

4 Health and Education

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4.1 Historic data

The first European explorers who visited the island in the 18th century described indigenous population in good health, tall and well-built, not affected by evident illnesses, with healthy teeth and in possession of abundant food [1–3]. European infectious diseases previously unknown to the island likely started to spread among the indigenous population over the following century. After the slaver raids of 1862 had removed over 1/3 of the population, returning slaves and missionaries brought with them an epidemic of smallpox, dysentery and tuberculosis that virtually depopulated the island towards the end of the 19th century. At its lowest, in 1871, there remained only 110 Rapanui on the Island. Around the time the island was annexed by Chile (1888), Rapanui returning from Tahiti also brought leprosy with them. The disease quickly became endemic to the Rapanui population, affecting about 7% of the population.

Civil registry records available since 1914 provide information on the incidence of different diseases on mortality [4]. Throughout the 20th century mortality rate steadily declined as improvements were being made in sanitation and health services. The most common cause of mortality was infectious diseases (16.3%) followed by illnesses related to the respiratory and circulatory systems. In the first half of the century, Leprosy stood out as a cause of death. After 1965, no death was attributed to it. Leprosy kept decreasing and was finally eradicated in the 1980s. In 1953 the Chilean Navy equipped a small general hospital and for the first time a physician is permanently available. Until 1967, the annual arrival of the supply ship was followed by an epidemic of flu that spread to the whole population. Immunization arrived that year with the increased contact frequency afforded by the regular arrival of flights from the continent. At beginning of the 20th century, as the expectation of life at birth kept increasing the island transitioned to an older aged population. Since then, cardiovascular diseases, neoplasms and accidents have been the prevalent cause of death [5].

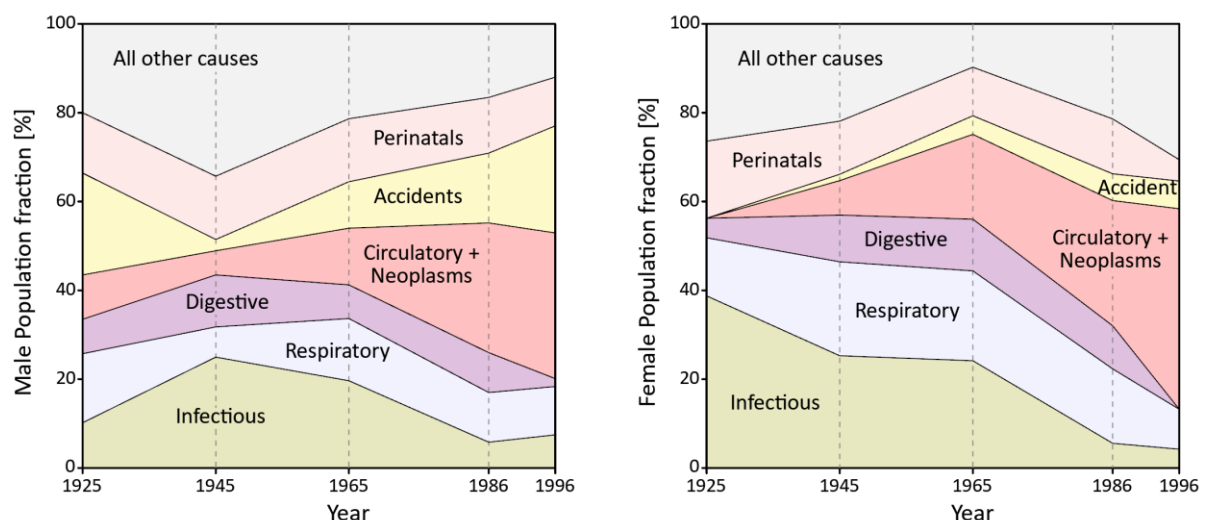


Figure 4.1 Epidemiological transition through the 20th century, death cause for males and females (from: [4])

4.2 Current infectious diseases

From the point of view of infectious diseases Rapa Nui classifies as a tropical environment. As such, it is vulnerable to viral infections transmitted by arthropods (arboviruses) such as Chikungunya, Yellow Fever, Dengue and Zika, transmitted by the *Aedes aegypti* mosquito. There are no vaccines protecting against most arboviral infections and current disease prevention relies on vector control. A new vaccine for dengue virus serotypes 1-4 has recently been approved but availability is still low [6].

In 2000, the *Aedes aegypti* mosquito was detected for the first time on Rapa Nui. In 2002 the dengue serotype 1 spread and affected the majority of the population on the island. Sporadic cases were detected in 2007 and 2009, including two cases of serotype 4. There was a new outbreak in 2016, 35 new cases were detected of dengue serotype 1 [7]. In 2018, the ISP confirmed 4 new cases on April 13th in Hanga Roa hospital, 2 women and 2 children (aged 11 and 12). By the end of the month, the number of positive case had raised to 13 prompting the Chilean Ministry of Health to declare a Dengue alert.

The Zika virus was detected on the island in 2014. A single patient developed the disease after visiting the Marquesas Islands and Tahiti [8]. Screening of 89 suspected cases using RT-PCR analysis found 51 positives for Zika virus. The strains were closely related to those found in French Polynesia [9]. No new cases have been detected since.

