



Overview  
2017

# HEALTH SITUATION IN NEW CALEDONIA

—2017



**DASS**  
Direction des Affaires  
Sanitaires et Sociales

# Principales structures de santé de la Nouvelle-Calédonie\*



\* Les structures et le personnel de santé à la disposition de la population calédonienne sont détaillés dans le chapitre II : **Les services de santé.**

\*\* Les CHN de Koumac et Poindimié disposent d'une antenne médico-psychologique rattachée au CHS Albert Bousquet.

\*\*\* 6 lits de soins de suites et de rééducation à Bourail.

- Centre mère et enfant à Poindimié et à Koumac



2017



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## DEMOGRAPHIC CHARACTERISTICS

Since 1989, there has been a steady fall in the proportion of young people compared to older age groups. According to 2014 census figures, the under 20 age group had decreased in size and represented 32% of the population; the 60 plus age group had almost doubled (12%). Declining fertility rates and rising life expectancy are the key reasons for such population ageing.

The demographics of New Caledonia and its three Provinces are summarised in the table below:

	Population	Growth rate (1)	Live births	Birth rate (2)	Fertility rate (3)	Infant mortality rate (4)	Number of deaths	Crude mortality rate (5)	Life expectancy at birth (6) Male / Female
New Caledonia	282,200	9.0	4,059*	14.5	1.9	4.9	1,529	5.7	75.1/80.1
Loyalty Islands Province	19,211	10.0	278	14.7	2.4	7.2	48	7.2	70.1/78.3
North Province	53,252	9.3	823	15.5	2.2	6.0	226	6.3	71.9/80.0
South Province	209,737	10.5	2,944	14.1	2.0	4.1	1,255	5.2	75.3/80.6
France	67,200	-	767,000	11.2	1.9	3.9	603,000	9.0	79.5/85.4
French Polynesia	272,800	10.1	4,161	15.3	1.4	6.7	1,424	5.2	76.3 overall
Australia	24,598	1.4	311,104	12.7	1.8	3	158,504	6.6	79.8/84.8
New Zealand	4,793	1.9	61,038	13.3	1.9	4.7	31,608	6.7	81.3 overall

Sources: ISEE (population as of 1st Jan 2018) - INSEE 2017- World Population Prospects and Bureau of Statistics - Australia and New Zealand (population 2017, demographic rates 2015) - French Polynesia ISPF.pf (2014).

- 1 Rate of natural increase: difference between crude birth and mortality rates, per 1,000 population.
- 2 Birth rate: annual number of live births during the year per 1,000 population at midyear.
- 3 Total fertility rate: average number of children that would be born to a woman over her lifetime if current age-specific fertility rates do not change.
- 4 Infant mortality rate: number of deaths of infants under one year old in a given year per 1,000 live births in the same year.
- 5 Crude mortality rate: total number of deaths during the year per 1,000 population at midyear.
- 6 Life expectancy at birth is defined as the number of years a newborn infant could expect to live if prevailing patterns of age-specific mortality rates at the time of birth stay the same throughout the infant's life.

\* Live births per mother's province of residence. 14 babies born to mothers domiciled outside New Caledonia.

## MEDICAL CAUSES OF PERINATAL MORTALITY

61 deaths as per defined criteria ( $\geq 22$  weeks of gestation or  $\geq 500$  gr) were recorded in 2017 (38 deaths during the late foetal period, 10 deaths during the perinatal period and 13 medical terminations of pregnancy).

As regards neonatal deaths (excluding MTP) in 2017:

- conditions arising in the perinatal period were the main cause of infant deaths - 24.6% of cases,
- congenital conditions were the second cause of infant deaths - 19.6% of cases.

In the case of 2 deaths in 2017, cause of death was linked to the mother (maternal infectious disease and physical assault).

The most common grounds for **medical terminations of pregnancy** (MTP) concerned congenital abnormalities (other congenital abnormalities: 38.4%, nervous system: 23.1% and chromosomal aberrations: 15.4%).

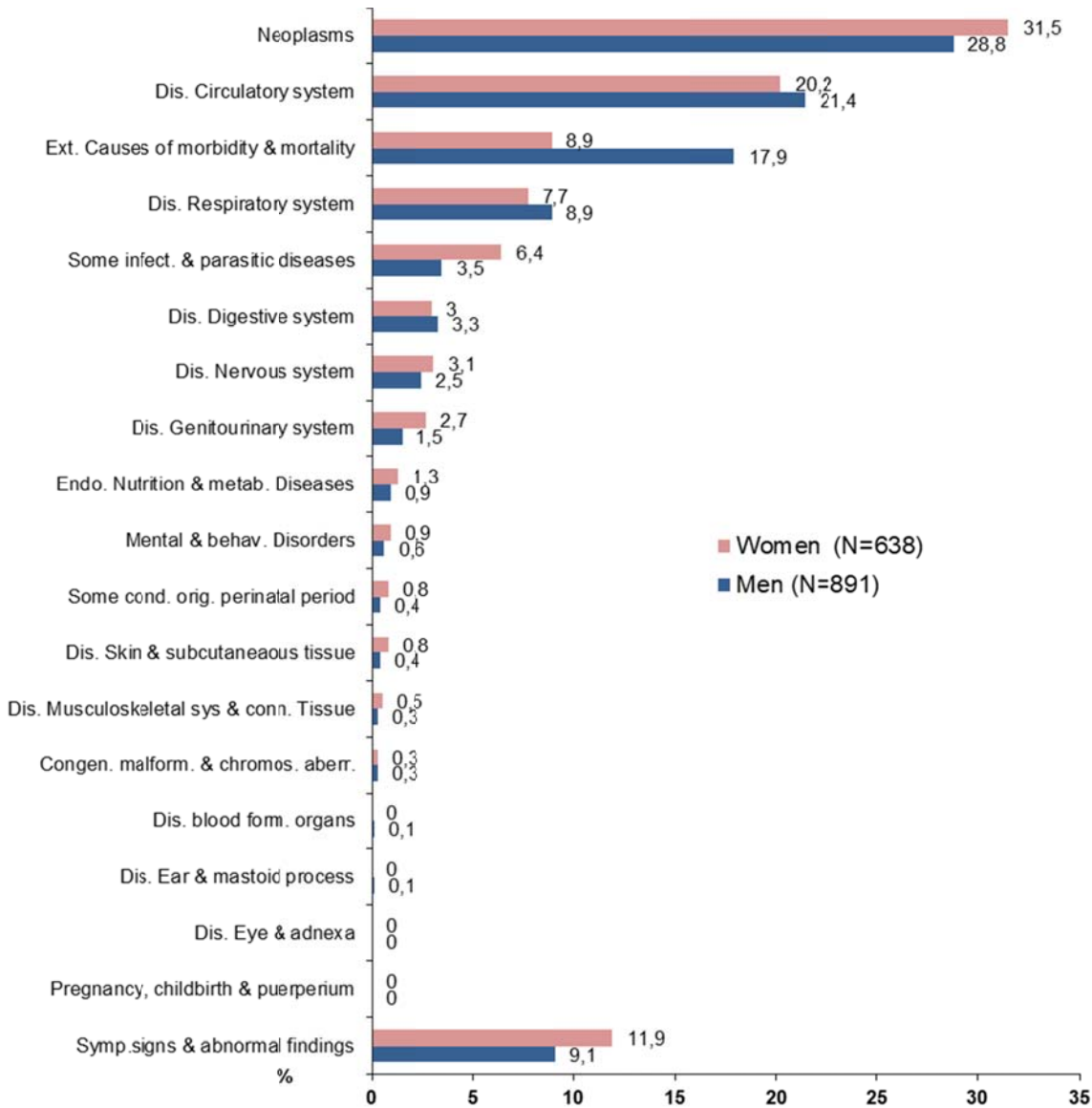
# MEDICAL CAUSES OF MORTALITY

In 2017, 1,529 deaths were recorded over the year in New Caledonia (891 men, 638 women).

The two leading causes of death, all ages, both sexes, were tumours (30%) and diseases of the circulatory system (20.9%).

External causes of morbidity and mortality (including transport accidents, accidental injuries, self-inflicted injuries, etc.) were in 3rd place (14.1%). The two major causes of death in this category were road traffic accidents (29.2%) and self-inflicted injuries (19.4%); there were four times as many male deaths as female deaths.

Breakdown by % of all deaths by gender, as per the 19 ICD10 code blocks





## INFECTIOUS DISEASES

### Notifiable diseases (excl. cancers, see specific chapter)

In 2017, 4,938 notifications of diseases were recorded. A breakdown of notifications per disease is shown in the following table:

Notifiable Diseases	2011	2012	2013	2014	2015	2016	2017
Cancer (excluding skin tumours apart from melanoma)	891	864	853	884	917	ND	ND
Chikungunya	33	0	31	41	24	3	0
Pertussis (whooping cough)	2	6	3	9	0	1	23
Venereal warts	1	6	0	13	1	0	0
Dengue fever	15	718	10,522	310	26	693	4,379
Diphtheria	0	6	0	0	0	4	3
Typhoid and paratyphoid fever	2	1	0	0	0	0	0
Hepatitis A	1	0	1	0	3	5	1
Hepatitis B	6	5	16	8	11	3	13
Hepatitis C	1	0	0	1	6	1	12
Legionnaires' disease	2	0	0	0	5	5	22
Leprosy	10	5	8	1	8	4	7
Leptospirosis	138	75	70	20	56	69	89
Listeriosis							1
Meningococcal meningitis	10	5	8	9	1	2	1
Malaria	5	2	2	0	0	2	1
Acute Rheumatic Fever	86	ND	ND	ND	150	124	95
Measles	0	0	0	0	1	1	1
Sporotrichosis	1	12	21	20	16	5	16
HIV associated syndromes	18	26	15	20	18	16	16
Syphilis	49	66	145	100	133	164	189
Tetanus	0	0	0	0	0	0	0
Food poisoning (outbreaks)	28	13	17	27	15	20	17
Tuberculosis (excluding LTBI)	77	49	46	30	56	39	31
Vibrio vulnificus	1	2	0	1	1	0	3
Zika virus			18	1,395	137	23	38

In 2017, 4,379 cases of dengue fever, 95 new cases of ARF, 189 cases of syphilis, 31 cases of tuberculosis and 89 cases of leptospirosis were recorded.

### Sexually transmitted infections

#### Syndromic surveillance (2016 recap)

759 symptoms were reported in 2016 - 248 males and 511 females. Similarly to last year, the most common symptoms were urethral discharge in males (55 % of syndromes) and vaginal discharge in females (65 %), reflecting the marked prevalence of gonorrhea, chlamydia and trichomonas infections.

#### Notifiable disease reports

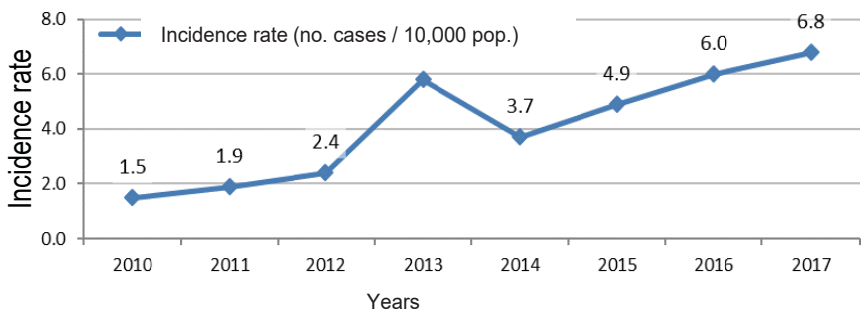
Reports concerned: hepatitis C, hepatitis B, syphilis, venereal warts (HPV) and HIV (see table above). Syphilis and HIV were the main subject of doctors' reports.

### Syphilis

189 new cases were reported in 2017 (74 males, 106 females and 9 unspecified).

It should be noted that these figures include cases where syphilis is active and where sores are healing.

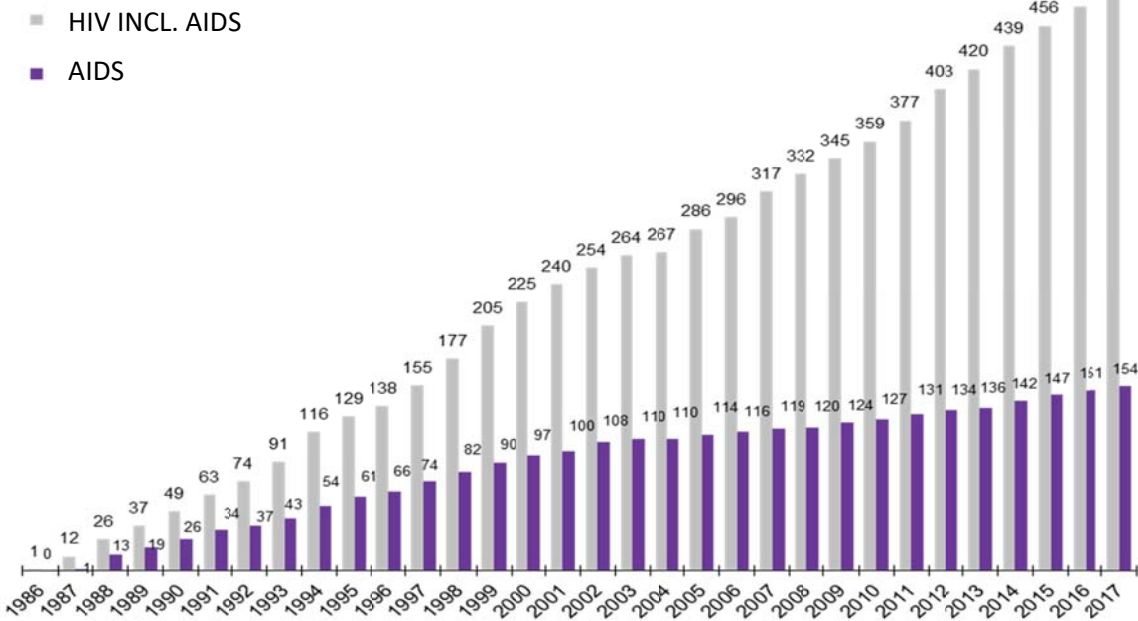
Annual trends in incidence rate (per 10,000 pop.) of notifiable disease reports of syphilis (all clinical forms) in New Caledonia from 2010 to 2017.



