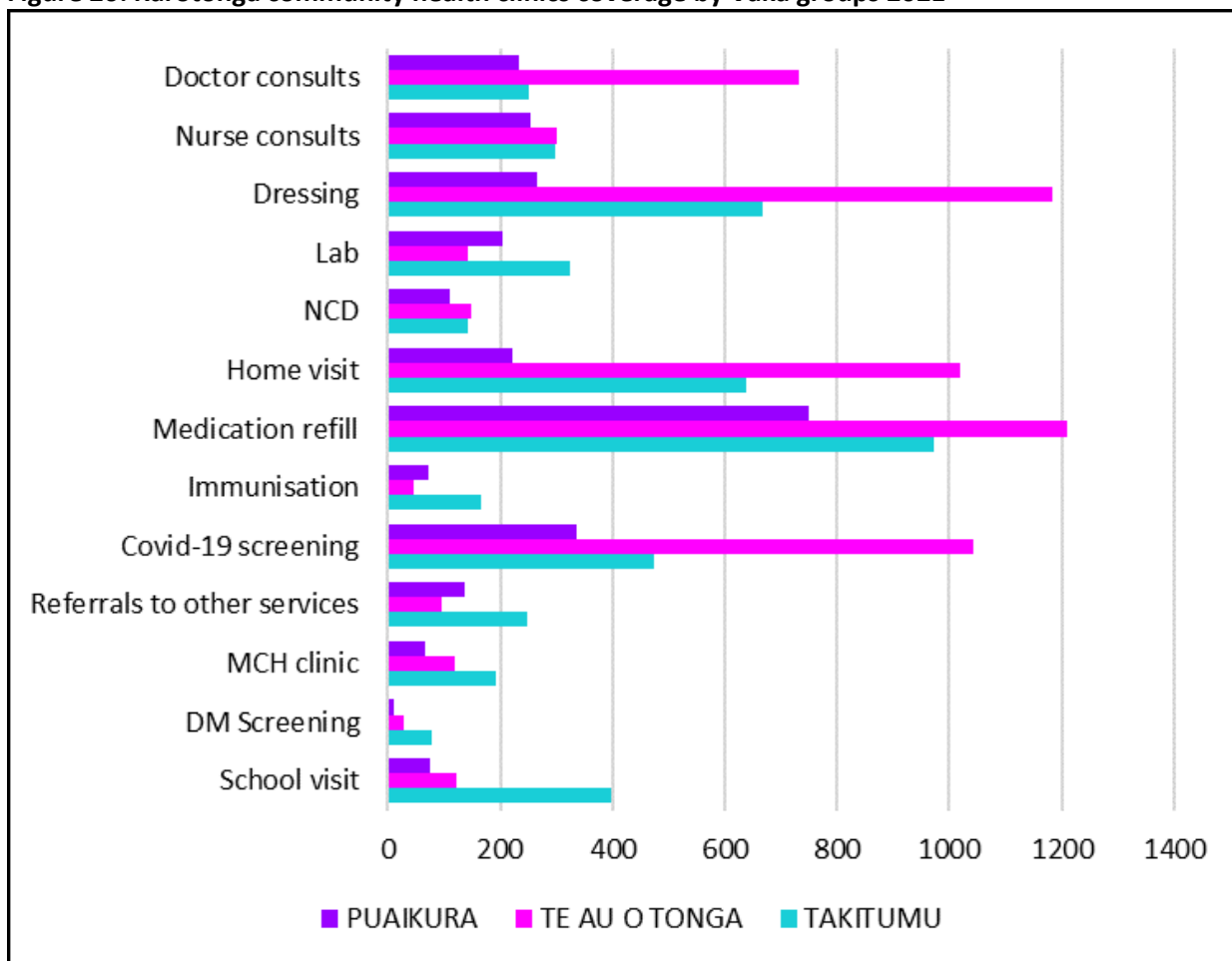


Community Health Clinics

Ten community health clinics were established on Rarotonga during 2020 to assist in the COVID-19 preparedness. To ease overcrowding at the Tupapa emergency outpatients, patients were encouraged to see their local community health clinic. The majority of primary health care services were provided at the local clinics. The clinics were managed by nurse practitioners supplemented by doctors' visits on alternate days. Likewise, the emergency department at Rarotonga hospital was moved to the Tupapa Outpatient clinic to minimise the amount of people from presenting at Rarotonga Hospital. Thus, minimising risk of being exposed or transmitting the COVID-19 virus.

In 2021, the clinics were merged into five clinics namely - Titikaveka, Matavera, Tupapa, Nikao and Ruaau. The initiative provided primary care into the local village settings, providing ease of access for elderly, the vulnerable and wider community. Included with clinics was the oral health services. The three Vaka community on Rarotonga in **Figure 26**, for Takitumu area – Tiitikaveka and Matavera, Te Au O Tonga – Tupapa and Nikao; and Puaikura – Ruaau PUNA health clinic shows number of people that has attended their local community health clinic.

Figure 26: Rarotonga community health clinics coverage by Vaka groups 2021

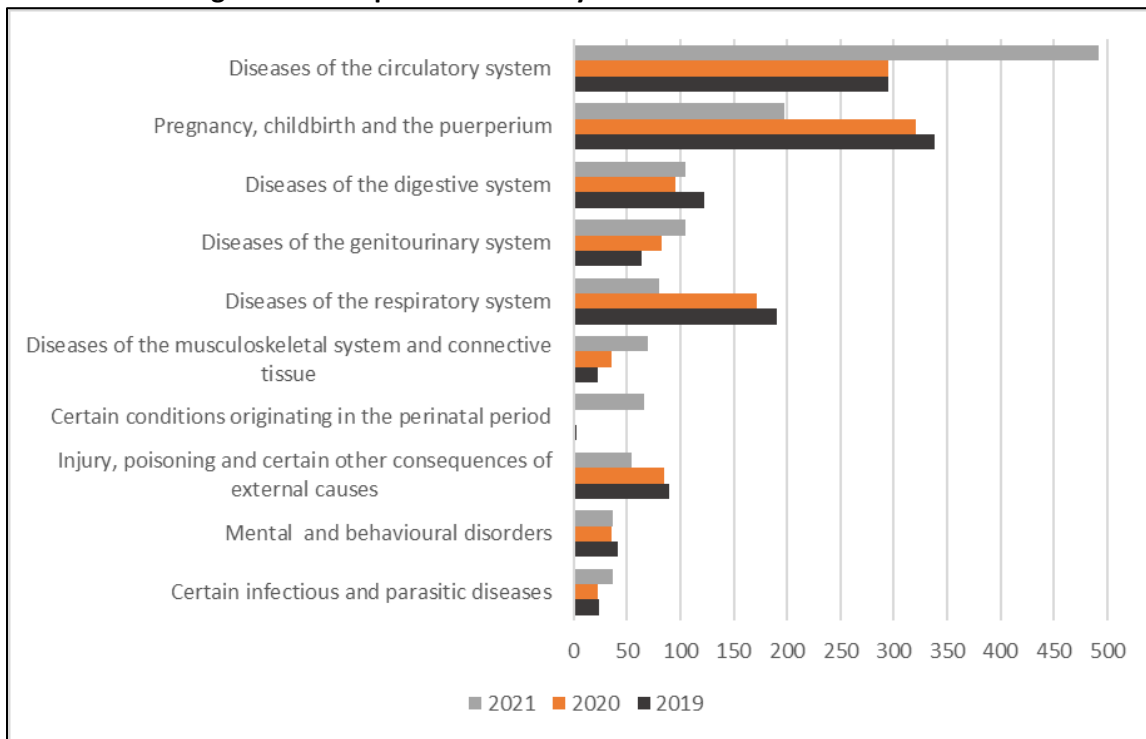


Inpatient admissions

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 27 shows the ten leading causes for inpatient morbidity over 2021 in comparison to 2019-2020 with the diseases of the circulatory system remaining prevalent.