In order to control the vector, the Regional Health Secretariat of Valparaíso carries out Entomologic inspection and elimination of nesting sites on houses in Hanga Roa. The mosquito lays its eggs in small ponds of stagnating rain water that accumulates on impermeable surfaces such as exposed solid wastes (plastic bottles, rubber tires, scrap metal, etc.). Advice is given to the local population and tourists visiting the island to use of repellents with at least 30% DEET, wear long sleeve shirts and pants, closed shoes and also spray clothes with repellents containing permethrin or DEET [7].

The laboratory of the Hanga Roa hospital is equipped with IgM dengue serology technique for the detection of dengue and RT-PCR technique for detection of dengue, Zika and Chikungunya will become available this year [7].

4.3 Cancer epidemiology

A study carried out in the Hanga Roa Hospital showed most frequent cancer types in Rapa Nui are breast, skin, cervical, lung and gastric cancer [10]. In women, the most common types are breast and skin cancer followed by cervical cancer, while in men, lung, prostate and hematopoietic cancers were the most frequent. Breast cancer incidence is comparable to that of either the Polynesian islands or continental Chile. Skin cancer has higher incidence in Rapa Nui compared to other Polynesian islands but only among the non-indigenous population. While gastric cancer is uncommon in the Polynesian islands, the Chilean population has one of the highest incidences in the world. Higher incidence of cervical cancer in the indigenous population might relate to lack of local education campaigns on preventive exams.

4.4 Health infrastructure

The Hanga Roa Intercultural Hospital is the only medical centre on Rapa Nui. It was inaugurated in 2012 in replacement of the campaign hospital that had been donated by the US government in the 1970s. The hospital is also the only centre providing dental health care to the local population.

The 5,920 m² building includes 2 surgical pavilions able to operate simultaneously and 1 maternity ward designed to enable traditional birth practices. It also includes an accident and emergency ward with 5 attention boxes, a reanimation room, separated rooms for acute respiratory infections and acute respiratory illnesses, and an area for ambulatory treatment with 12 attention boxes.

In 2014, the hospital was staffed by 121 people. Installations include communication systems to share medical information with specialists in continental Chile in real time. Patients in life threatening conditions that cannot be treated on the island can be transported by air to the continent within 14 hours using an ambulance plane that is stationed in Santiago.

There are 4 private drugstores in Hanga Roa that stock the most common medicines required by the population. Access to medicines (prescription requirements) is regulated by the Chilean sanitary laws.

Table 4.1. Health care facilities

Type of health care facility	Rapa Nui	Region V	Chile
High-complexity hospital	0	8	64
Medium-complexity hospital	0	2	28
Low-Complexity hospital	1	12	103
Hospital (not in the National Health Service System)	0	5	30
Rural first aid	0	60	1,177
Rural primary care centre	0	14	117
Urban primary care centre	0	61	465
General Health Centre and Clinic	0	50	563
Diagnostic and therapeutic centre	0	1	10
Specialized medical care centre	0	0	3
Dialysis Centre	0	0	35
Vaccination centre	0	3	29
Dental Laboratory	0	9	228
Health Service administrative offices	0	4	32
Total	1	229	2,884

As of 2017, 4.304 people (or around 61% of the resident population) were inscribed in the public health system (compared to 76% for Chile as a whole). It is unclear if the remaining population is inscribed in the private health insurance system. The Chilean public health system is supported by state funding and by the workers' mandatory individual contributions (7% of gross income). It provides free health care for people without income (indigent) and subsidized health care for working individuals and their families (80%, 90% or 100% subsidy, depending on income level). The private health insurance system is a more expensive choice that provides access to a usually better standard of care.

4.5 Education

Since 2012, public and private primary education on the island comprises bilingual classes focused on Rapanui language and culture, sponsored by the Chilean National Corporation for Indigenous Development (CONADI). Rapa Nui was the first location in Chile to implement this initiative.

There are two public (free, state funded) schools, *Liceo Lorenzo Baeza V.* and *Liceo Aldea Educativa Rapa Nui*, both offering complete primary and secondary cycles, the later in humanistic, Technical and Agricultural tracks. According to current Chilean education law, both public schools are administered by the Rapa Nui Municipality. There are also 2 state-subsidized private (paid, conjointly funded) schools offering complete primary and humanistic secondary cycles: *Colegio San Sebastián de Akivi* and the *Colegio Católico Hermano Eugenio Eyraud* run by the catholic church of Valparaíso.

In 2017, there were 195 children in pre-schooling, 929 in primary education, 289 in humanistic secondary education and 49 in technical secondary education. There were also 30 adults in technical secondary education and 2 in primary education [11]. The 2016 national standard tests for education quality showed lower results for Rapa Nui compared to the national average in children 10 years of age: 7.2% lower in language, 13% lower in mathematics, however, there was no gap for adolescents 16 years of age [11].

In recent times the limited education and public awareness on sustainability issues across both island's population, both Rapanui and mainlanders was perceived as an important challenge for the environmental future of the island [12]. Since June 2018, the Rapa Nui Municipality sponsors the *Red de Educación Medioambiental para Rapa Nui* (Rapa Nui Environmental Education Network), an agreement between education institutions and social organizations to define and pursue a coordinated environmental education plan for Rapa Nui children.

4.6 References

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