HIV-AIDS

16 new cases of HIV were recorded in 2017 (16 in 2016). This brings the total number of cases recorded since 1986 to 488. Breakdown is 362 males (74.2%), 122 females (25%) and 4 gender unspecified (0.8%). Out of these 488 recorded cases, 168 (34%) were cases of asymptomatic HIV infection and 154 (32%) cases of AIDS.

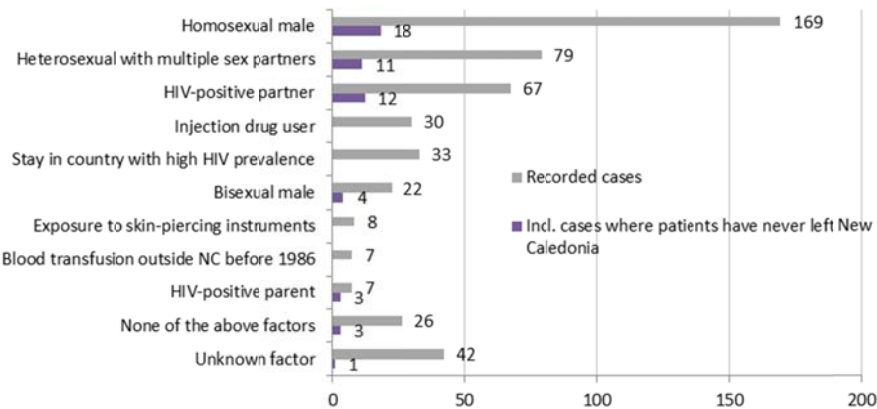
Year-on-year totals for the 488 HIV positive cases, including the 154 AIDS cases



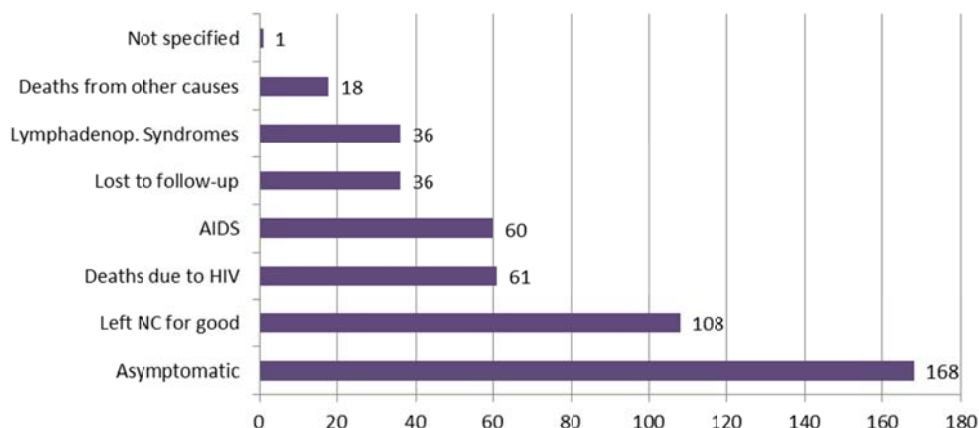
HIV risk factors

76% of HIV cases involving known risk factors (337/446) occur through sexual transmission.

Breakdown of risk factors for the 488 HIV-positive cases recorded at DASS-NC including the 50 cases where patients have never left New Caledonia







### Free and anonymous HIV testing

Since 2005, there has been a sharp drop in the number of health professionals approved for free and anonymous HIV testing, down from 117 (80 doctors and 37 midwives) in 2005 to 38 (19 doctors and 19 midwives) in 2014. Following a 4-year slowdown, the number of tests carried out rose in 2016 to a total of 1,776 and stabilised at 1,682 in 2017.

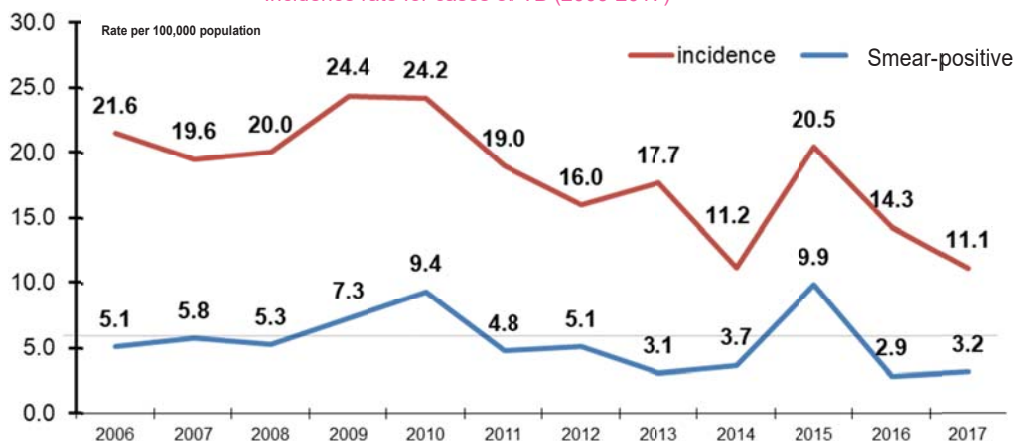
However, only 831 free and anonymous HIV test records were forwarded to the DASS NC Public Health Department. The following findings are thus based on only 49.4% of HIV tests:

- Patients tested for HIV in 2017 had an average age of 28.
- Test results showed zero cases detected or confirmed as HIV positive.
- The overall rate of failure to return for test results was 8.6.

## Tuberculosis

31 new cases of tuberculosis were reported in 2017 (39 in 2016), including 26 cases of pulmonary tuberculosis (27 in 2016), a form of tuberculosis which can lead to lasting effects. 9 cases of sputum smear-positive TB (8 in 2016) were recorded. It should be noted that the incidence of TB notifications in France was 7.1 per 100,000 population in 2015 (11.1 per 100,000 population in NC).

Incidence rate for cases of TB (2006-2017)



### Patient characteristics

According to the review of the 653 tuberculosis cases reported since 2004, 72% of cases concern pulmonary TB. All municipalities are affected by the disease, but cases are more frequent in Belep, Ponérihouen, Hienghène, Houailou and Kaala-Gomen, where incidence rates are higher than in other areas.

In 71% of cases, clinical signs and symptoms are the basis for diagnosis (2004-2017 data). One case recorded in 2017 concerned a relapse following TB treatment in 1982.

Treatment:

WHO considers a treatment program successful if the cure rate (sputum smears negative 2 and 5 months after the start of treatment) is above 85%. A 66.7% cure rate for sputum smear-positive patients was noted in 2017.

Acute Rheumatic Fever

ARF can result from an autoimmune inflammatory process linked to a throat infection due to a bacterium known as group A beta-hemolytic streptococcus (GABHS). It is common in children, but very late onset cases have been noted in New Caledonia (patients aged 35).

According to WHF criteria, the Pacific is one of regions in the world most affected by ARF, with the highest incidence and the second highest prevalence.

The WHF considers a country as being “at risk” when:

- there is an incidence of over 30 per 100,000 population among 5-14 year olds,
- a prevalence of over 2 per 1,000 population.

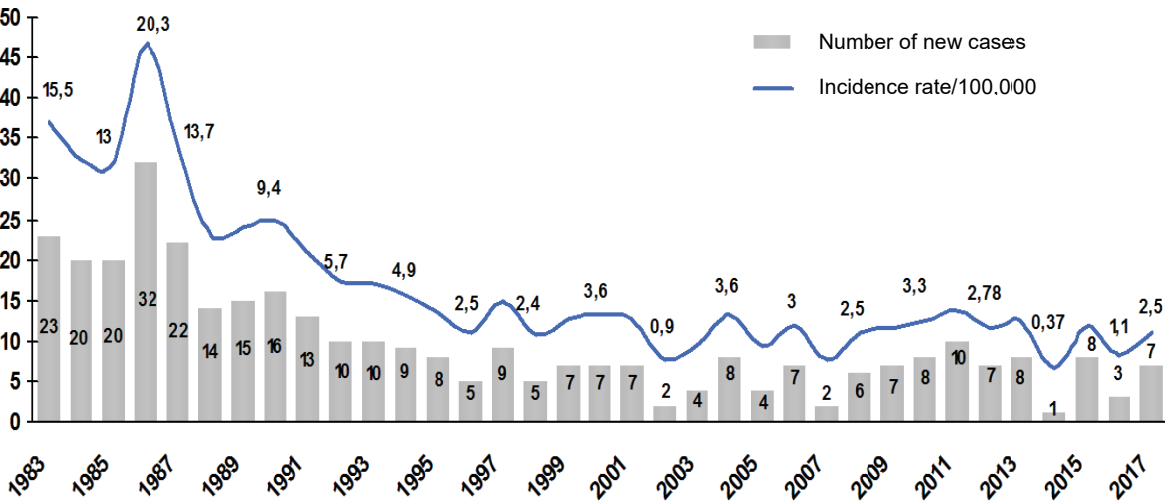
With this in view, a patient monitoring register was set up in 1999 and comprises 1,573 recorded cases, including cases diagnosed in 2017 (ARF with or without CHD). 69% of notifications concerned children aged 5-14. As seen in previous years, incidence is higher in female children (53%). The youngest patient was 3 and a half years old and the oldest 54 years old.

Leprosy

*Leprosy (Hansen's disease) is a chronic infectious disease caused by an acid-fast bacillus (Mycobacterium leprae) and spread by direct, long-term, intimate contact.*

With 7 new cases in 2017, incidence was 2.5 per 100,000 population. Five cases were multibacillary. 14 patients were receiving MDT (multidrug therapy), representing a prevalence of 0.36 per 10,000 population.

Year-on-year incidence rate and number of new cases



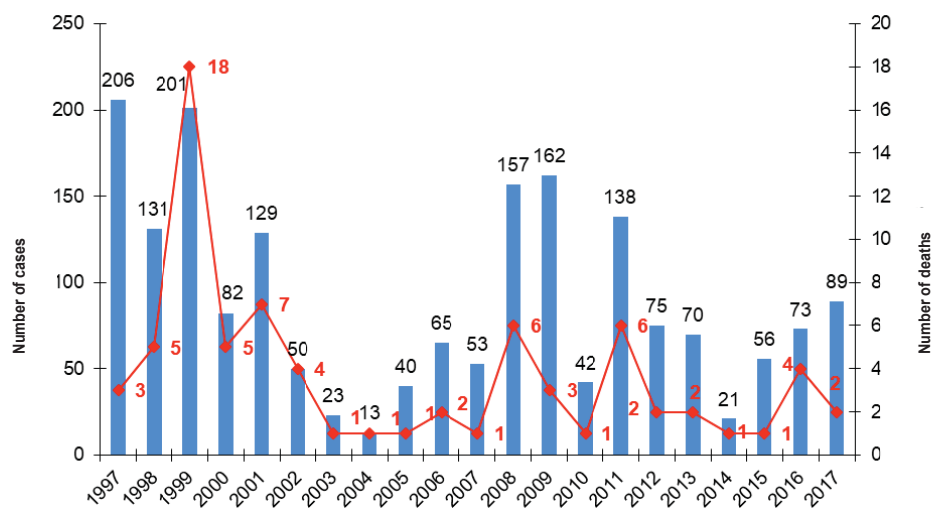
The leprosy register extends over 35 years, from 1983 to 2017, and comprises 342 records; the figures show:

- higher numbers of cases in males: 225 male, 115 female patients and 2 non-gender specific cases;
- an ethnic disparity, with a higher number of cases amongst the Melanesian community (289 cases) than amongst other communities (European: 31 cases; other: 20 cases; unspecified: 2 cases);

Leptospirosis

In New Caledonia, leptospirosis is an endemic disease with epidemic bursts linked to weather conditions. 89 cases - including 2 deaths - were reported in 2017: 60 males (67.4%) and 28 females (31.5%), average age being about 28. Most leptospirosis positive cases occurred during the first six months of the year.

Number of cases of leptospirosis and leptospirosis-induced deaths per year in New Caledonia from 1997 to 2017



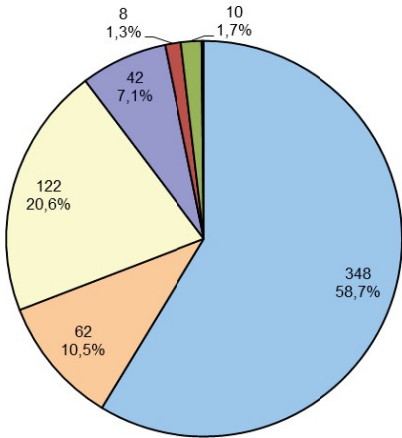
A review of cases over the last 5 years shows geographical disparities, with a higher average incidence in the northeast (from Canala to Ouégoa).

Main serogroups identified between 2010 and 2016:

- *Icterohaemorrhagiae*;
- *Pyrogenes*;
- *Ballum*.