Figure 27: Ten leading causes of inpatient morbidity 2021



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 and 2021 show an average of 26 beds occupied, a slight decrease since 2018 with 22 bed occupancy.

Figure 28: Cook Islands bed occupancy rates, 2015-2021

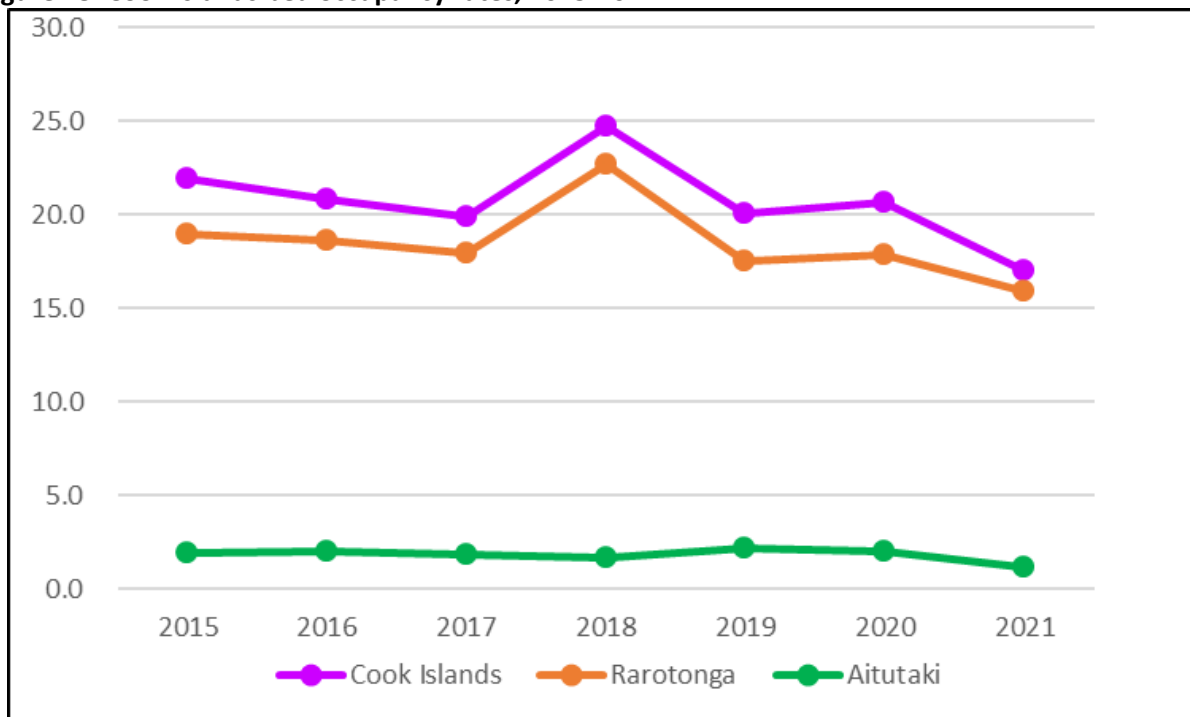
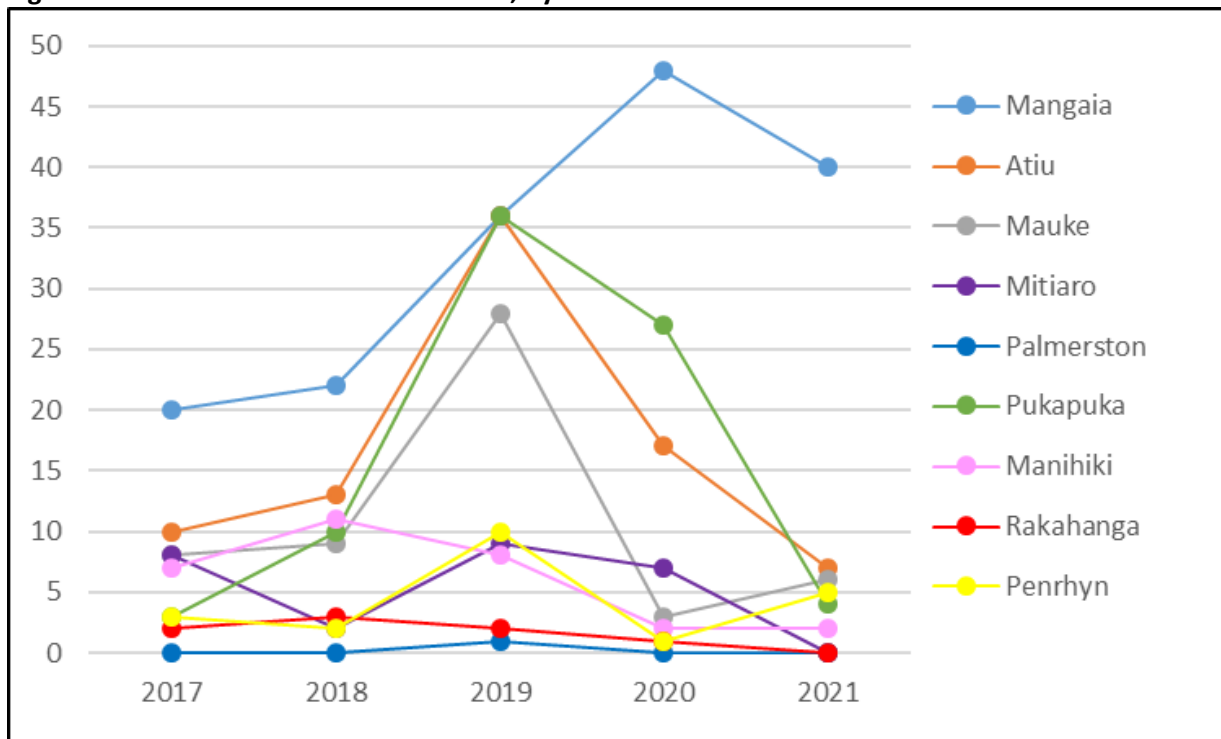


Figure 29: Number of Pa Enea admissions, by island 2017-2021



Domestic and international patient referrals

Patients residing in the Outer Islands (Pa Enea) 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 30: Number of patients received from the Pa Enea and/or referred overseas, 2010-2021

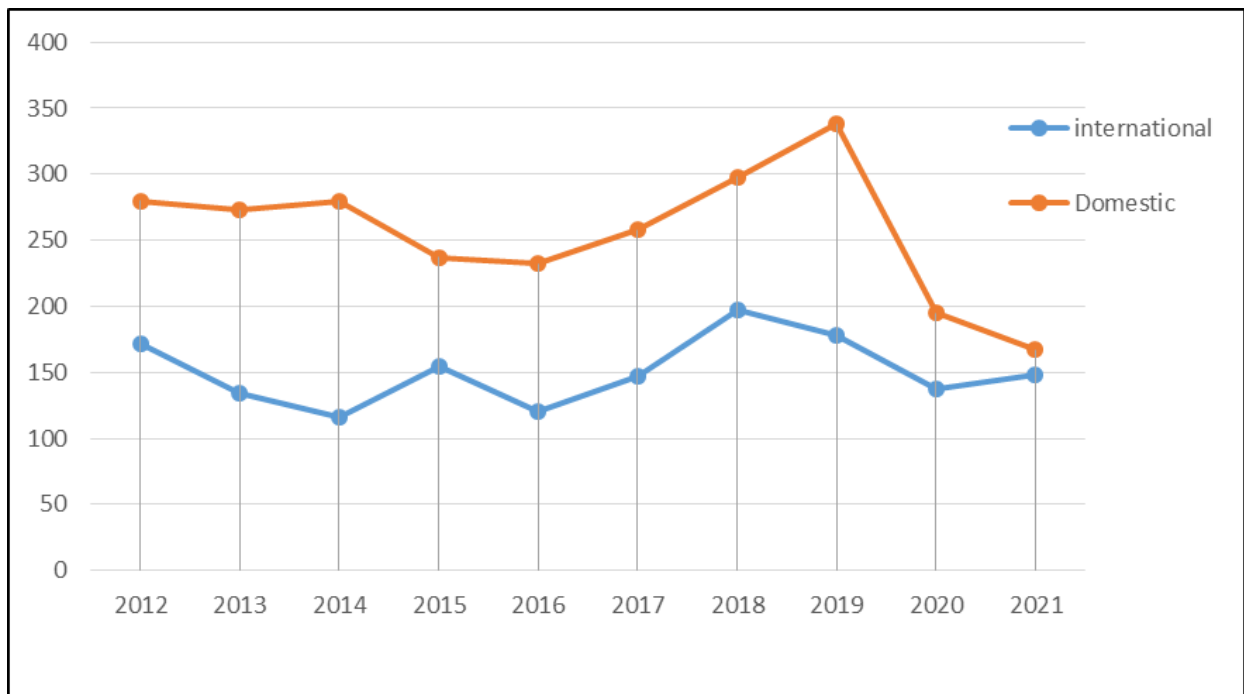
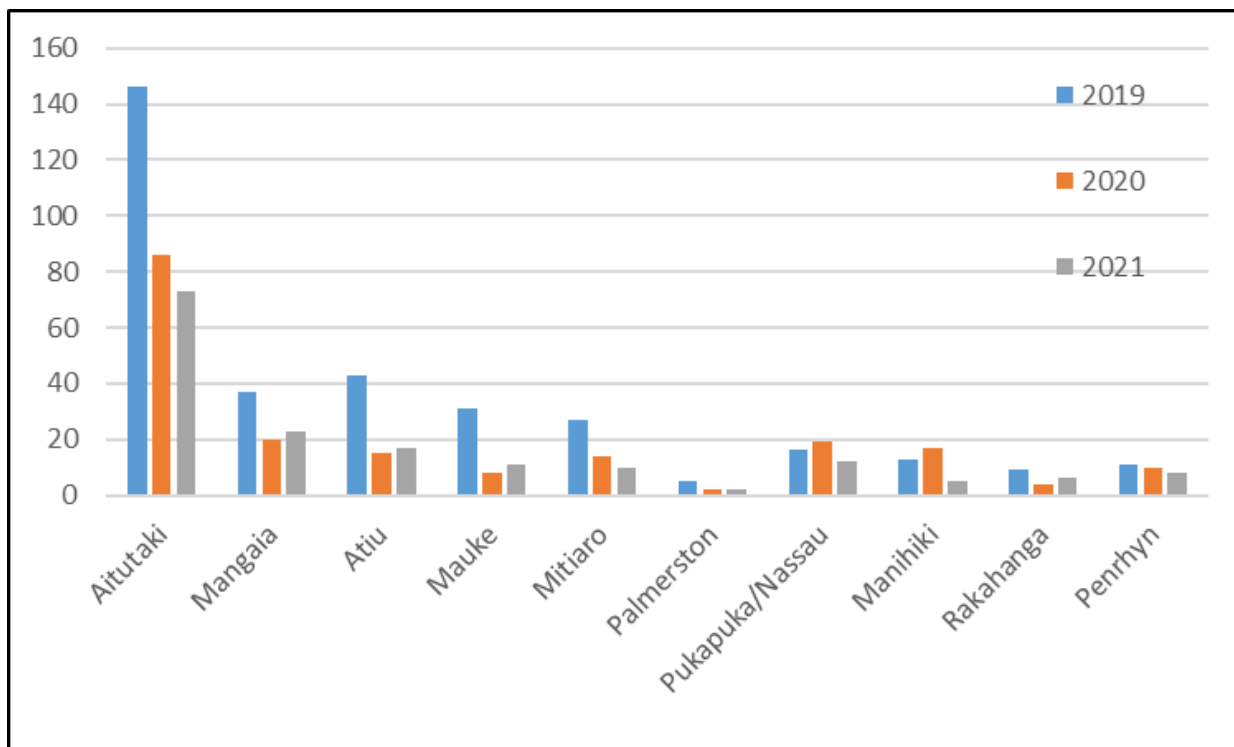


Figure 31: Number of domestic referrals to Rarotonga and/or international 2019-2021



All domestic referrals, which are referrals from the Pa Enea to Rarotonga and international are mainly from the southern islands of the Cook Islands. This includes Aitutaki, Mangaia, Atiu, Mauke and Mitiaro. Whereas referrals come from the Northern islands of the Cook Islands. This includes Palmerston, Pukapuka/Nassau, Manihiki, Rakahanga and Penrhyn.

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 and 2021 is seen in **Figure 32 and 33**. This indicates the workload has been alleviated by the local community health clinics. Furthermore, measures in response to COVID-19 were implemented over 2020 and 2021 to limit face to face consultations by way of phone consultations, flu clinics and vehicle triaging for flu like symptoms.