2010 à 2016

- *Icterohaemorrhagiae* (rats)
- *Australis* (pigs)
- *Pyrogenes* (unknown reservoir)
- *Ballum* (mice)
- *Pomona*
- Unspecified
- *L. weilii* (Bali)



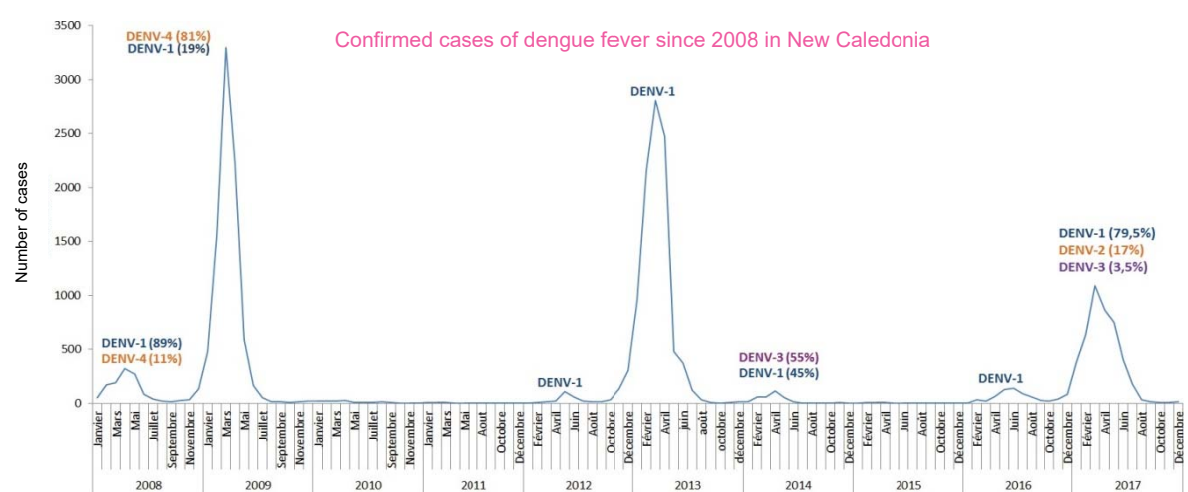
Arbovirus infections

Arbovirus infections are notifiable diseases. They are viral infections transmitted by bloodsucking arthropod vectors (arthropod-borne viruses). The three main arbovirus infections occurring in New Caledonia are: dengue fever, chikungunya and Zika virus, transmitted to humans via the mosquito known as *Aedes aegypti*.

Dengue fever

There are four distinct dengue serotypes (DENV-1 to DENV-4). There is no cross-immunity between strains. A single person can therefore contract dengue 4 times. In 2017, 4,379 cases of dengue were detected, including 2,374 positive cases confirmed by RT-PCR assay, 1,831 clinical cases and 174 probable cases.

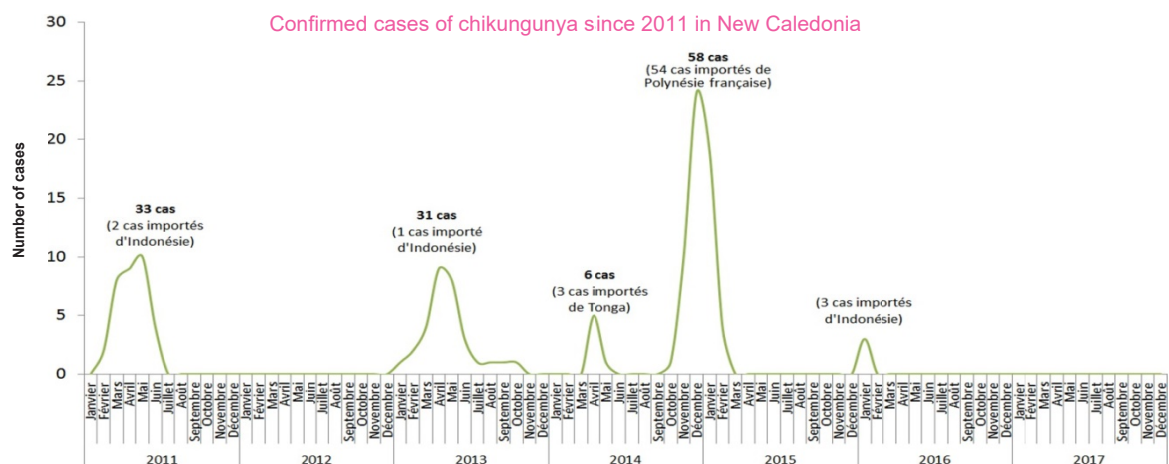
A DENV-1, DENV-2 and DENV-3 epidemic occurred in 2017: 1,899 DENV-1 serotype cases, 410 DENV-2 cases and 84 DENV-3 cases. Serotype 1 circulation was prevalent throughout the year. 595 hospitalisations and 11 deaths were recorded. The percentage of hospital stays was 50 to 75% higher than that observed during previous outbreaks. The 2017 outbreak was characterised by a significant number of severe cases (134) and deaths of people not categorised as belonging to a population at risk group (i.e. frail or having a medical history).



## Chikungunya

Despite biological surveillance of the active chikungunya virus, no cases were recorded. Three imported cases of chikungunya were recorded the previous year.

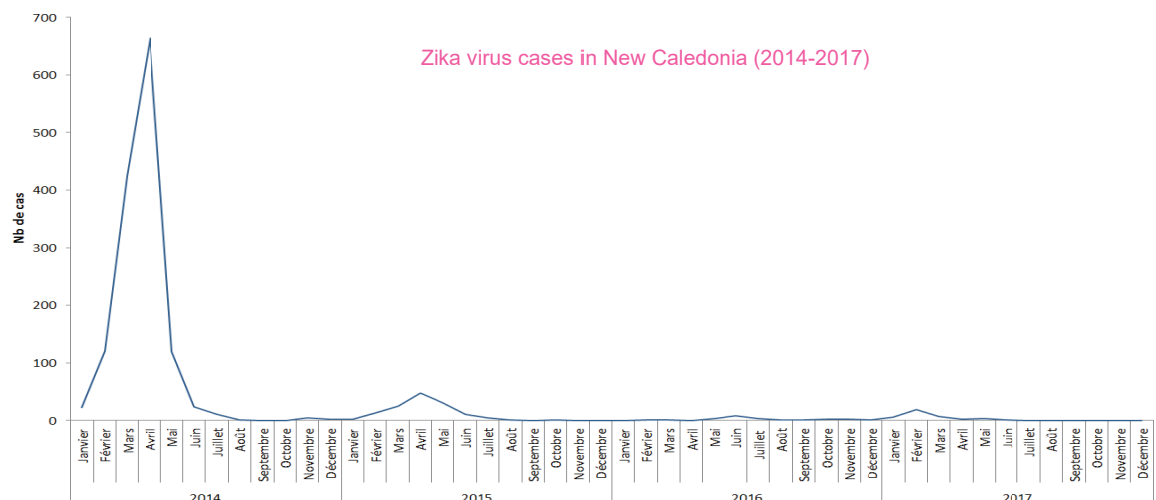
New Caledonia remains at risk of a chikungunya outbreak in future years given the fact that the vector (*Aedes aegypti*) is present in New Caledonia and that the population is immunologically naive to chikungunya.



## Zika virus

In 2015, Brazil was hit by a serious outbreak of Zika virus, with microcephaly birth defects reported in children born to mothers with ZIKV infection during pregnancy.

38 cases were recorded by DASS in 2017: three-quarters of cases were detected in the first quarter of the year and the final case of zika virus was recorded in June.

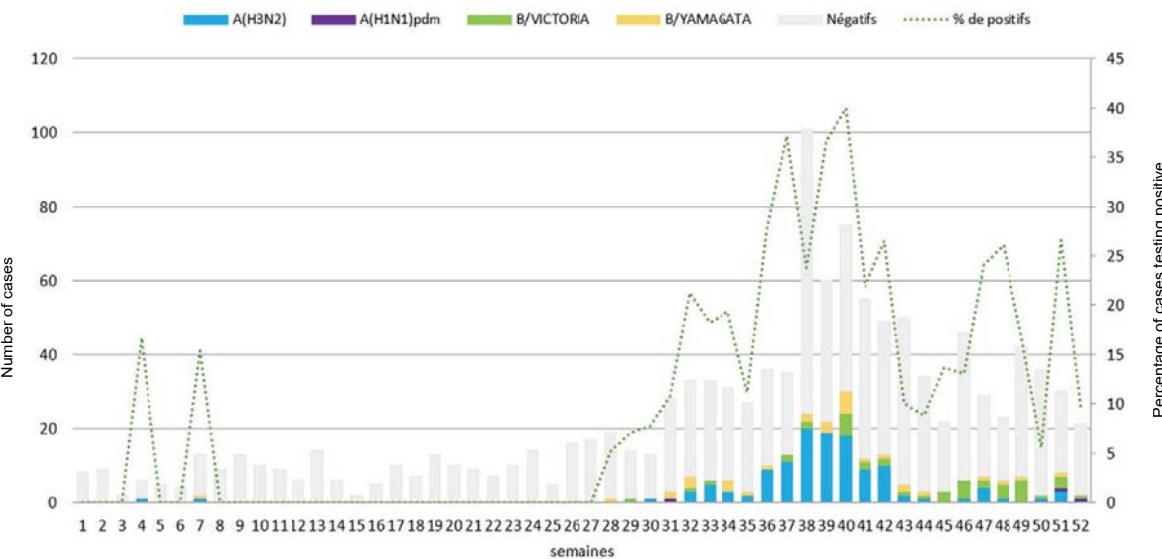


## DISEASES UNDER SURVEILLANCE (2016 RECAP)

Of the 1,181 samples received by the CHT Gaston Bourret Microbiology Laboratory for flu screening in 2017, 13% (159) came from the Sentinel Network and the vast majority, 85%, from the CHT.

Diagnostic testing was down in 2017 compared to 2016, with a 19% decrease in the total number of RT-PCR assays carried out. The number of cases testing positive was down by 33% compared to 2016. In 2017, the peak phase of influenza virus circulation occurred in September, with influenza activity noted until the end of the year.

Number of nasopharyngeal samples per week, percentage of positive swab samples, influenza virus types and subtypes in 2017.



4 virus strains were noted as circulating in 2017:

- A (H3N2) viruses related to some degree to the A/Hong Kong/4801/2014 strain.
  - A (H1N1) pdm09 related to the A/Michigan/45/2015 vaccine strain.
  - B/Victoria viruses related to the B/Brisbane/60/2008 strain.
  - B/Yamagata viruses related to the B/Phuket/3073/2013 strain (not contained in the HS 2017 vaccine)
- Contained in the 2017 southern hemisphere influenza vaccine.

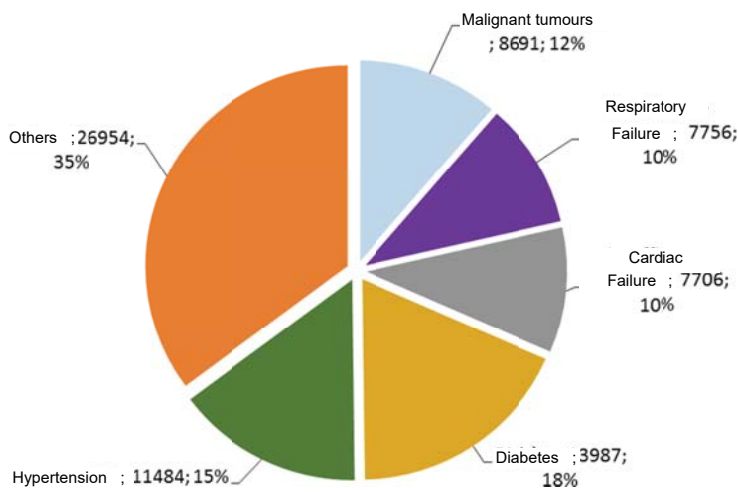
## CHRONIC DISEASES

Treatment for most chronic diseases is provided under the CAFAT long-term illness” healthcare scheme which covers all insured persons and their dependants.

In 2017, 49,257 patients received treatment under the long-term illness scheme, involving 76,578 chronic diseases (a patient may suffer from multiple chronic conditions).

A breakdown of the major chronic diseases covered under the scheme in New Caledonia is shown below:

Breakdown of the 76,578 long-term illness conditions





Cancers

The results shown below refer to cancers detected in 2015 (records as of 17 October 2017); incidence includes invasive tumours, excluding skin tumours apart from melanoma, and haematological malignancies.

A total of 917 invasive tumours were recorded in 2015 (472 in males and 445 in females) including:

- 8 solid invasive tumours excluding skin tumours, apart from melanoma, (89%),
- 97 haematological malignancies (11%).

Average age at the time of diagnosis for men was 62 (median 65) and 59 for women (median 60).

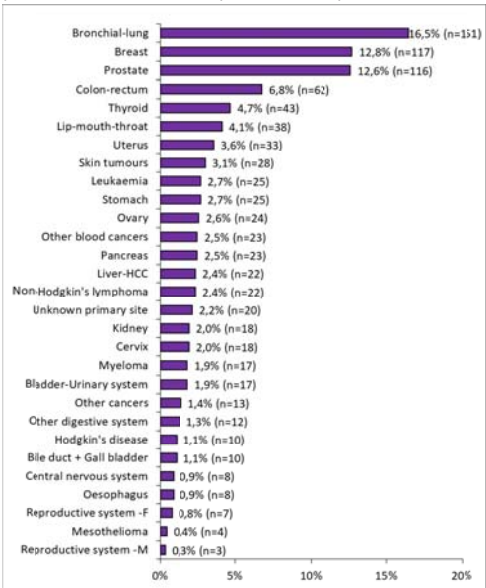
Breakdown - site of origin by gender

For both sexes, the most common sites of origin in 2015 are (Diagram 1):

- bronchial-lung: 151 cases (16.4%)
- breast: 117 cases (12.7%)
- prostate: 116 cases (12.6%)

Compared with 2014, there was an increase in the number of bronchial-lung cancers (n=114 in 2014, +32%) and a decrease in the number of breast cancers (n=143 in 2014, -17%). The number of prostate cancers remained stable (n=113 in 2014).

Diagram 1: Breakdown of new cases by site of origin



The most common sites of origin in males (n=472) are:

- Prostate: 116 cases (24.6%), i.e. one cancer out of 4.
- Bronchial-lung: 99 cases (21%), i.e. more than one cancer out of 5.
- Colorectal: 28 cases (5.9%).