Figure 32: Outpatient consultations by sex 2012-2021

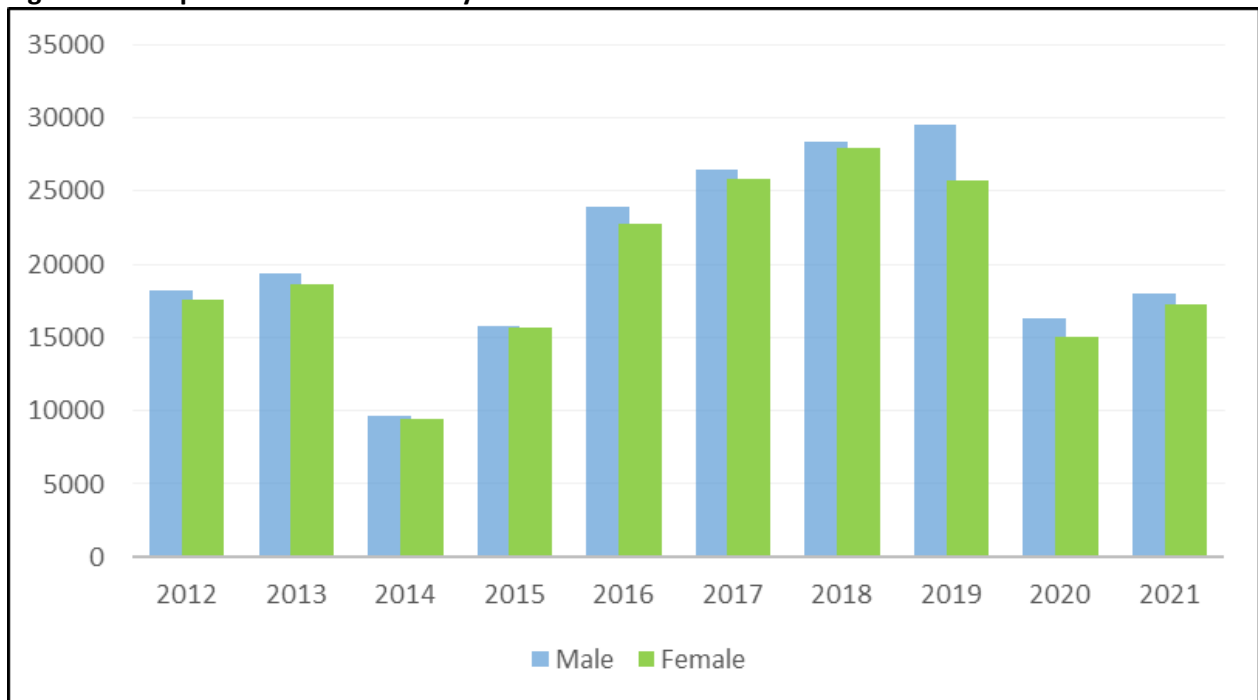
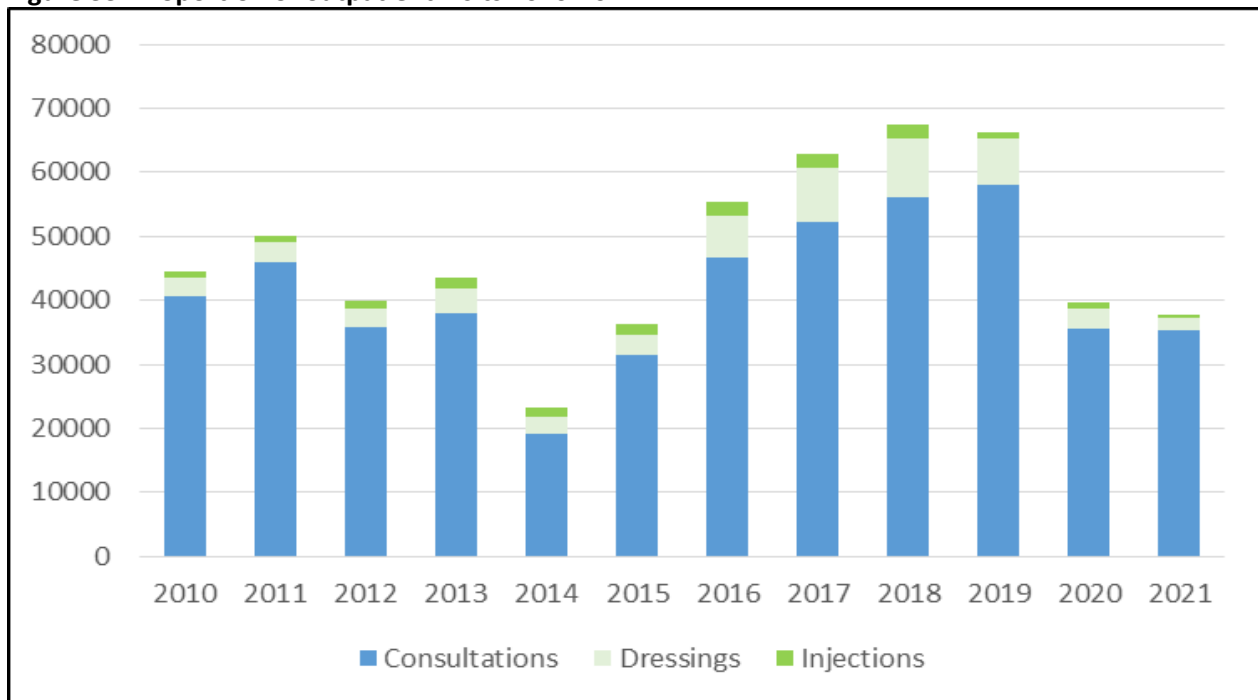


Figure 33: Proportion of outpatient visits 2010-2021



Health specialist visits

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 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 and 2021 due to COVID-19, as an alternative in 2021 there were more international referrals. 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 4: Health specialist visits 2019

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

Covid-19 Vaccination

With the support of the New Zealand Government, TMO was able to secure sufficient Pfizer vaccines to provide full coverage for all the population.

Ninety five percent of Cook Islanders fully vaccinated –received both dose 1 and 2

- The Vaccination rollout for 16+ year olds began on the 17 May 2021
- The Vaccination rollout for 12–15-year-olds began on the 8 October 2021
- Dose 3 began on 16 December 2021 for 18yrs+

In partnership with private and public sector agencies Te Marae Ora carried out the task to place Cook Islands amongst most vaccinated nations globally.

Figure 34: Proportion of doses administered in the Cook Islands 2021

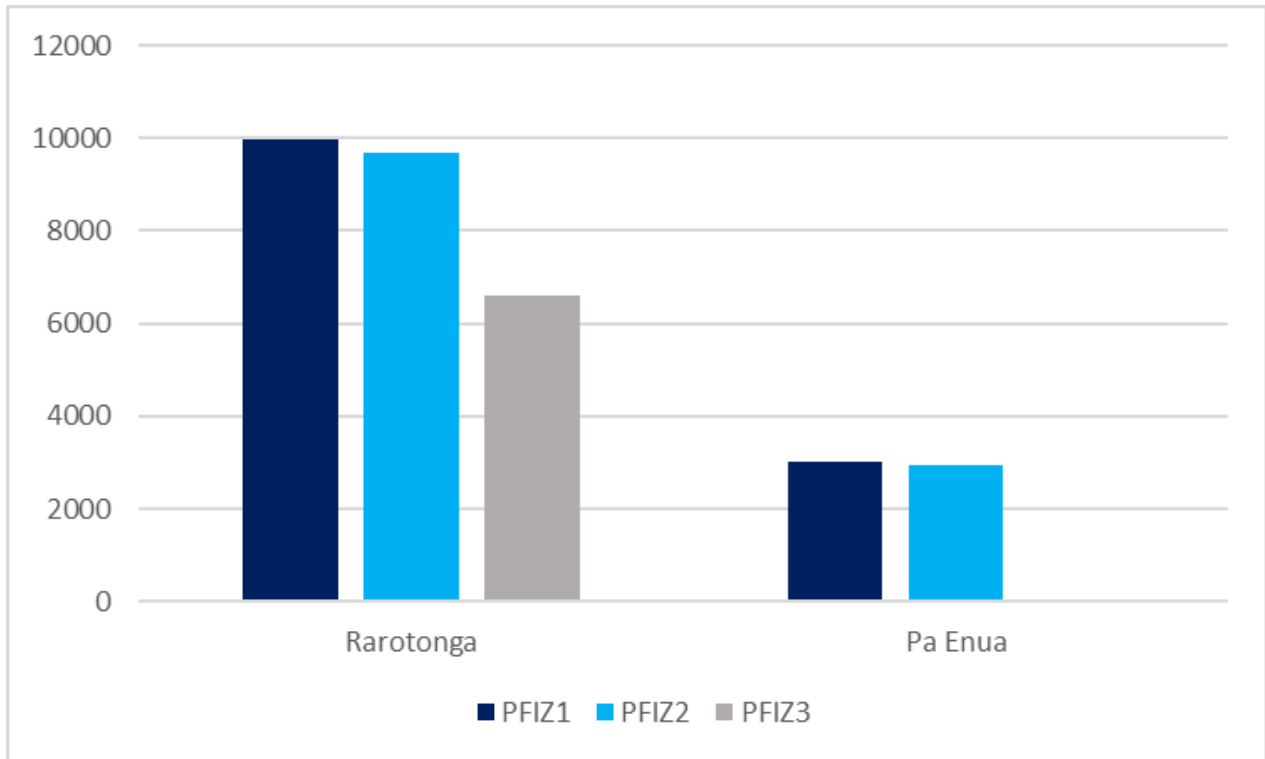
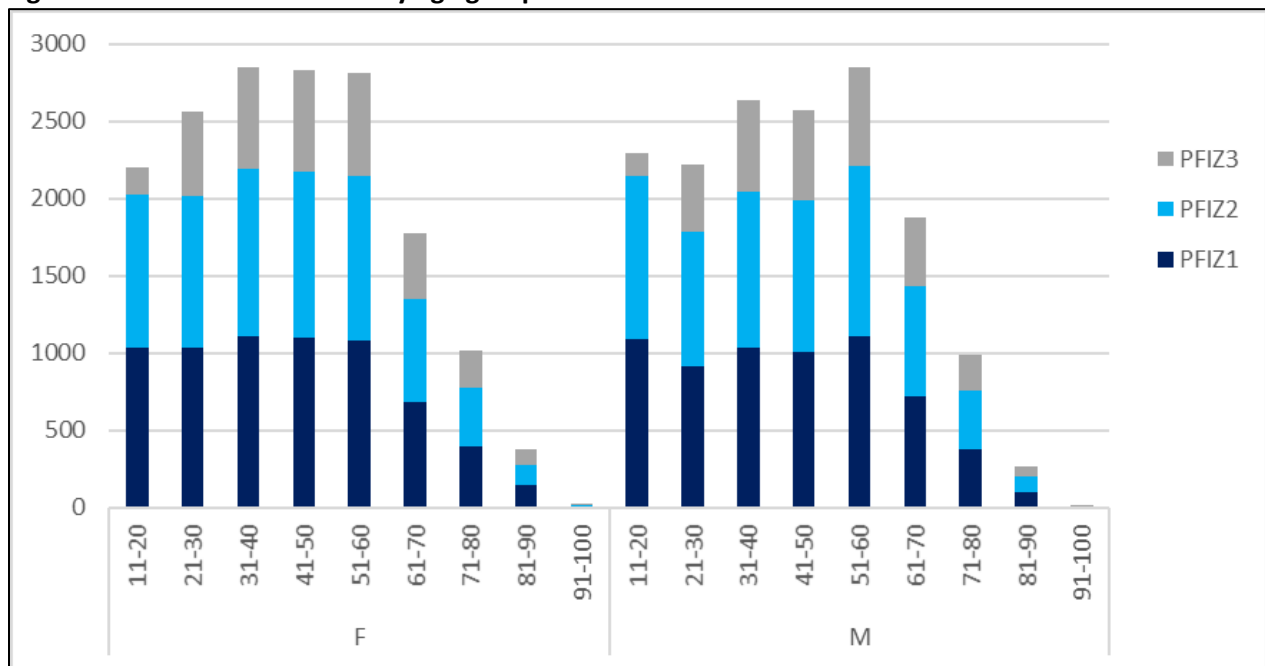