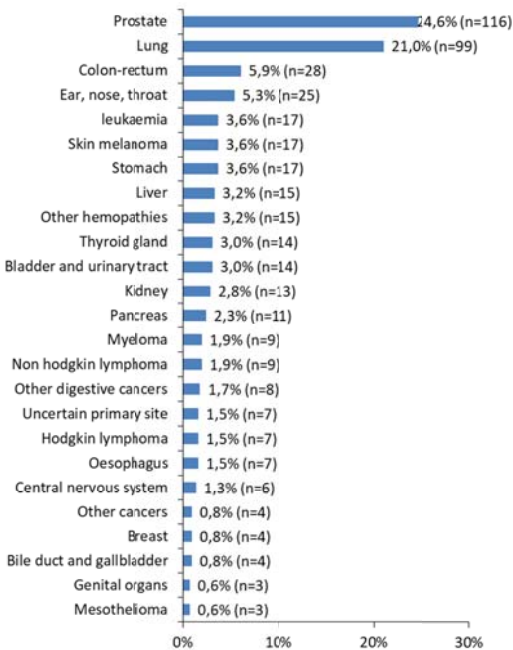


Diagram 2: Breakdown by sites of origin - Males

The most common sites of origin in females (n=445) are:

- Breast: 113 cases (25.3%), i.e. more than one cancer out of 4.
- Bronchial-lung: 52 cases (11.7%).
- Colorectal: 34 cases (7.6%).

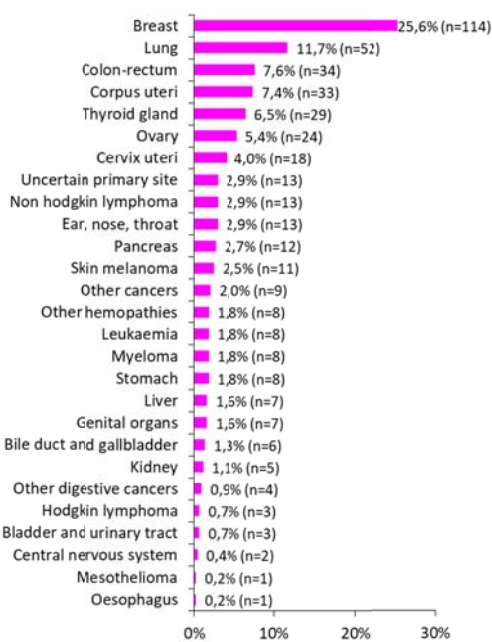


Diagram 3: Breakdown by sites of origin - Females

International comparisons (Globocan 2012-IARC)

In 2015, the standardized incidence ratio for all cancer sites - males - was **298.7 (325.7 – 271.6)** per 100,000 person-years. This is lower than incidence ratios for Australia, Martinique and France and comparable to ratios for New Zealand and Polynesia (Diagram 4).

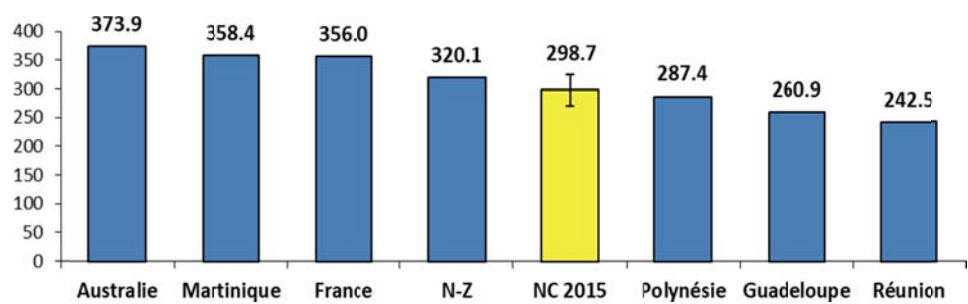


Diagram 4: Comparison of standardized incidence ratios - all cancer sites - males

In 2015, the standardized incidence ratio for all cancer sites - females - was **270.4 (296.5 – 245.4)** per 100,000 person-years. This is comparable to incidence ratios for Australia, New Zealand and France (Diagram 5) and higher than ratios for Guadeloupe, Martinique and Reunion Island.

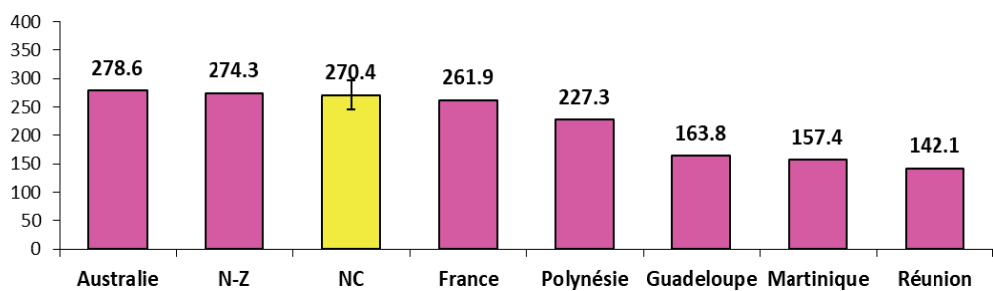


Diagram 5: Comparison of standardized incidence ratios - all cancer sites - females

Trends

In New Caledonia, over a period of 30 years, the number of cancers diagnosed per year has risen from 230 cases to 893, over three times as many cases. This increase has become more marked since 2002. Advances in terms of technical capabilities, the establishment of specialist doctors and improved access to healthcare, may partly explain this increase, in addition to population aging and, as regards some cancers, changes in lifestyle.

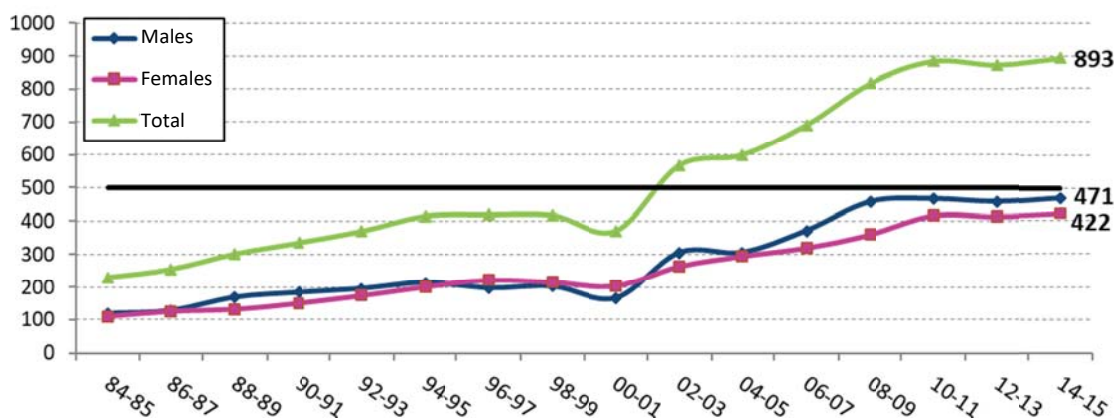


Diagram 6: Trends in average number of cases per year - 2 year periods

## Chronic kidney disease

Chronic kidney disease (CKD) is a progressive loss in kidney function, the filtration, excretion and endocrine secretion functions of the renal parenchyma, the result of irreversible sclerotic lesions.

In 2017, the crude incidence rate of end-stage kidney disease in New Caledonia and Wallis & Futuna was 343 per million population (pmp) (Diagram 1), with admission and discharge records for 31 patients. During the year, 14 patients received a kidney transplant (12 in Australia and 2 in France) and 97 patients initiated dialysis.

The crude incidence rate is over twice as high as the REIN register overall incidence rate for all regions (2016 data: 165 pmp), and is the highest rate recorded for all French Overseas Departments & Territories (2016 REIN Report, French Biomedicine Agency).

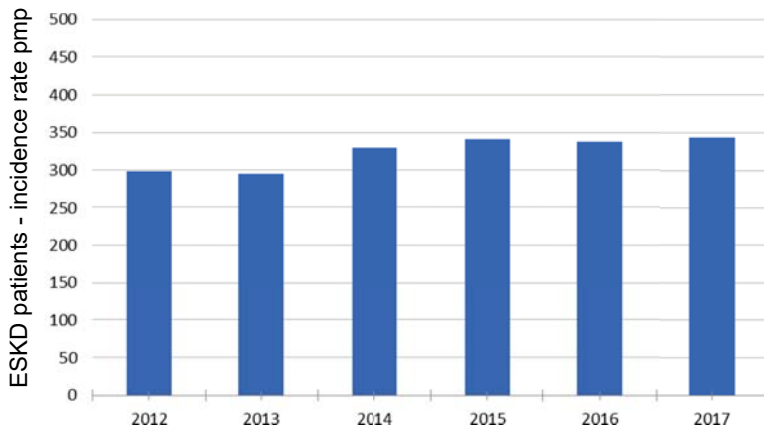


Diagram 1: Trends in incidence rate - patients with end-stage kidney disease receiving treatment (dialysis-graft), New Caledonia & Wallis & Futuna, 2012-2017.

The overall prevalence of end-stage kidney disease was 2,509 pmp (141 transplant patients and 590 dialysis patients) (Diagram 2).

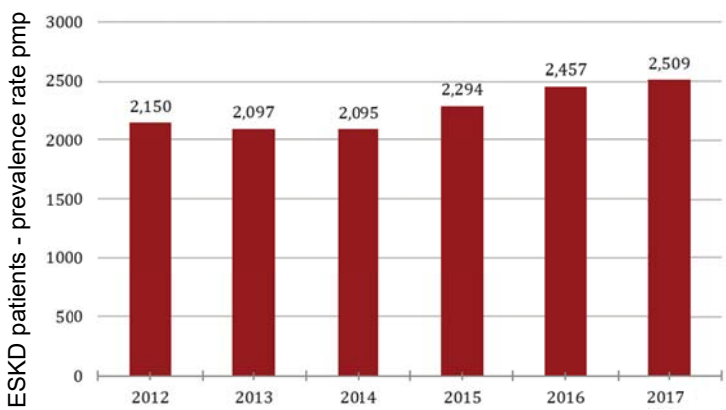


Diagram 2: Trends in prevalence rate - patients with end-stage kidney disease (dialysis-graft), New Caledonia & Wallis & Futuna, 2012-2017.

Type 2 diabetes and chronic glomerulonephritis remain the two leading causes of chronic kidney disease in New Caledonia.

## MENTAL DISORDERS

### Healthcare coverage - conditions

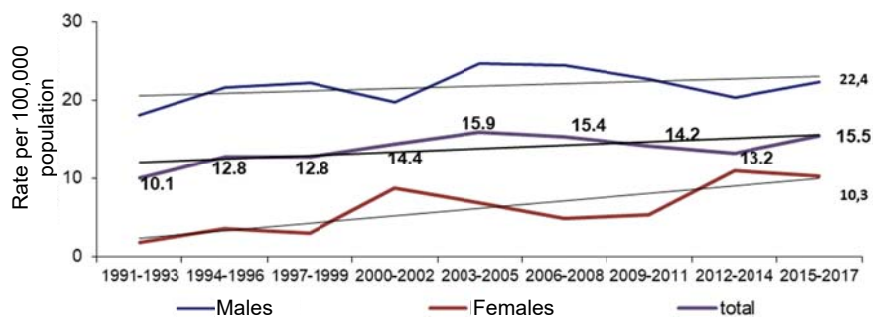
Patients can receive private sector treatment from specialists in private practice (psychiatrists, psychologists) or treatment under the public healthcare system.

Public mental healthcare services are structured as follows:

- General psychiatry department
- Child and adolescent psychiatry department
- Clinical geriatrics centre

Suicide: one aspect of mental illness

In 2017, 42 deaths by suicide were recorded, accounting for 2.7% of all deaths and 19.4% of all deaths from violence, representing a crude mortality rate of 21.8 per 100,000 males and 7.8 per 100,000 females, and a standardized rate of 23.3 per 100,000 males and 7.4 per 100,000 females.



Trends in the average annual crude mortality rate by gender

The average annual crude rate has trended downwards in males; a peak rate was recorded from 2003 to 2005. Female suicides peaked twice; from 2000 to 2002 and again from 2012 to 2014.

In 2017, the male suicide rate was three times the female suicide rate.

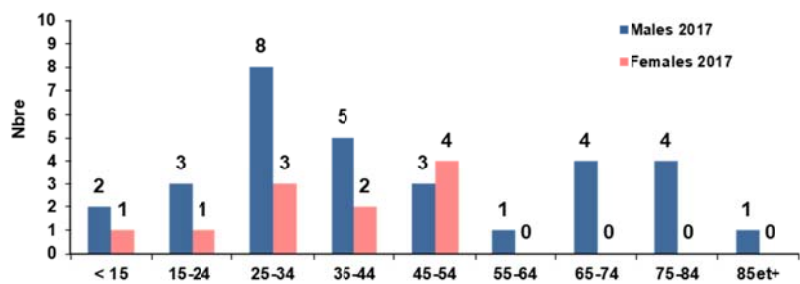
Age varied from 12 years for the youngest suicide to 58 years for the oldest suicide.

People are committing suicide at an increasingly young age. The youngest person to commit suicide in the 1991-2011 period was aged 15; this dropped to 14 in 2012 and 2013, and 12 in 2014. But 2017 was the first year when so many suicides by children aged under 15 were recorded: 3 children, the youngest aged 12 and the other 2 aged 13.

If we look at numbers of suicides by age group, the highest suicide rate in 2017 was among people aged 25 to 54 - representing 59.5% of total suicides.

It should be noted that 29% of men commit suicide after 55 but there is no record of suicides for women in this age group.

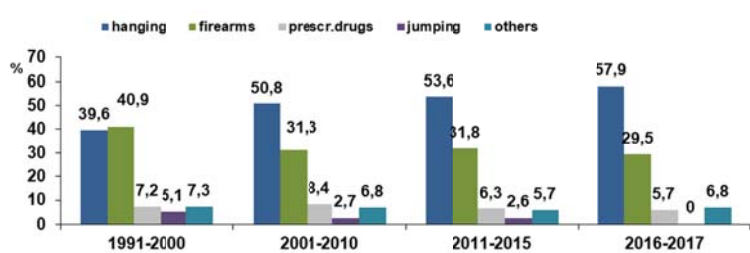
Breakdown of numbers of deaths by suicide by gender and age group



Hanging was the most common suicide method in 2017, for both genders, accounting for 54.8% of suicides.