Figure 35: Doses administered by age group and sex 2021



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 2021 life expectancy at birth has increased to 84 years for males and 89 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.

The trend seen in **Figure 36** for deaths in the Cook Islands have been stable with majority of cases occurring on the mainland of Rarotonga. **Figure 37** shows deaths for Pa Enuu with majority occurring in the Southern group with Aitutaki leading.

Figure 36: Total death Cook Islands and Rarotonga 2019-2021

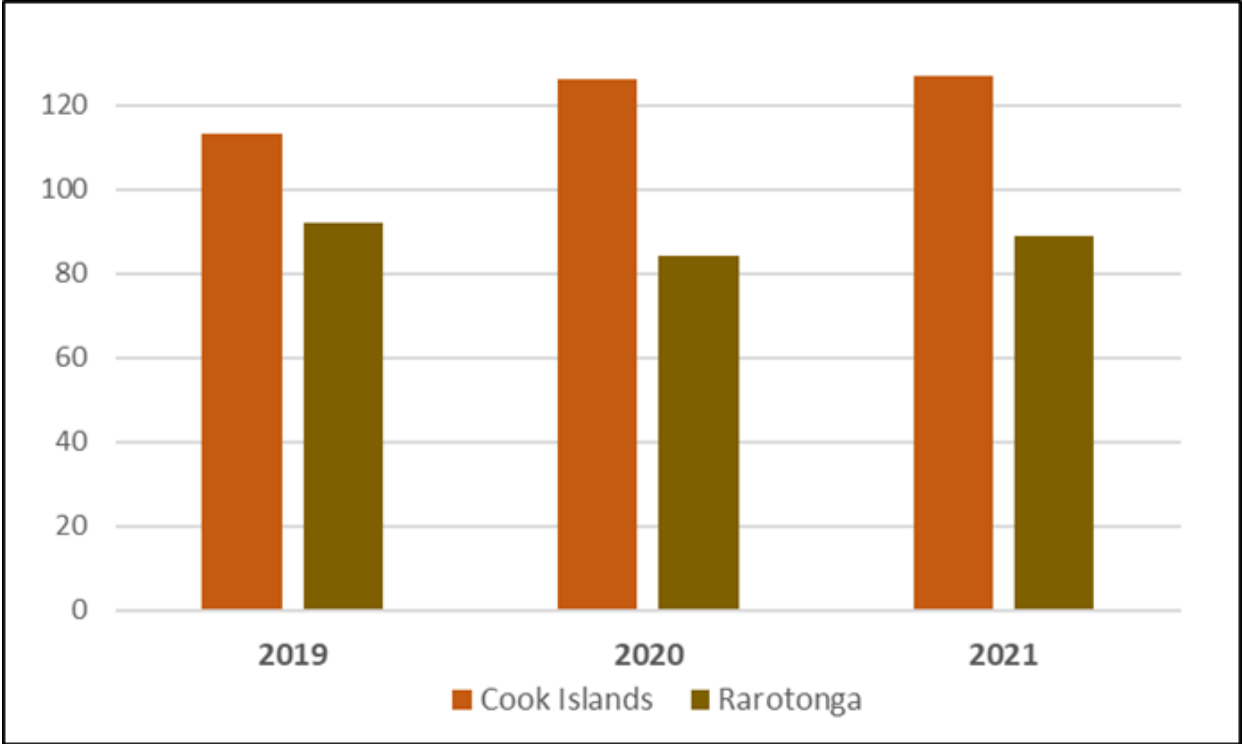
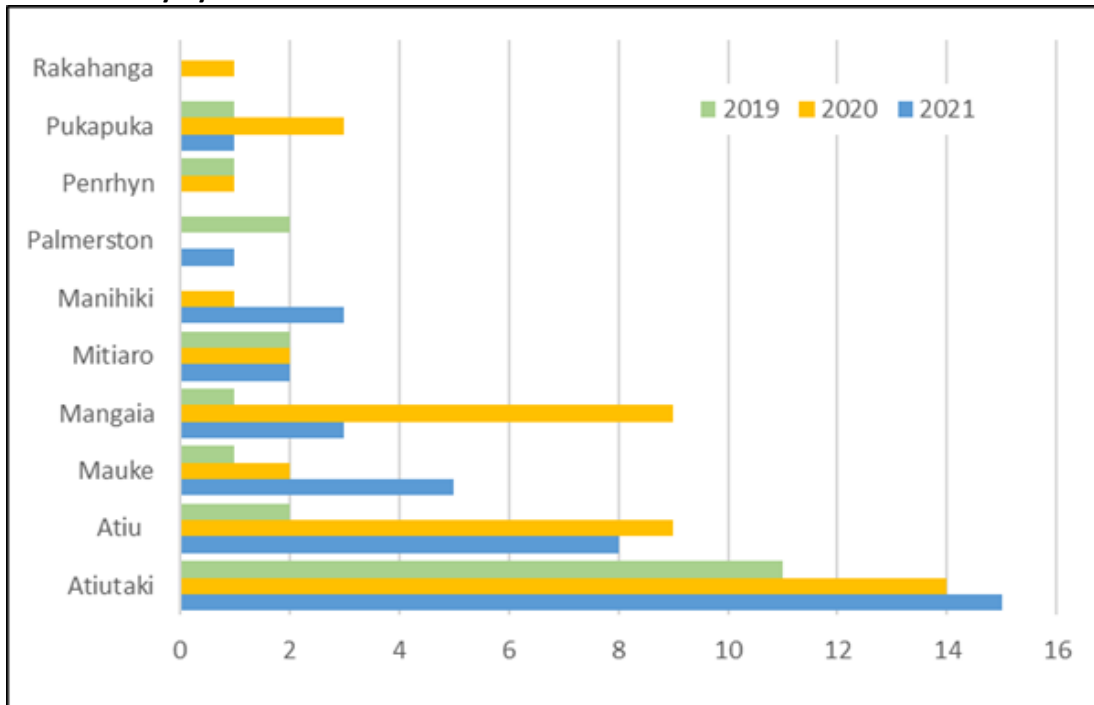