In line with the 1991-2016 period, there was a marked increase in the proportion of suicides by hanging compared to suicides by firearms and other methods of suicide.

Trends in most common suicide methods, both genders

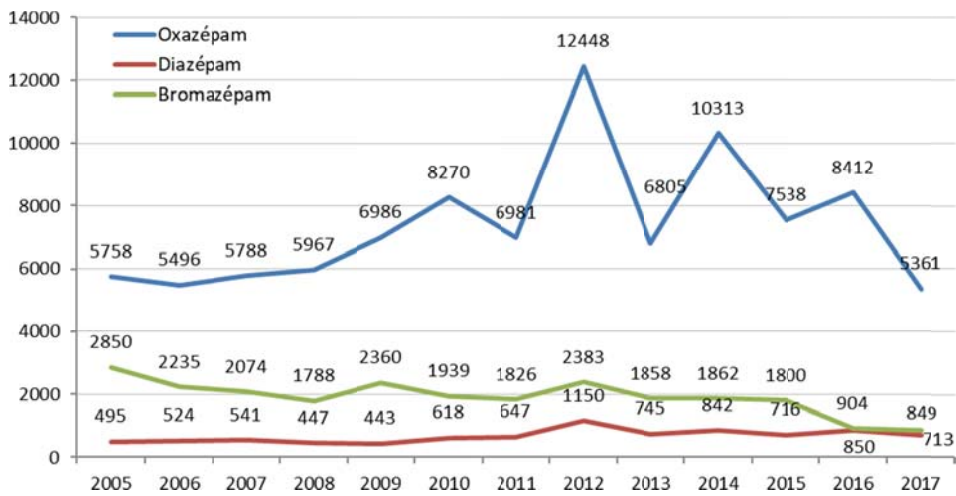


There would appear to be less cause for concern regarding deaths by suicide in New Caledonia than in European countries, and suicide is certainly responsible for fewer deaths than road traffic accidents; nevertheless, suicide remains a key cause of death particularly among young males and could be preventable.

# Psychoactive drug consumption

All psychoactive drugs for human use brought into the country from France are recorded by DASS-NC.

Trends in consumption of main classes of psychoactive drugs



# SOCIAL ISSUES

## Road traffic accidents

In 2017, 268 accidents involving injuries were recorded for the whole of New Caledonia, with 384 people injured.

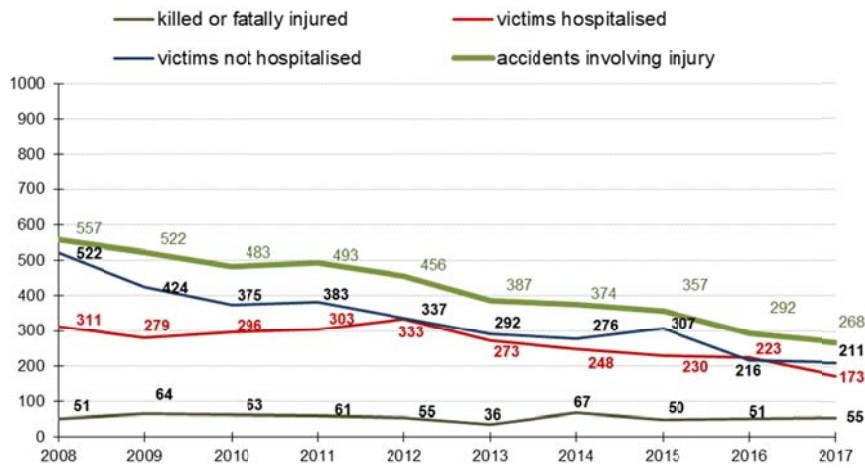
55 fatalities were recorded (4 more fatalities than in 2016). With the exception of 2013, marked by significantly few fatalities, the rate of fatal injuries has remained stable although the number of accidents involving injury continues to fall.

### The two main factors in fatal accidents were:

- driving under the influence of alcohol and/or drugs (80%):
- inappropriate or excessive speed in 70.3% of cases.

In comparative terms, New Caledonia has a crude rate of **197 deaths** per 1 million population (pop. as of 1st January 2017), a **rate 3.7 times higher** than France where the rate is **53 deaths** per 1 million population (ONISR 2017).

Annual trends in accidents involving injury, death, victims hospitalised, victims not hospitalised





Occupational diseases & accidents

Occupational healthcare system

Three departments are responsible for occupational healthcare checks in New Caledonia

1 - Service Medical Interentreprises du Travail - Occupational Corporate Healthcare Department (SMIT 201

In 2016, the SMIT carried out 19,959 check-ups (25,603 in 2015), with responsibility for monitoring 84,907 employees working for 11,759 businesses.

7,185 scheduled check-ups and 12,774 unscheduled check-ups were carried out.

2 - Département médical de la Société Le Nickel (SLN) - Le Nickel Occupational Healthcare Department

A total of 2,761 check-ups were carried out, including 1,473 scheduled check-ups and 677 non-scheduled check-ups (workplace accident, return-to-work medicals...). The Healthcare Department ensured follow-up for 2,549 employees working in 6 sites.

3 - CHT Occupational Health Department

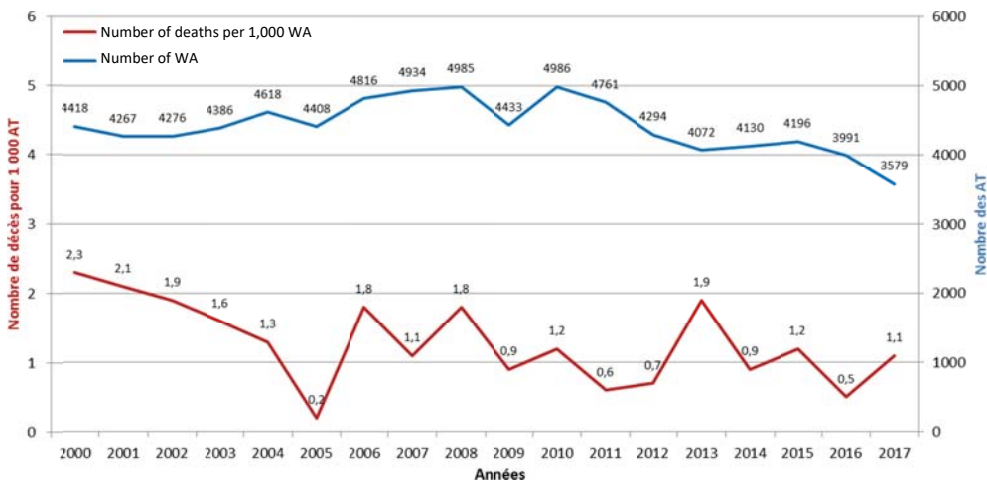
The Department is responsible for monitoring around 2,552 people: CHT (government employees and contract staff), CHS staff and New Caledonia armed forces civilian staff; 2,075 check-ups were carried out in 2017.

Workplace accidents

Based on CAFAT data: 3,579 workplace accidents were recorded in 2017, down by 10.3% compared to 2016. 195 commuting accidents involving sick leave, (-2% compared to 2016) and 96 occupational diseases (+35 % compared to 2015).

The number of fatalities since 2004 was relatively low, varying between 1 to 10 deaths per year. As shown in the diagram below, the rate was 0.2 to 2.3 deaths per 1,000 workplace accidents (WA).

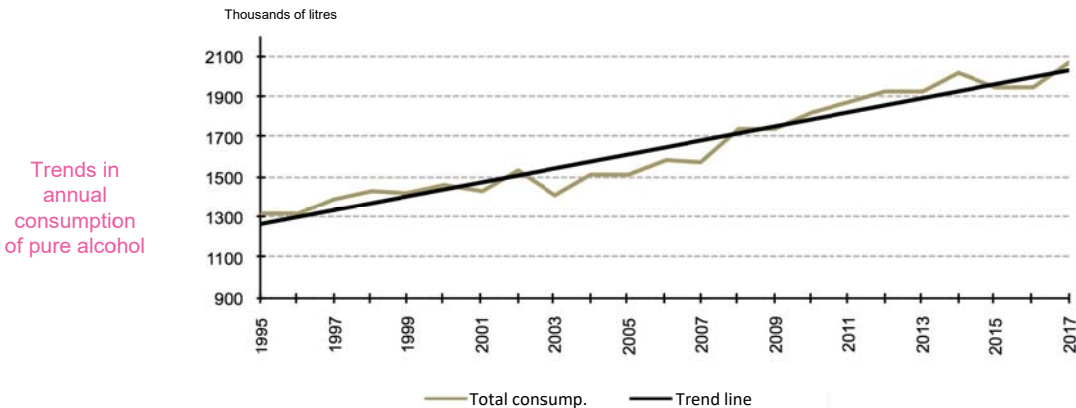
Trends in numbers of WA and deaths resulting from WA since 2000



Addictions: alcohol, tobacco, drugs

Alcohol

2,070,804 LPA (litres of pure alcohol) were consumed in New Caledonia in 2017, an increase of 6.5% compared to 2016.



Alcoholic beverages are divided into 3 categories according to their pure alcohol content: beers, wines and spirits.

Beer consumption accounted for 41.6% of total alcohol consumption in 2017. There was an increase in consumption compared to 2016.

A rise in wine consumption (7.5%) was noted compared to 2016. In 2017, wine accounted for 34.8% of total consumption.

Spirits accounted for 23.6% of total consumption, an increase of 14.7% compared to 2016.

**Consequences of alcoholism:**

In New Caledonia, the adverse effects of alcohol consumption, and particularly alcohol abuse, are more commonly social or, in health terms, linked to trauma or chronic conditions.

**Mortality:**

Conservative estimate: the three key alcohol-related causes of death are:

- Lung, head and neck cancers,
- Alcoholic cirrhosis and
- Alcoholic psychosis.

In New Caledonia, based on medical death certificates from 1991 to 2017, alcohol abuse would appear to be the only or main cause of 759 deaths, accounting for 2.4% of the total number of deaths, i.e. an annual crude rate of 12.8 deaths per 100,000 population aged 15 or over as of 01/01/2018.

Broad-based estimate: this figure is based, as with morbidity, on computing the fraction of deaths attributable to alcohol where death was due to a specified number of primary causes. These fractions were set out in research published in 1985 (J.P. Pignon, C. Hill).

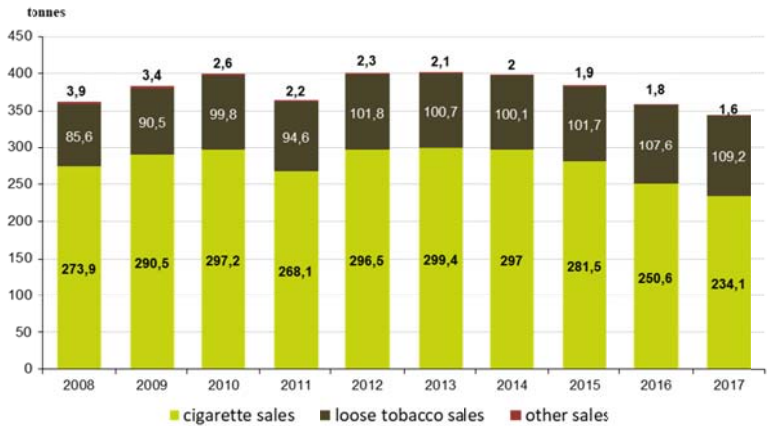
Thus, between 1991 and 2017, 3,290 deaths were alcohol-related, i.e. 10.4% of total deaths for the period. This estimate therefore gives a figure 4.3 times higher than that based on the conservative estimate.

**Tobacco**

Total tobacco sales in 2017 were 345.1 tonnes, down by -4.2% compared to 2016.

Estimated daily tobacco consumption, all tobacco products included, by adults aged 15 and over, was 4.32 grams per adult per day (1 cigarette = 1 cigar = 1 gram (Seita agreement)).

Trends in tobacco product consumption



**Adverse effects of smoking:**

Morbidity: the main smoking-related diseases are respiratory cancers (lung and bronchial, larynx...), together, in some instances, with respiratory diseases where patients receive home ventilator or oxygen therapy treatment.

Based on New Caledonia cancer registry data, 151 new lung cancer cases and 38 head and neck cancer cases - were recorded in 2015. Both these types of cancer mainly affect males.

**Mortality:** The number of tobacco-related deaths is computed by multiplying the total number of deaths due to a given cause by tobacco-related risks, as assessed by a cohort study conducted by the American Cancer Society.

Applying the risk factor to each tobacco-related disease gives a figure of 3,492 male deaths and 449 female deaths (overall total 3,941 deaths) attributable to tobacco, i.e. 12.4% of deaths during the 1991-2017 period, which would give an average crude rate of deaths attributable to tobacco of 53.7 for 100,000 population. If additional causes of death are included, the number of tobacco-related deaths would thus total 4,979 (i.e. 4,399 male deaths and 580 female deaths), representing 15.7% of deaths over the 1991-2017 period. In France, an estimate of the annual number of deaths attributed to smoking, factoring in the main tobacco-related cancers (lung, head and neck, etc.), respiratory diseases (including chronic obstructive bronchitis) and cardiovascular diseases was conducted for 2004. Results indicated that around 73,000 deaths could be attributed to smoking, including 59,000 males.