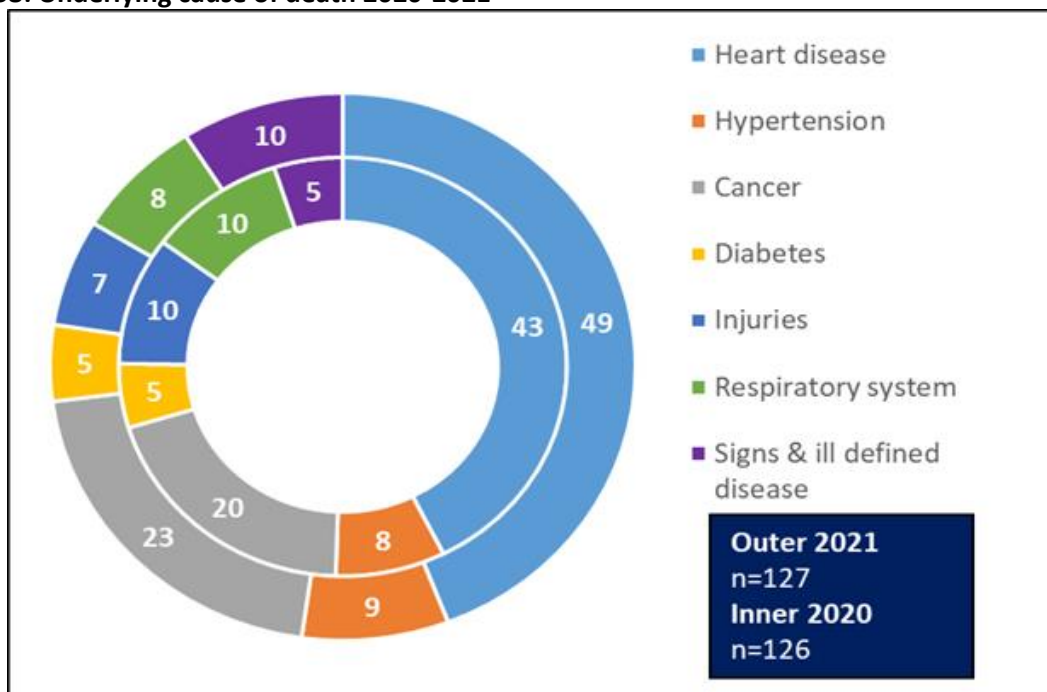
Figure 37: Mortality by Pa Enua 2019-2021



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 2021. Heart diseases accounted 38% of all deaths in the Cook Islands.

Figure 38: Underlying cause of death 2020-2021



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
Mortality by age and sex	Nutrition	Reproductive maternal, new-born, child and adolescent	Quality and safety of care
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	Immunisation	Availability of essential medicines and commodities
Stillbirth rate	Environmental risk factors	Immunisation coverage rate by vaccine for each vaccine in the national schedule <5 years	Rate of adverse events among specialty areas
Mortality by case	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	HIV	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	Utilisation and access
AIDS-related mortality rate	Non communicable diseases	HIV/TB	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	Tuberculosis	Number and proportion of consultations for oral health services
Fertility	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	Vector borne diseases	Surgical volume
Morbidity	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	Health workforce
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	Screening and preventive care	Health information
Hepatitis B incidence	Overweight and obesity in adults	Breast cancer screening	Birth registration
Sexually transmitted infections (STIs) incidence rate	Injuries/harmful traditional practices	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	Health security
TB incidence rate	Non-partner sexual violence number and prevalence	Mental health	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 indicator sets in use 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.

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

COOK ISLANDS 2021

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	80+
RAROTONGA	5,594	372	419	455	410	342	395	386	375	371	395	388	379	272	219	153	129	134
Kiikii-Ooa-Pue-Tupapa	888	59	69	63	67	57	59	63	67	63	56	60	65	36	36	25	25	18
Takuvaine	338	23	29	36	35	12	23	23	24	15	26	21	17	20	11	7	8	8
Tutakimoo-Teotue	138	11	5	11	7	14	13	8	11	11	9	8	14	2	7	2	1	4
Avatiu-Ruatonga-Atupa	503	34	35	41	39	37	36	39	28	25	39	43	22	35	16	8	10	16
Nikao-Panama	784	58	53	65	61	55	62	46	54	62	58	50	50	37	27	23	13	10
Ruaau-Arerenga	615	29	45	48	50	31	51	42	42	52	32	39	45	46	16	16	14	17
Akooa-Betela	338	22	25	35	14	22	22	22	23	24	20	30	21	18	13	11	9	7
Murienua	402	31	28	32	34	19	30	28	20	26	34	28	26	16	18	9	12	11
Tiikaveka	654	36	50	58	44	25	37	50	38	40	52	49	54	25	29	27	18	22
Ngatangia	412	26	33	26	25	34	28	26	22	26	32	30	26	22	19	14	10	13
Matavera	522	43	47	40	34	36	34	39	46	27	37	30	39	15	27	11	9	8
SOUTHERN ISLANDS	1,520	108	125	148	124	66	75	70	80	86	98	101	106	93	71	59	53	57
Aitutaki	890	80	68	79	73	36	55	51	58	53	50	59	55	51	36	32	30	24
Mangaia	229	10	17	26	25	10	6	2	4	18	16	13	19	19	9	13	10	12
Atiu	195	12	19	24	15	8	5	12	5	9	9	18	12	13	11	7	6	10
Mauke	130	3	13	8	9	4	6	5	10	3	16	5	15	10	10	1	5	7
Mitiaro	76	3	8	11	2	8	3		3	3	7	6	5		5	6	2	4
NORTHERN ISLANDS	504	61	56	69	48	25	17	26	38	27	25	25	26	31	15	5	6	4
Palmerston	6					2			1	1			1	1				
Pukapuka	216	29	20	33	25	11	9	14	15	5	9	9	11	9	10	2	3	2
Nassau	42	7	4	6	2	2	1	1	3	3	5	2		4			2	
Manihiki	89	8	13	9	6	3	3	6	8	3	4	9	6	7		3	1	
Rakahanga	40	4	6	5	1	3		1	5	2	2	1	3	3	3			1
Penrhyn	111	13	13	16	14	4	4	4	6	13	5	4	5	7	2			1
COOK ISLANDS	7,618	541	600	672	582	433	487	482	493	484	518	514	511	396	305	217	188	195