Narcotic drugs

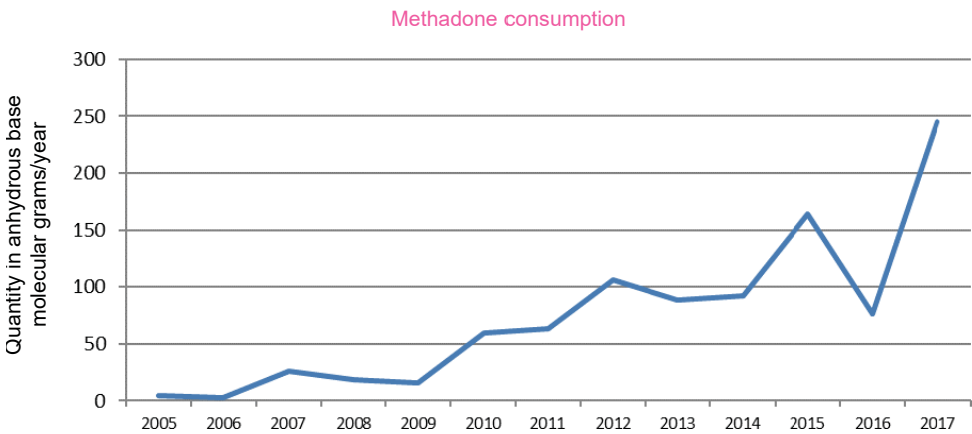
Data is drawn from drug seizures carried out by police, gendarmerie and customs and reported annually to the Pharmaceutical Inspectorate. Cannabis is by far the most common substance consumed in New Caledonia.

Seizures mainly concern cannabis plants. One plant is considered equivalent to 200g of cannabis. Viewed in terms of the size of New Caledonia's population, these seizures suggest the existence of a real cannabis drug trade.

Seizures (in g)	2010	2011	2012	2013	2014	2015	2016	2017
Cannabis	5,389,723	217,707	437,883	315,864	231,318	92,131	599,000	299,913
Cannabis resin	71	1,300	234	137	139	93	40	14
Cocaine	1	3	1981	34	21	103	100	578,714
Heroin	0	0	0	0	0	0	0	40
LSD	0,04	0	0	15	475	69		5mL
Ecstasy - MDMA	0	1	12	0	36	2		98
Methamphetamine	0	1	0	534	0	0		0
Synthetic cannabinoids		2,980	34	0	0	0		0
NPS	0	0	0	534 (4-MEC)	30	0	33	0

To be noted:

- since 2013, biak (kratom or *Mitragyna speciosa*) has been listed as a narcotic drug in New Caledonia. The main psychoactive components in the leaves are opiates: mitragynine and 7-hydroxymitragynine, far more powerful than morphine;
- the consumption (or, to be more precise, pharmaceutical distribution for medical use) of methadone (used to treat opiate withdrawal symptoms) is steadily growing; this is linked to improved patient care & coverage following the opening of an addiction treatment centre.



## Females

According to 2018 census figures, the female population totals 140,470, with 49.8% aged between 15 and 49 and considered to be of child-bearing age.

### Cervical cancer screening

The cervical cancer incidence rate in New Caledonia is two to three times higher than France and Australia, making New Caledonian women a population at risk.

In 2015, cervical cancer was the 7th most common form of cancer in women with 18 invasive tumours detected. 163 cervical cancers were diagnosed between 2008 and 2015. 71 (44%) of these 163 women patients had died from their cancer as of 17/10/2017.

Private anatomical pathology and cytopathology laboratories carried out analyses of 21,584 smears in 2017, with 40% carried out as part of a screening campaign. In all, 8.3% of smear test results were abnormal.

### Breast cancer screening

In 2015, breast cancer was the 2nd most common form of cancer in females and males, with 117 invasive tumours detected. Breast cancer in males is ranked 21st, with 4 tumours recorded, and as the most common form of cancer in females, with 113 tumours recorded.

In 2017, the screening unit (ASS-NC) sent out 29,260 invitations or reminders to women aged 50 to 74, including 2,670 in response to requests by patients covered under the scheme or healthcare professionals. Five screening sessions were held. A total of 301 mammograms were carried out, compared to 455 in 2016.

### Contraception

According to the most recent estimate (2015), a minimum figure of 36,850 women/year were using contraception (oral contraceptive pills, intrauterine devices (IUD) and injectable contraceptives), which would represent 52% of women of reproductive age in New Caledonia.

### Pregnancies and births

New Caledonia is in line with the national average given that in France the average number of C-Sections rose continuously until 2007 to account for 21% of deliveries.

	2016			2017		
	Public sector	Private sector	Total	Public sector	Private sector	Total
Number of births	2,548	1,752	4,300	2,366	1,813	4,149
No. of C-Sections	468	400	868	462	409	859
% of C-Sections / deliveries	18.4%	22.8%	20.2%	19.8%	22.7%	21.0%

Source: Réseau Périnatal de Nouvelle-Calédonie (S. Camuzeaux)

### Maternal deaths

No maternal deaths were recorded in 2017, i.e. maternal death occurring during pregnancy, childbirth or within 42 days of termination of pregnancy (WHO definition A). No deaths have occurred since 2013, i.e. a total of 27 deaths have been recorded over the past 27 years. For the 1991-2017 period, the average rate was therefore 24.6 deaths per 100,000 live births.

Newborns
(source: Perinatal Network - Sandrine Camuzeaux)

In 2017, 4,149 births (compared to 4,300 in 2016) were recorded in maternity centres, including 51 stillborn infants (compared to 55 in 2016).

French law defines preterm birth as any birth occurring before 37 weeks but after more than 22 weeks of pregnancy and/or with a birthweight of 500 g (WHO does not include a birthweight factor). Very preterm births are babies born between 22 and 31/32 weeks of pregnancy, regardless of birth weight.

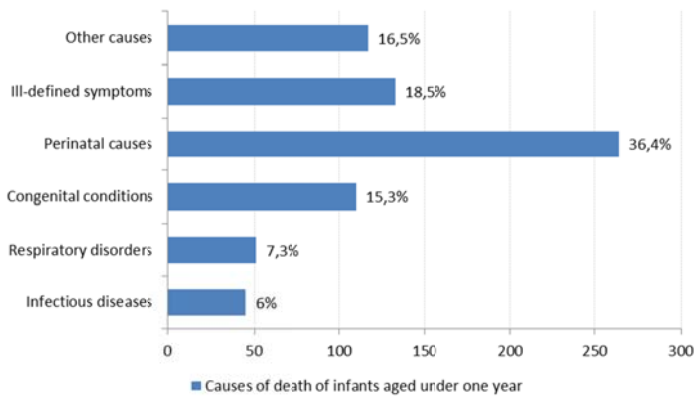
403 babies were born at less than 37 weeks (9.8% of live births)

Weeks of pregnancy												
2016			2017									
WP*	Total	%	CHT	%	CHN	%	Anse Vata Polyclin.	%	Magnin	%	Total	%
< 28 WP + 6 days	20	0.5	55	2.7	5	1.9	3	0.3	1	0.1	64	1.5
Between 29 and 34 WP +6 days	106	2.5	115	5.6	4	1.5	2	0.2	1	0.1	122	2.9
Between 35 WP and 36 WP + 6 days	253	5.9	158	7.6	13	4.9	17	1.9	29	3.2	217	5.2
≥ > 37 WP	3,866	91.1	1,743	84.2	243	91.7	879	97.6	881	96.6	3,746	90.3
Total live births	4,245	100	2,071	100	265	100	901	100	912	100	4,149	100

Causes of infant mortality

Infant mortality is defined as death during the first 12 months of life. Infant mortality can be broken down into: early neonatal mortality (0 to 6 days), late neonatal mortality (7 to 27 days), and post neonatal mortality (28 days to one year).

720 deaths of liveborn infants aged under one year were recorded between 1991 and 2017, representing an average of 28 deaths per year. For the 1991 to 2017 period, deaths of infants aged under one year were attributable to:



79 cases of sudden infant death syndrome (SIDS) - recorded in the "poorly defined symptoms" group - representing 10.9% of all deaths of infants aged under one year.



## Young children

### Child monitoring-related preventive initiatives in Provincial facilities

#### **Immunisation**

Ensuring childhood immunisation is up-to-date and vaccinating children where necessary is a preventive healthcare priority.

3,401 children were immunised with vaccines supplied by DPASS South at the Noumea Child Welfare Department in 2017 under an agreement between the DPASS South pharmacy and the social welfare agencies (medical aid and CAFAT).

#### **Regular school check-ups**

Medical check-ups are mandatory in certain grades throughout the educational system.

At the start of the 2017 academic year in the South Province, 20,614 children were registered at state primary schools and 4,210 children at private schools under contract.

9,985 primary school children received check-ups, a significant decrease (-20%) compared to 2016.

#### **Sexual health information and/or awareness sessions (ASS-NC)**

The Loyalty Islands, North and South Provinces Health and Social Services Directorates, in collaboration with the Local Education Authority, make school visits every year throughout the geographical areas under their authority. Information sessions in schools are carried out by Provincial officials and members of relevant associations.

#### **Screening (ASS-NC)**

- Oral health: first nationwide program to promote oral health in New Caledonia: "My Teeth, My Health".
- ARF: An annual screening program is carried out in schools for children in Year 5 (CM1), inclusive schooling classes (CLIS) included, as well as children in Year 6, subject to parental authorisation in all cases, to test for damage to heart valves following a flare-up of ARF. 4,500 children are screened every year.



Demographics - healthcare professionals

Demographics - healthcare professionals

Doctors

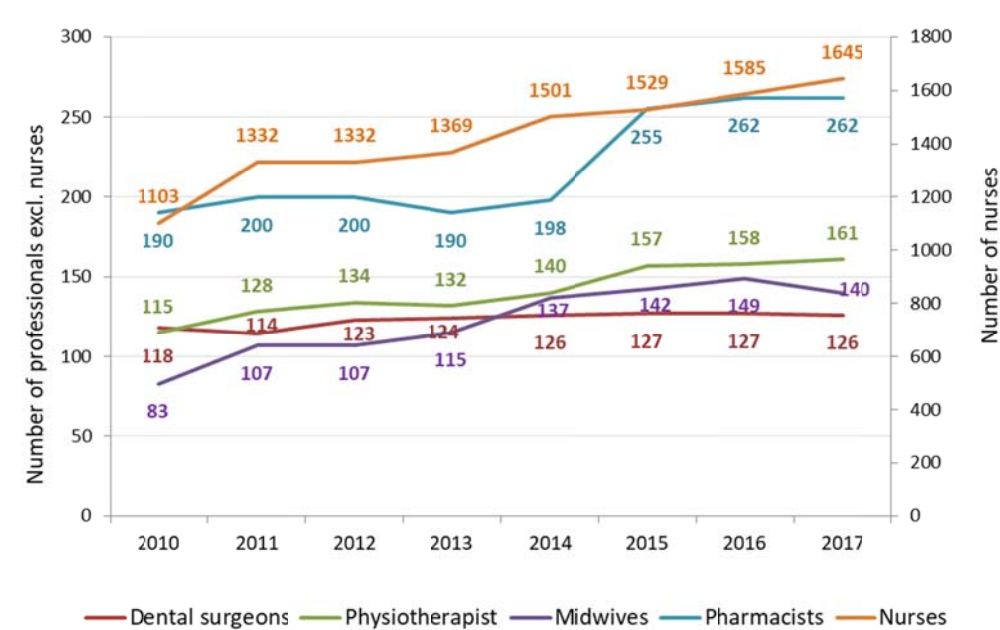
There were 652 practising doctors in 2017 (280 in private practice and 372 salaried).

Trend in numbers of doctors (per 100,000 population) - private practice/salaried

	Private practice	Other professional status			Total
	CAFAT approved	Salaried	Private practice - non-CAFAT approved	Total - other professional status	
General practitioners	49.61	62.37	4.96	67.33	116.94
Specialist practitioners	43.59	69.45	1.06	70.52	114.10
Total	93.20	131.82	6.02	137.85	231.04

Other healthcare professionals

Trend in numbers of other healthcare professionals



In-patient beds and day care beds in 2017

		MSO (Medical, Surgical and Obstetrics) capability as of 31/12/2017									
		Medical		Surgical		Intensive care		Obstetrics		Total MSO	
		Equipped	Authorised	Equipped	Authorised	Equipped	Authorised	Equipped	Authorised	Equipped	Authorised
CHT	IP	248	263	97	111	43	43	48	48	436	465
	WD C	21		14		0		0		35	
	DC	27	33	10	10	0	0	4	4	41	47
CHN Koumac	IP	17	17	13	13	0	0	9	9	39	39
	DC	0	1	0	2	0	0	0	0	0	3
CHN Poindimié	IP	14	16	0	0	0	0	0	2	14	18
	DC	0	1	0	0	0	0	0	0	0	1
Total - Public facilities	IP	279	296	110	124	43	43	57	59	489	522
	WD C	21		14		0		0		35	
	DC	27	35	10	12	0	0	4	4	41	51
Nou Island-Magnin Clinic	IP	50	65	67	65	0	0	33	30	150	160
	DC	8	8	32	27	0	0	3	3	43	38
Total - Private facilities	IP	50	65	67	65	0	0	33	30	150	160
	DC	8	8	32	27	0	0	3	3	43	38
TOTAL NC	IP	329	361	177	189	43	43	90	89	639	682
	WD C	21	0	14	0	0	0	0	0	35	0
	DC	35	43	42	39	0	0	7	7	84	89

Breakdown of in-patient beds and day care beds per site in New Caledonia (IP: in-patient care - DC - day care)

Parastatal bodies

La Mutuelle du Nickel

This comprises:

- the Doniambo healthcare centre in Noumea, which has 2 ophthalmologists, 3 dentists (2 full time and 1 part time) and 1 general practitioner;
- two eye care centres, one in the Latin Quarter and the other in Doniambo, with 3 dispensing opticians;
- two dental surgeries, located in Thio and Kouaoua. A single dentist covers both centres.

On average: 12,500 ophthalmology patient visits and 12,000 dental patient visits per year.

La Mutuelle des fonctionnaires (govt. employee insurance scheme)

Available medical staff:

- in Noumea: 1 doctor, 6 dentists, 2 physiotherapists, 2 pharmacists;
- in Boulari (Mont-Dore): 1 doctor, 2 dentists;
- in Bourail: 1 dentist;
- in Pouembout: 1 dentist, 1 pharmacist.

Over 3,000 dental patients were seen by all 4 centres and 8,000 medical patients were seen in Noumea and Boulari.

CAFAT (New Caledonia social security system)

Two healthcare centres in Noumea, one in Receiving and one in Rivière Salée. Medical staff includes:

- 17 doctors including 10 GPs;
- 4 dental surgeons;
- 2 radiologists (part-time);
- 2 visiting specialist physicians;
- 1 pharmacist-biologist
- 3 nurses.

Note: Due to renovation work, Rivière Salée CMS staff have been temporarily transferred to Receiving CMS.



Accident & Emergency

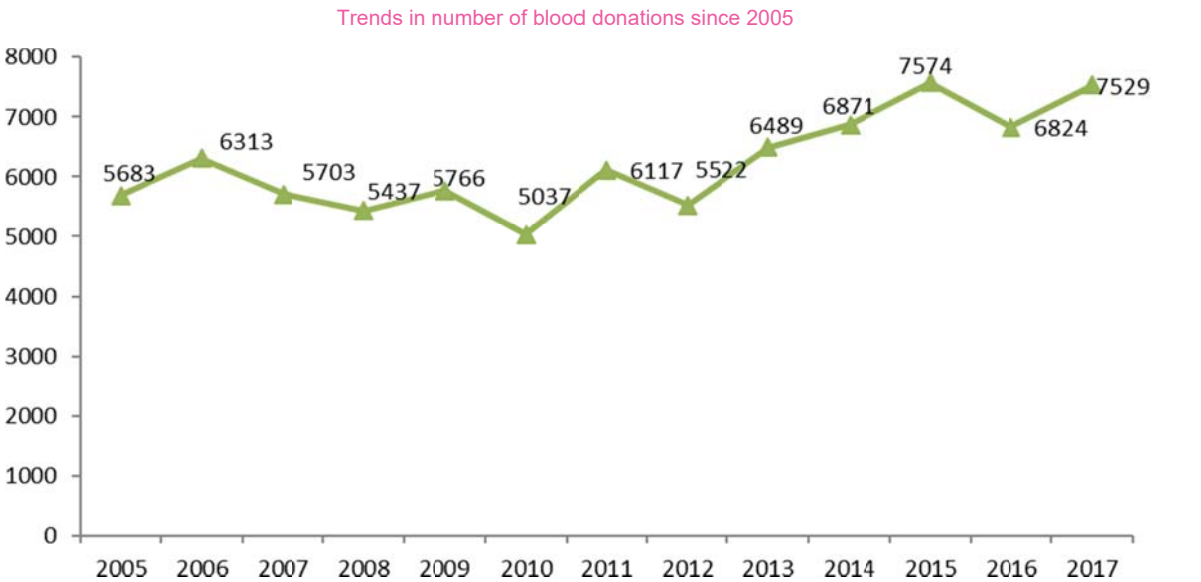
In 2017, the two CHT A&E units recorded: 46,029 arrivals (49,178 in 2016), representing a 6.4% drop in numbers. The Adult and Mother-Child A&E units were amalgamated within the Médipôle hospital complex on 1st November 2016. 32% of arrivals led to hospital admissions.

In 2017, 2,699 SMUR ambulance call-outs were triggered: 1,570 emergency transport calls and 1,129 non-emergency transport calls.

Medico-technical sectors

Blood transfusion

The number of blood donations has increased by 10.3%, rising from 6,824 in 2016 to 7,529 in 2017. Based on WHO (World Health Organisation) standards, this is a satisfactory number.



Clinical biology

There is a public hospital biochemistry and haemostasis laboratory at the Territorial Hospital Centre (Médipôle) and a laboratory at the Paula-Thavoavianon Hospital Centre in Koumac.

The CAFAT Community Healthcare Centre clinical laboratory is located in Receiving. The laboratory performs chemical pathology, haematology and microbiology tests.

There are fourteen government approved private clinical laboratories, eight in Noumea, one in Dumbea, two in Mont-Dore, one in Koné, one in Païta and one in Bourail.

Medical imaging

Facilities at the Noumea Territorial Hospital Centre (radiology, ultrasound, CT scanner and MRI unit) and the Magenta Centre (radiology and ultrasound units); these two departments were amalgamated within the Médipôle hospital complex on 1st November 2016.

The P.Thavoavianon and D.-Nebayes Provincial Hospital Centres have a radiology unit, as does the CAFAT Community Healthcare Centre.

There are seven private radiology clinics.

Pharmacies

There are 69 approved pharmacies open to the public: 66 private pharmacies and 3 mutualist pharmacies. The 69 pharmacies are located by area as follows:

- in Noumea: 24 pharmacies, including 2 mutualist pharmacies;
- 19 pharmacies in the other Greater Noumea municipalities;
- 22 pharmacies, including 1 mutualist pharmacy outside Greater Noumea;
- 4 pharmacies in the Loyalty Islands.

### 4 studies were carried out in 2017:

- **A study into the seroprevalence of hepatitis A**, aimed at determining New Caledonian population immunity to hepatitis A, correlated to age and place of residence, as a basis for consideration of a possible vaccination campaign targeting people most at risk. Overall, study findings indicate low hepatitis A endemicity in New Caledonia. Since wide-scale vaccination of the entire non-immune population is not on the cards, targeted immunisation is provided as part of a Health & Travel Centre (CSV) and DASS-NC program for people planning stays in high hepatitis A endemicity areas.
- **A study reviewing immunisation coverage of nursery school children aged 4-5 in 2017.** Immunisation coverage of nursery school children aged 4-5 (middle section) in New Caledonia is very satisfactory overall ( $\geq 95\%$  of children received initial doses of vaccines, apart from BCG vaccines, where the figure was 94.8%). Immunisation coverage was consistent for all 3 Provinces.
- **A study into the 2017 outbreak of dengue fever in New Caledonia.** The study provided a profile of dengue fever patients in terms of both severity and warning signs. It was noted that amongst all patients diagnosed with dengue fever, the vast majority of acute cases were treated in hospital. The logic diagram used for the hospitalisation of dengue cases therefore appears efficient.  
The study also highlighted the key role played by warning signs and pointed up the necessity of adapting and modifying the Notifiable Disease Report Form to ensure warning signs are included. Data such as patient ethnic community, smoking history, comorbidity factors (obesity, high blood pressure, diabetes, kidney disease, heart disease, dyslipidaemia) and any history of dengue fever should be added.  
The study also helped in the development of a severity prediction tool that can be used when the patient first sees the doctor and the notifiable disease report is made, prior to any lab results being received.
- **A study into the seroprevalence of toxoplasmosis**, aimed at assessing the benefits of systematic screening during antenatal check-ups. Almost 42.5% [36.23; 48.80] of women of childbearing age (aged 15 to 45) did not have immunity, so maintaining systematic toxoplasmosis screening for pregnant women in New Caledonia would seem crucial.

Full reports of these studies, together with a summary of the 2017 health situation, are available from the DASS-NC website.







### ENVIRONMENTAL HEALTH

The Health & Environment Office of the DASS-NC Public Health Department is tasked with designing and implementing preventive and curative initiatives to protect human health from environmental and lifestyle-related hazards. Several thematic environmental strategies are accordingly under development in New Caledonia.

#### Drinking water

Under Article L131-2 of the New Caledonia Municipalities Code, municipal authorities are required to ensure that drinking water supply within their respective areas is safe and to take effective measures to prevent any epidemic. They are therefore responsible for the supply of drinking water. Responsibility is sometimes subcontracted to a local water supply company (a farmer)

Water supply is not subject to regulatory monitoring. The New Caledonian Order setting out drinking water standards passed in 1979 is inadequate and considered obsolete, so the French Order of 11 January 2007, although not legally enforceable, serves as the regulatory reference.

Since 2008, with the aim of providing municipal authorities with practical assistance on drinking water issues, the DASS-NC Health-Environment Office has undertaken the development of drinking water safety plans based on the Water Safety Plan (WSP) recommended by the World Health Organization (WHO) as the most effective means of risk management control to ensure the safety and acceptability of a drinking water supply. All New Caledonia's municipalities now have their own WPS, each being responsible for implementing the plan.

The WPS comprises the following measures:

- An improvement program: list of prioritised measures aimed at improving drinking water safety management in each municipality;
- A water quality monitoring program: list of water quality monitoring measures specific to each municipality;
- A water emergency plan: operational tool for the management of "drinking water" warnings in each municipality.

#### Recreational waters

Initiatives spearheaded by DASS-NC aim to protect bathers from exposure in the event of a real or potential water pollution incident.

In 2017, there were:

- 65 sampling sites for the monitoring of seawater bathing areas: 44 sites outside Noumea (located in 23 municipalities) and 21 sites in Noumea, monitored monthly by the DASS during the bathing season from 1st December to 30 April.

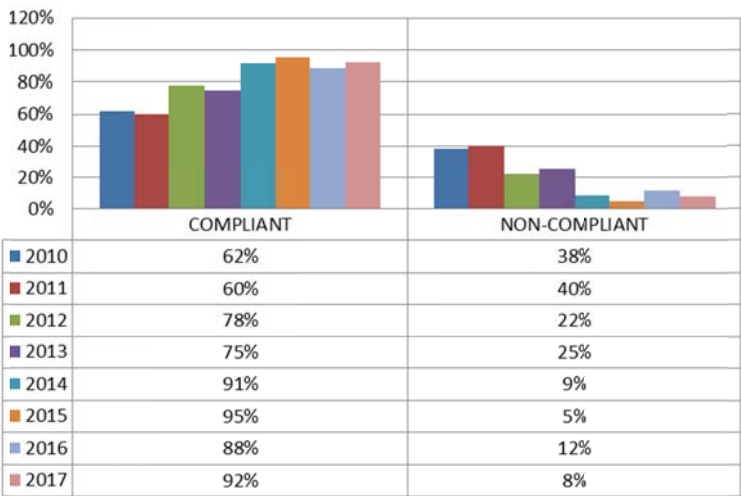
Sampling results were used to determine water quality classifications for all bathing areas. Test results are shown in the following table:

Province	Municipality	Sampling site	Sampling point	2017 Ranking
ISLANDS	LIFOU	Chateaubriand beach	Chateaubriand opposite Drehu	Very high quality
		Easo beach	Easo	Very high quality
		Luengôni beach	Luengôni	Very high quality
	MARE	Mebuet beach	Mebuet	Poor quality
		Wabao beach	Wabao	Satisfactory quality
	OUVEA	Weneguei Chieftdom beach	Weneguei Chieftdom	Very high quality
		Lékine Bridge	Lékine Bridge	Very high quality
NORTH	HIENGHENE	Païc Kaléone beach	Païc Kaléone	Poor quality
		Tjé Kaléone beach	Tjé Kaléone	Poor quality
	HOUAILOU	Kaoura beach	Kaoura	Very high quality
		Waraï beach	Waraï	Good quality
	KONE	Foué beach	Foué watersports centre	Good quality
			Foué creek	Poor quality
	KOUMAC	Pandop beach	Pandop	Good quality
		Tangadiou beach	Tangadiou	Very high quality
	POINDIMIE	Tiéti beach	Tiéti	Very high quality
			Tiéti estuary	Poor quality
	PONERIHOUEN	Tiakan beach	Tiakan	Very high quality
		Ponérihouen estuary beach	Ponérihouen estuary	Good quality
	POUEBO	Saint Mathieu beach	Saint Mathieu	Poor quality
	POUEMBOUT	Franco beach	Franco	Good quality
		Pindaï beach	Pindaï	Very high quality
	POUM	Nénon beach	Nénon	Very high quality
		Poum village beach	Poum village	Satisfactory quality
	TOUHO	Touho Bay beach	Touho village	Satisfactory quality
	VOH	Gatope beach	Gatope	Very high quality
SOUTH	BOULOUPARIS	Bouraké beach	Bouraké	Very high quality
		Déva beach	Déva	Very high quality
	BOURAIL	Poé campsite beach	Poé campsite	Very high quality
		Poé mutuelle beach	Poé mutuelle	Very high quality
		Roche Percée beach	Roche Percée	Good quality
				Good quality
	DUMBEA	Nouré beach	Nouré	Satisfactory quality
	ISLE OF PINES	Kanuméra bay	Kanuméra	Very high quality
		Kuto bay	Kuto	Very high quality
		Natural swimming pool	Natural swimming pool	Very high quality
	LA FOA	Ouano beach - Surf Camp	Ouano campsite	Very high quality
			Ouano wharf	Good quality
		Ouano public beach	Ouano public beach	Good quality
	MOINDOU	Tanghy beach	Tanghy	Good quality
		Carcassonne beach	Carcassonne	Very high quality
	MONT-DORE	Plum beach	Plum Nuku Hiva	Good quality
		Vallon-Dore Promenade beach	Vallon-Dore	Poor quality
		Piroguiers beach	Piroguiers	Poor quality
				Poor quality
	NOUMEA	Ilôt Canard	Ilôt Canard	Very high quality
		Ilôt Maître - North West facing	Ilôt Maître NO facing pedal boats	Good quality
		Pierre Vernier - sailing club bay	Sailing club	Very high quality
		Pierre Vernier - anse de la pointe	Pointe	Very high quality
		Plage 1000	Plage 1000	Very high quality
		Kaméré beach	Kaméré	Poor quality
		Magenta beach (end of runway)	Magenta end of the runway 1	Satisfactory quality
			Magenta end of the runway 2	Good quality
		Magenta beach (Hélices)	Magenta Les Hélices	Poor quality
		Anse Vata beach (SPC)	Anse Vata SPC	Satisfactory quality
			Anse Vata Commodore	Poor quality
			Anse Vata Park Royal	Good quality
		Anse Vata beach (Surf)	Anse Vata Novotel	Very high quality
		Baie des Citrons beach	BDC Fiesta	Poor quality
			BDC Malecon	Poor quality
			BDC Palace	Poor quality
		Pointe Magnin beach	Pointe Magnin	Good quality
			Pointe Magnin Club Med	Very high quality
		Kuendu Beach	Kuendu Beach	Very high quality
	PAITA	Toro Bay beach	Toro area	Satisfactory quality



- About 100 pools (swimming pools and spas) monitored regularly throughout the year, both for the quality of facilities and the bacteriological and physicochemical quality of water.