Table 2.1: Number and rate of births, deaths, infant deaths, maternal deaths and fetal deaths
COOK ISLANDS 2010 - 2021

YEAR	Live Births		Deaths		Deaths under 1 y		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
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
2021	206	13.7	123	8.2	2	9.7	0	0	2	9.6

**Table 2.2: Live births to low birth weight cases
COOK ISLANDS: 2011-2021**

Year	Births	Number of cases	% to live births
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	239	14	6
2019	232	8	4
2020	257	12	5
2021	206	10	5

**Table 2.3: Mothers Given Birth and Fertility Rates by Age Groupings
COOK ISLANDS 2011 - 2021**

Age Group	Female Resident			Number of Mothers											
	2011	2016	2021	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
15-19	597	711	582	37	41	40	31	24	24	25	22	9	18	19	
20-24	512	656	433	70	80	76	54	59	63	56	74	60	73	57	
25-29	493	612	487	71	65	64	57	53	56	76	63	61	60	62	
30-34	462	595	482	47	56	38	49	45	59	42	43	52	44	41	
35-39	521	533	493	40	33	31	21	21	29	20	26	26	33	18	
40-44	542	601	484	17	16	10	11	13	9	12	11	10	11	8	
45-49	528	625	518	1	0	1	0	1	1	0	0	1	1	2	
Total	3,655	4333	3479	283	291	260	223	216	241	231	239	219	240	207	
15-19				62	69	67	52	40	40	42	38	13	25	33	
20-24				137	156	148	105	115	123	109	149	91	111	132	
25-29				144	132	130	116	108	114	154	134	100	98	127	
30-34				102	121	82	106	97	128	91	89	87	74	85	
35-39				77	63	60	40	40	56	38	60	49	62	37	
40-44				31	30	18	20	24	17	22	21	17	18	17	
45-49				2	0	2	0	2	2	0	0	2	2	4	
General Fertility Rate (per 1'000 Women)				77	80	71	61	59	66	63	68	51	55	59	
Total Fertility Rate				2.8	2.9	2.5	2.2	2.1	2.4	2.3	2.5	1.8	2.0	2.2	

**Table 2.4: CURRENT USERS - Women on family planning contraceptives by year
COOK ISLANDS: 2011-2021**

Contraceptive Type	YEAR										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
All Methods	1,166	1,150	1,296	1,201	1,040	990	963	1,044	830	762	623
Prevalence Rate (%)	31.9	31.5	35.5	32.9	28.5	27.2	26.5	24.1	19.2	17.6	17.9
Oral Contraceptive (Pills)	514	436	505	448	428	393	380	130	65	49	9
Intra Uterine Device	40	59	14	6	2	7	2	13	6	6	6
Depo Provera (Injections)	494	487	677	630	515	482	472	772	651	613	508
Norplant/Jadelle	70	86	65	60	58	81	98	125	100	94	100
Condom	38	35	32	41	31	22	2	-	-	-	-
Others	10	47	3	16	6	5	9	4	-	-	-

**Table 2.5: Suspected cases of notifiable diseases by year
COOK ISLANDS 2010-2021**

Disease	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
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	1,162
Asthma	102	102	116	84	52	31	66	78	133	337	329	190
Bronchitis	737	546	450	465	450	435	303	337	141	187	133	52
Chickenpox	13	22	44	37	51	19	50	44	145	8	54	4
Chikungunya						11	0	0	0	0	0	0
Conjunctivitis	307	842	246	199	152	171	100	40	70	53	29	24
Dengue	0	0	6	4	5	0	0	0	1	380	458	443
Diarrhoea child/adult	127	128	260	221	182	143	204	109	129	75	60	31
Diarrhoea infant	4	11	19	17	5	7	3	3	7	4	2	5
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0
Filariasis	0	0	0	0	0	0	0	0	0	0	0	0
Fish Poisoning	78	102	90	90	65	41	69	69	29			35
Food Poisoning	32	30	46	40	34	28	54	49	14	20	17	16
Gastroenteritis	677	683	1,085	725	653	594	655	646	585	349	383	341
Influenza & Viral Illness	221	648	420	514	420	324	424	605	670	638	472	41
Leprosy	0	0	0	0	0	0	0	0	0	0	0	0
Measles	1	0	0	1	0	0	0	0	4	8	0	0
Meningitis	3	2	0	2	1	0	1	0	1	3	0	1
Mumps	7	4	4	5	1	0	2	0	9	1	1	0
Otitis Media	186	226	300	270	268	317	231	242	256	319	227	109
Pneumonia	286	505	901	813	725	637	397	192	266	154	40	35
Rheumatic fever (acute & chronic)	28	18	40	15	7	10	24	10	64	29	86	11
Scabies	83	216	285	317	162	140	206	145	123	48	80	42
Skin Sepsis	1,256	1,363	2,032	2,746	1,152	938	2,046	2,278	1,641	1,575	1,357	868
Whooping Cough (Pertussis)	0	7	7	4	0	0	1	0	1	0	0	0
Yaws	0	0	0	0	0	0	0	0	0	0	0	0

**Table2.6: Inpatient morbidity (diseases) by year and sex
COOK ISLANDS 2018 - 2021**

ICD 10 Code	CAUSE	2018		2019		2020		2021	
		Male	Female	Male	Female	Male	Female	Male	Female
	Number of Hospital Admissions	845	1,140	839	911	617	934	532	855
A00-B99	Certain infectious and parasitic diseases	5	5	15	9	10	13	17	20
C00-D48	Neoplasms	15	14	8	12	6	9	2	26
D50-D89	Diseases of blood & blood-forming organs & certain disorders involving the immune mechanism	13	17	20	9	8	15	5	9
E00-E90	Endocrine, nutritional and metabolic diseases	79	71	98	83	76	65	6	23
F00-F99	Mental and behavioural disorders	20	14	22	19	14	21	16	21
G00-G99	Diseases of the nervous system	9	16	29	22	11	9	3	15
H00-H59	Diseases of the eye and adnexa	16	34	36	23	14	18		0
H60-H95	Diseases of the ear and mastoid process	3	5	2	1	2	3		1
I00-I99	Diseases of the circulatory system	175	163	156	139	134	161	258	234
J00-J99	Diseases of the respiratory system	97	108	122	68	78	94	45	35
K00-K95	Diseases of the digestive system	68	54	65	57	44	52	55	50
L00-L99	Diseases of the skin and subcutaneous tissue	76	32	71	26	67	35	5	12
M00-M99	Diseases of the musculoskeletal system and connective tissue	18	8	17	6	23	12	51	19
N00-N99	Diseases of the genitourinary system	26	53	48	16	36	47	29	76
O00-O99	Pregnancy, childbirth and the puerperium	0	288	0	338	0	321	0	197
P00-P96	Certain conditions originating in the perinatal period	0	0	0	3	0	1	0	66
Q00-Q99	Congenital malformations, deformations and chromosomal abnormalities	0	0	0	0	0	0	0	0
R00-R99	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	17	24	39	33	20	15	6	21
S00-T98	Injury, poisoning and certain other consequences of external causes	58	39	54	35	59	26	31	23
V01-Y98	External causes of morbidity and mortality	19	19	37	12	15	17	3	3
Z30.0-Z30.9	Encounter for contraceptive management, unspecified							0	4