Over the last 8 years of monitoring, the percentage of bacteriological compliance for the 2 bacteriological parameters indicative of health risk (*Escherichia coli* and pathogenic streptococcus bacteria) increased significantly (see diagram below).



### Air

A Resolution on ambient air quality improvement was passed on 11 January 2017 and supplements Provincial regulations relating to Facilities Classified for Environmental Protection (ICPE), as regards industrial sites. Until now, these were the only regulations setting out requirements for the monitoring of air quality in areas surrounding some industrial sites.

The Resolution sets out a regulatory framework to ensure air quality is improved or maintained throughout New Caledonia by:

- Clarifying the law and the division of responsibilities;
- Setting out standards designed to control health risks, including identification of pollutants and health endpoints;
- Providing a secure legal and financial basis for the monitoring of air quality in New Caledonia;
- Ensuring improved and continued monitoring of air quality, together with better public information;
- Pushing to raise the norm in New Caledonia through development of a five-year plan for the reduction of air pollution.
- Setting out emergency measures to deal with air pollution incidents;
- Providing a binding and coherent framework for air quality control.

The Resolution will become effective upon adoption of the decrees detailing the terms and conditions for implementation of the Resolution. These decrees are being drafted and will be adopted by the Government by the end of 2018.

The New Caledonia Air Quality Monitoring Association ([Scal-Air: http://www.scalair.nc](http://www.scalair.nc)) is responsible for monitoring air quality in New Caledonia, and for providing information and raising public awareness about air quality.

Noumea monitoring network findings showed that all monitoring stations met short-term (hourly and daily averages) and long-term threshold air quality limits (annual averages) for fine particles less than 2.5 micrometres in diameter, for ozone and for nitrogen dioxide - pollutants for which threshold exceedances have never been recorded by monitoring network stations, with concentrations measured in 2017 being around the same as in 2016.

Air pollution in Noumea is mainly peak-hour pollution linked to the Vallée du Tir and Montravel neighbourhoods, both located close to the Doniambo industrial site. Several exceedances of regulatory thresholds were recorded at these locations over the course of 2017.

**Infectious waste**

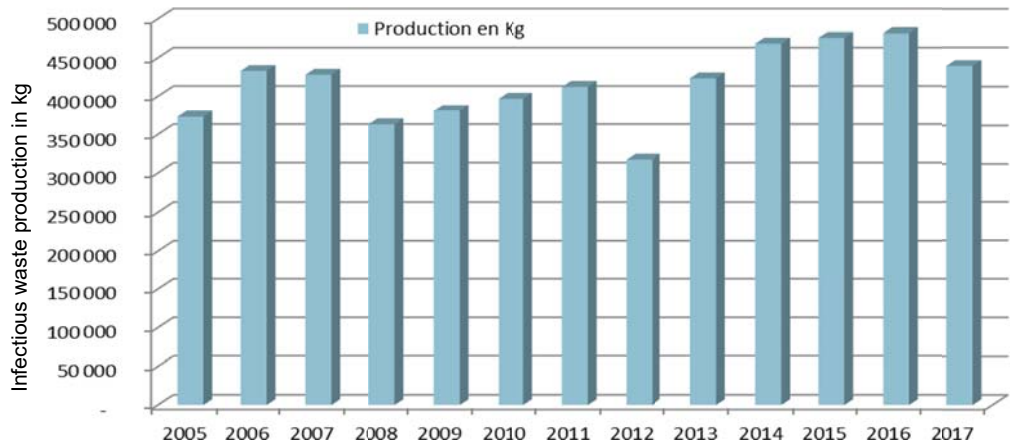
There are three types of infectious waste: hazardous health-care waste (sharps...), body parts and toxic and chemical waste.

All producers are responsible for disposal of their waste. The ten largest producers account for over 94% of waste production.

In 2017:

- 440 tons of infectious waste were collected/processed by the relevant sector,
- 59% was produced by hospitals and clinics.

Historic pattern of infectious waste production



**Environmental asbestos**

The presence and health impacts of environmental asbestos in New Caledonia are now proven and well known facts.

A Government of New Caledonia program has been introduced to ensure implementation of remediation work at sites with the highest hazard levels.

Remediation work covering sites in Ouégoa, Kaala-Gomen, Poindimié and Pouébo was carried out in 2017 and brought the program to completion.

**Vector control**

**Principle**

Vector control is the only effective means of preventing and controlling the spread of outbreaks of arbovirus infection. It involves eradicating arbovirus vector mosquitoes, *Aedes aegypti* (eggs, larvae, nymphs, adults), and ensuring people are protected from bites (repellents, etc.).

**Implementation**

When a case of arbovirus infection is confirmed, the municipal officers responsible for vector control ensure that the public is informed, carry out a house-to-house searches to destroy larval habitats, together with spraying or fogging in a 100-metre minimum perimeter around the victim's residence. In New Caledonia's municipalities, vehicle-mounted and manual device spraying is carried out using deltamethrin.

A new technique was added to Noumea's vector control arsenal in 2017: vehicle-mounted spraying using larvicide with Bti (*Bacillus thuringiensis israelensis*) as the active ingredient. DASS-NC and the Noumea authorities trialled the effectiveness of this method in 2016/2017. Results were promising, and the new method has now been included in City of Noumea vector control measures.

**Monitoring**

Entomological surveillance along borders carried out by the New Caledonia Pasteur Institute (IPNC) is in accordance with International Health Regulations (IHR). Such surveillance is designed to provide health authorities with ongoing information about vector presence at international entry points, and to monitor any introduction of exogenous vector species (e.g. *Anopheles sp.*, *Ae. albopictus*, *Ae. polynesiensis*...).



Significant in 2017:

- Border surveillance identified a female *Anopheles bancroftii* mosquito at the edge of the runway at Tontouta International Airport on 12 July 2017. An eradication plan was implemented following identification of this Plasmodium (malaria parasite) carrying mosquito;
- The *Aedes scutellaris* mosquito, a carrier of dengue fever, was identified in the Tontouta area (an initial detection and then disappearance of this mosquito were recorded in 2016).

Eradication plan targeting two new mosquito species (*Aedes scutellaris* and *Anopheles bancroftii*). In view of the major health risk posed by introduction of these two mosquito species in New Caledonia and the International Health Regulations (IHR) issues involved, in October 2017 DASS-NC implemented an extensive surveillance & control plan in the area where mosquitoes had been detected.

Through the WHO, New Caledonia was able to call on expert Australian entomologist Peter Whelan to assist in developing the eradication plan. Peter Whelan has been involved in several successful disease-carrying mosquito control experiments in Australia and New Zealand.

The eradication plan comprises helicopter larvicide spraying (s-methoprene), land-based spraying for adult mosquitoes (lambda-cyhalothrin), significant intensification of entomological surveillance, environmental monitoring of the area and monitoring of water quality in the area impacted by spraying.

Helicopter spraying of s-methoprene larvicide began on 11 October 2017 and spraying with lambda-cyhalothrin on 23 November 2017.

The plan rolled out in 2017 will be maintained in 2018.

## Research

### • Study to assess effectiveness of vehicle-mounted larvicide spraying (Bti)

In 2015, as part of an initiative to develop alternative means of vector control targeting *Aedes aegypti* mosquitoes, a study was launched by DASS-NC in partnership with the Noumea city authorities to assess the effectiveness of spraying procedure using larvicide with Bti (*Bacillus thuringiensis israelensis*) as the active ingredient. Having been shown to be harmless to non-target taxa, this insecticide is an excellent choice for use in vector control. In ideal spraying conditions (controlled conditions, obstacle-free terrain), results showed a larvae mortality rate of over 80% up to 30 metres from the spray release point.

To trial the effectiveness of this method in operational conditions (residential neighbourhood), a second experimental phase was carried out in a Noumea neighbourhood (Vallée des Colons) in 2017. Results from the second experimental phase show that effectiveness is contingent on how the breeding ground is positioned relative to the spray release point, particularly where there are buildings and dense vegetation. This type of spray treatment is therefore effective in urban areas where buildings are spaced out and there is little vegetation. Since 2017, the Noumea authorities have used this spray control method when cases of arbovirus infection are reported.

### • “World Mosquito Program” Project - Wolbachia-mediated blocking of arbovirus transmission to humans

A team from Monash University in Australia has developed a promising method of arbovirus control (dengue fever, chikungunya, Zika) to control the spread of mosquito-borne arbovirus infections. The method involves introducing endosymbiotic Wolbachia bacteria into *Aedes aegypti* mosquitoes. Wolbachia blocks replication of viruses, including dengue virus, chikungunya virus and Zika virus, in mosquito cells. Wolbachia are natural bacteria present in up to 60% of insect species and which pose no known threat to humans and other mammals.

To introduce the Wolbachia bacteria, *Aedes aegypti* mosquitoes with Wolbachia are first released into the environment where they breed with the wild mosquito population. Over time, mosquitoes carrying the Wolbachia bacteria gradually replace local wild mosquitoes. Mosquitoes with Wolbachia have a reduced ability to transmit viruses to humans, decreasing the risk of Zika, dengue fever and chikungunya outbreaks.

Wide-scale trials of the method have been undertaken in various countries with promising results.

In late 2016, the Noumea city authorities, the IPNC and DASS-NC met with scientists working on the World Mosquito Program initiative (formerly known as “Eliminate Dengue”) to discuss implementing this uniquely self-sustaining method using Wolbachia bacteria in Noumea. In 2017, the four partners collaborated on the drafting of a cooperation agreement for development of the new control method in Noumea.

# HEALTH AND TRAVEL CENTRE (CSV)

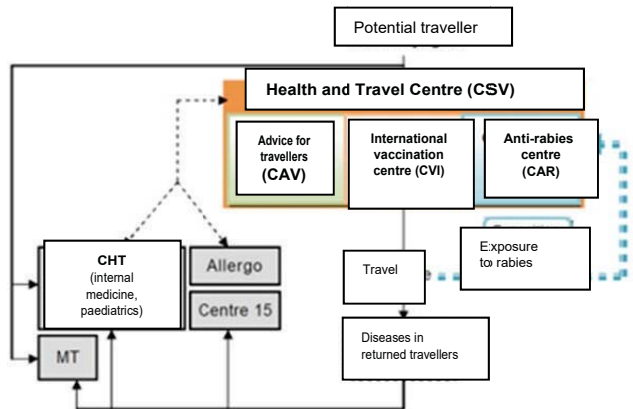
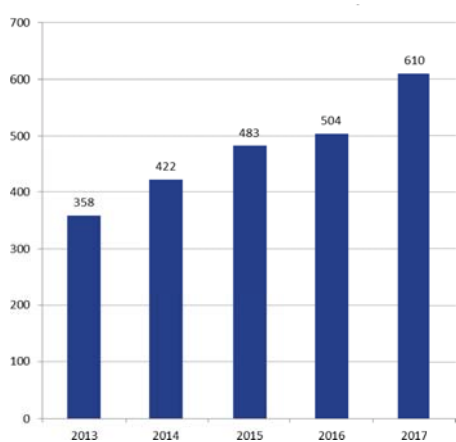
The DASS-NC Centre Santé et Voyage (Health and Travel Centre - CSV) opened in February 2013, following the decision by the New Caledonia Pasteur Institute (IPNC) to halt their yellow fever vaccination program.

### CSV functions:

- International vaccinations;
- Advice for travellers;
- Rabies vaccination;
- Encouraging partners to give advice to travellers (healthcare and travel professionals).

In 2017, there were 3,836 visits to the CSV.  
Regarding rabies, 7 post-exposure prophylaxis treatments were administered.

CSV: number of visits per year







## INTRODUCTION

### Definition

The standard approach to healthcare cost is based on two aggregate factors:

- total consumption of healthcare services: corresponds to all in-patient and out-patient care provided by hospitals, self-employed professionals, healthcare districts and Provincial healthcare centres and social welfare agencies. In addition to services, consumption of prescription drugs and other medical goods (visual aids, prostheses, minor medical devices and bandages);
- current healthcare expenditure: daily sickness benefits, research, training of healthcare professionals, healthcare management costs and public prevention spending (health information and education campaigns).

## COST OF HEALTHCARE IN NEW CALEDONIA

### Trend from 2011 to 2016

Between 2011 and 2016, total healthcare consumption increased by 12% and current healthcare expenditure by 8.5%.

### Comparison (Data for 2017 unavailable)

By using standardised aggregates, comparisons can be drawn with France by indicating:

- Total healthcare consumption or current healthcare expenditure per capita (in XPF);

Year	2012	2013	2014	2015	2016 (estimate)	2017
CCMG per capita in NC	305,524 XPF	307,151 XPF	315,279 XPF	323,948 XPF	327,709 XPF	Data unavailable
In France	334,200 XPF	339,000 XPF	345,100 XPF	348,700 XPF	355,200 XPF	357,240 XPF
Total healthcare consumption per capita in NC	318,540 XPF	317,931 XPF	325,168 XPF	331,877 XPF	335,404 XPF	Data unavailable
In France	444,600 XPF	349,600 XPF	355,600 XPF	359,000 XPF	365,500 XPF	Data unavailable
Current healthcare expenditure per capita in NC	354,452 XPF	355,500 XPF	363,411 XPF	371,668 XPF	375,389 XPF	Data unavailable
In France	451,400 XPF	458,900 XPF	465,900 XPF	469,600 XPF	476,900 XPF	484,148 XPF

- Current healthcare expenditure as a share of GDP (in %).

Year	2012	2013	2014	2015	2016 (estimate)	2017
Current healthcare expenditure applied to GDP in New Caledonia	10.71%	10.72%	10.80%	10.81%	10.90%	Data unavailable
In France	12%	11.7%	12%	12%	12%	12%

With a current healthcare expenditure at 10.9% of GDP for 2016, New Caledonia ranks among the average for developed countries.





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