**TABLE 2.7: Patients Admitted and Discharged from Hospital
by Region & Island and Bed Occupancy.
COOK ISLANDS 2021**

REGION & ISLAND	Number of				Average Occupied Bed	% Bed Occupancy
	Admissions	Discharges	Bed Days Used	Bed Days Available		
COOK ISLANDS	1,387	1,258	6,332	50,735	17.3	12.5
RAROTONGA	1,198	1,142	5,803	25,550	15.9	22.7
SOUTHERN GROUP excluding Rarotonga	178	111	514	18,615	1.4	2.8
Aitutaki	125	86	442	9,490	1.2	4.7
Mangaia	40	19	53	2,920	0.1	1.8
Atiu	7	4	13	3,285	0.0	0.4
Mauke	6	2	6	2,190	0.0	0.3
Mitiaro	0	0	0	730	0.0	0.0
NORTHERN GROUP	11	5	15	6,570	0.0	0.2
Palmerston	0	0	0	0	0.0	0.0
Pukapuka/Nassau	4	1	5	1,460	0.0	0.3
Manihiki	2	0	2	2,920	0.0	0.1
Rakahanga	0	1	0	730	0.0	0.0
Penrhyn	5	3	8	1,460	0.0	0.5

Table 3: Admissions due to road traffic crashes

RAROTONGA: 2008-2021

Type of Accident	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Transport Crashes	51	52	46	60	58	66	68	41	42	49	49	52	42	25
Male	24	35	28	41	35	46	42	22	24	31	33	29	27	15
Female	27	17	18	19	23	20	26	19	18	18	16	23	15	10
Alcohol Related	32	30	26	32	27	30	26	18	19	23	26	25	17	15
Percentage Alcohol Related	63%	58%	57%	53%	47%	45%	38%	44%	45%	47%	53%	48%	40%	60%
Alcohol Related Deaths	4	2	2	4	2	4	4	3	1	3	3	4	5	1
Non Alcohol Related Deaths	0	0	0	0	2	2	1	2	0	0	0	0	0	2
Transport Crashes - Outer Islands									4	3	0	0	0	2
COOK ISLANDS														
Number of Deaths	4	3	2	4	5	6	6	5	1	3	4	6	7	5
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	14,987
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	33.4

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

RAROTONGA: 2008- 2021

Age Group	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
0 - 14	1	0	2	0	5	0	0	0	0	0	0	0	1	0
15 - 24	19	15	12	16	9	13	12	8	6	13	11	12	8	7
25 - 34	5	7	5	7	7	12	8	7	8	3	9	9	4	3
35 - 44	3	6	5	4	6	1	1	2	2	4	3	3	1	2
45 - 54	3	1	1	3	0	2	3	1	1	3	2	1	2	2
55 +	1	1	1	2	0	2	2	0	2	0	1	1	1	1
Total	32	30	26	32	27	30	26	18	19	23	26	26	17	15

Table 3.2: Number of Patients referred Overseas and received from the Outer Islands

COOK ISLANDS: 2010-2021

Period	Overseas	Island										
		TOTAL	Aitutaki	Mangaia	Atiu	Mauke	Mitiaro	Palmerston	Pukapuka /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
2021	148	167	73	23	17	11	10	2	12	5	6	8
QUARTER												
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
2021 Mar	41	35	18	7	3	1	2	1	0	0	2	1
Jun	44	26	11	2	4	1	3	0	0	2	2	1
Sep	41	53	23	8	4	5	3	1	5	1	1	2
Dec	22	53	21	6	6	4	2	0	7	2	1	4

**Table 3.3: Laboratory positive new cases by disease and year
RAROTONGA, COOK ISLANDS: 2013-2021**

STI	YEAR									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Gonorrhoea	6	2	1	2	11	42	38	4	10	
HIV	0	0	0	0	0		0	0		
Candidiasis	7	4	0	0	20	67	60	14	17	
Non Specific Urethritis	6	0	0	0	0	3	3	3	3	
Trichomonas Vaginalis	9	1	0	0	0	6	2	3	3	
Chlamydia	39	28	30	37	108	108	100	0	0	
Hepatitis B	5	6	6	8	9	3	8	8	9	
Total	72	41	38	48	149	234	215	36	46	

**Table 3.4: Ciguatera (Fish poisoning) cases seen by year and month
COOK ISLANDS: 2010-2021**

Year	MONTH												TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
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
2021	3	5	3	6	3	2	1	3	1	1	0	7	35

**Table 3.5: Incidence of cancer cases by site, sex and age groupings.
COOK ISLANDS 2021**

ICD 10 CODE	SITE	MALE								Total	% Distribution
		0-14	15-24	25-34	35-44	45-54	55-64	65-74	75+		
C00 - D48	ALL SITES	0	0	1	0	1	1	5	4	12	100.0
C62.9	Malignant neoplasm: Testes, unspecified			1	0	0	0	0	0	1	8.3
C49.2	Malignant neoplasm: connective and soft tissue of lower limb, including hip			0	0	0	0	0	1	1	8.3
C15	Malignant neoplasm of oesophagus			0	0	0	0	1	0	1	8.3
C61	Malignant neoplasms of prostate			0	0	0	2	0	2	16.6	
C18-C21	Malignant neoplasm of colon, rectum and anus			0	0	0	0	0	1	1	8.3
C43.6	Malignant melanoma of upper limb, including shoulder			0	0	0	0	1	0	1	8.3
C44.2	Unspecified malignant neoplasm of skin of right ear and external auricular			0	0	0	0	0	1	1	8.3
C44.309	Unspecified malignant neoplasm of skin of other parts of face			0	0	0	0	1	0	1	8.3
C30.0	Malignant neoplasm: nasal cavity			0	0	0	0	0	1	1	8.3
C44.90, C44.99	Unspecified/other malignant neoplasm of skin of unspecified sites of skin			0	0	0	1	0	0	1	8.3
C73-C75	Malignant neoplasms of thyroid and other endocrine glands			0	1	0	0	0	0	1	8.3
C00 - D48	ALL SITES	0	0	0	1	2	5	2	1	11	100.0
C41.2	Malignant neoplasm of vertebral column			0	0	0	1	0	0	1	9.0
C50	Malignant neoplasm of breast			0	1	2	0	0	0	3	27.7
C53	Malignant neoplasm of cervix uteri			0	1	0	0	0	0	1	9.0
D07.0	Endometrium			1	0	0	0	0	0	1	9.0
C18-C21	Malignant neoplasm of colon, rectum and anus			0	0	1	0	0	0	1	9.0
C44.2	Unspecified malignant neoplasm of skin of right ear and external auricular			0	0	0	1	0	0	1	9.0
C49.2	Malignant neoplasm: connective and soft tissue of lower limb, including hip			0	0	0	0	0	1	1	9.0
C43.6	Malignant melanoma of upper limb, including shoulder			0	0	1	0	0	0	1	9.0
C54-C55	Malignant neoplasms of other and unspecified parts of uterus			0	0	1	0	0	0	1	9.0

**Table 3.7: Outpatient indicators
COOK ISLANDS 2010-2021**

Year	Total			
	Consultations	Dressings	Injections	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
2021	35,274	2,017	480	37,771

Table 3.8: Outpatient consultations by year, sex and age groups
COOK ISLANDS 2012-2021

Year	Total	Age Groups														Unknown	
		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+
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
2021	35,274	2,553	2,010	1,546	1,630	1,697	1,852	2,170	2,156	2,006	2,355	2,742	2,930	2,455	2,153	5,015	4
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
2021	17,973	1,291	1,143	873	707	717	823	1,047	1,112	987	1,134	1,471	1,517	1,413	1,150	2,586	2
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
2021	17,301	1,262	867	673	923	980	1,029	1,123	1,044	1,019	1,221	1,271	1,413	1,042	1,003	2,429	2