ISSN 1669-9106 MEDICINA (Buenos Aires) 0000: 00: 000-000

THE SPREAD OF SMALLPOX AND OTHER INFECTIOUS DISEASES IN NATIVE POPULATIONS OF ARGENTINA

ISABEL N. KANTOR[1], DOMINGO J. PALMERO[1,2,3]

[1]Comité Editorial Medicina (Buenos Aires), [2]Hospital de Infecciosas Francisco Javier Muñiz, [3]Instituto de Tisioneumonología Prof. Dr. Raúl Vaccarezza, Facultad de Medicina, Universidad de Buenos Aires, Buenos Aires, Argentina

E-mail: isabel.kantor1@gmail.com

Spread of smallpox[1-4]

In a recently published comprehensive study, Robert Christensen[1] argues and documents that Argentina's Desert Campaign (1879–1885) must be understood as both an epidemiological and military event, focusing on a smallpox epidemic that ravaged the communities of indigenous survivors. More lives were lost there than in combat, especially as the disease spread through prisoner-of-war camps.

The study focuses on Commander Eduardo Racedo's camp on Martín García Island and the province of Tucumán during and after this campaign, revealing how the epidemic spread.

Although smallpox already existed among the indigenous people of the Pampa-Patagonia during the colonial period (18th century), that region remained isolated, which allowed it to withstand both the military and biological onslaught of colonization.

By the last decade of the 18th century, indigenous people had some understanding of how smallpox was transmitted, including the effectiveness of quarantines. Some of this knowledge may have come from the *Mapuche* groups in Chile, who had been familiar with the disease centuries earlier[1].

However, by the 1870s, several non-biological factors converged that contributed to the epidemic's significant progress in this region.

Extreme weather (fall-winter 1879), incursions of government troops, and conflicts between rival chieftains pushed the survival of these peoples to the limit.

The *Malón Grande*, a major indigenous incursion organized in 1876 by a coalition of *Ranquel* and *Araucanian* groups, laid the groundwork for the epidemic, as it brought together a huge number of groups where in some of them, smallpox was already widespread.

Eduardo Racedo, commander of the Army's Third Division, in a detailed account of the situation, states that the indigenous people feared smallpox more than a Christian invasion. Thus, the smallpox epidemic reached its peak when the army detained thousands of indigenous people in prison camps during the first years of the Desert Campaign. The only means used to contain the epidemic in the camps was quarantine[1].

After being captured in 1879, Indigenous prisoners were held for months or even years in prison camps. In some cases, they were also sent to a naval prison on Martín García Island.

The first sign of smallpox on Martín García Island was a letter from the prison's chief surgeon, Dr. Sabino O'Donnell, reporting the first smallpox death on the island on January 16, 1879. On March 3, O'Donnell requested additional vaccination materials, stating that he had begun vaccinating all prisoners and soldiers on the island. A total of 166 people died of smallpox on Martín García Island between January 30 and May 2, 1879, all but one of them Indigenous prisoners[1].

O'Donnell's mention of the use of the vaccine is striking. Variolation, the inoculation of the Variola virus[2] by skin scraping, had arrived in the Río de la Plata with Viceroy Cevallos in 1777. The

expedition doctor, Miguel O'Gorman (1749-1819), had learned this method in England. In 1805, percutaneous inoculation of the Vaccinia virus (Edward Jenner, 1796) was promoted and used in Buenos Aires by Cosme Argerich, who directed the *Protomedicato*[3,4].

However, Minister of War Julio A. Roca believed that the possible solution to the so-called "indigenous problem" was to relocate this population to an environment far from their native territory and introduce them to the culture of work and *Christian customs*. He found that this learning could take place in the sugar mills of his native Tucumán[1].

In November 1878, Roca requested help from the governor in organizing the distribution of the *Pampas* and *Ranqueles* in these areas, guaranteeing them a fair wage and protection from the Official Defender of the Poor and Minors. However, the results fell far short of expectations. During 1879, some Buenos Aires newspapers reported on the mistreatment of indigenous workers. A few years later, it was reported that all the indigenous people from the Southern border sent to Tucumán had died or fled, and that smallpox had also spread to other sectors of the population in these sugarcane regions[1].

According to information from the War Department and civilians recruited into the Navy, during the first year of the Desert Campaign, 2584 Indigenous warriors and 11 588 Indigenous civilians were "suppressed"; more Indigenous people died due to the precarious conditions in the camps and from smallpox, than in combat. (*Table 1. Indigenous people "suppressed" during the first year of the Desert Campaign, as reported by the War Department and the Navy Warriors Civilians*[1]).

Based on this information, we can confirm that the majority of deaths in the Desert Campaign were caused by smallpox. Attempts to stem the epidemic with the tools then available were futile. Malnutrition and confinement of the indigenous people fundamentally contributed to the spread of the virus.

Measles[5-7]

In 1884, a lighthouse was installed in the bay then known as Alakushwaia (today Ushuaia), and in October of that year, the ships Villarino, Comodoro Py, and Paraná sailed from there bound for Punta Arenas. On the latter, in addition to the "white" crew, seven young *Yaghans* traveled. All fell ill during the voyage and died. Meanwhile, in Ushuaia, after the departure of these ships, one after another, the *Yaghans* fell ill and died. All the *Yaghan* children living in a Mission orphanage also died.

The people of European origin who administered the Mission had already suffered from measles as children. Half of the *Yaghan* population died, and the other half were so weakened that most died within the next two years.

Perhaps the *Onas* would have survived as a people had it not been for two subsequent measles epidemics that, like the *Yagana* population before them, wiped out most of the tribe's remnants. The few who escaped the first outbreak fell victim to the second, which struck the region five years later, in 1929. Only the *mestizos* survived, perhaps due to some innate genetic immunity stemming from their European heritage.

Tuberculosis[6-8]

Beginning in 1870, Anglican pastor Thomas Bridges settled with his family in Ushuaia Bay and began an intense exploration of *Tierra del Fuego* and its cartographic record. He compiled a dictionary of the *Yaghan* language and carried out an intense educational and evangelizing mission. Later, in 1893, the Salesian Mission of *La Candelaria* was established in *Río* Grande, north of *Tierra del Fuego*.

Interethnic contact, coexistence in religious institutions, established as part of the colonization process, in closed spaces, in overcrowded conditions, and the uprooting of their uses and customs, led to the spread of infectious diseases to which that population was naïve, especially tuberculosis which, - in real terms - decimated them[8].

And how the story continued...[9-11]

The spread of infections and the resulting deaths, which eventually wiped out several indigenous populations, as happened with the *Ona* and *Yaghan*, occurred largely because of the "civilizing" effort, which, with "laudable intentions," sought to impose on these indigenous populations, considered savages, ways of life,

customs, and religions different from those they had always maintained. Knowledge about the role of vaccination, and hygienic measures for prevention and protection, came later.

On May 8, 1980, the 33rd World Health Assembly officially declared "The world and all its inhabitants are free of smallpox." The declaration marked the end of a disease that had ravaged humanity for at least 3000 years and, in the 20th century alone, had killed 300 million people[9].

The US$300 million cost of eradicating the disease has saved the world well over US$1 billion each year since 1980.

Measles was the fifth disease declared eliminated from the Americas, following smallpox (1971), polio (1994), rubella, and congenital rubella syndrome (2015). Most PAHO/WHO member countries introduced the measles, mumps, and rubella (MMR) vaccine between 1980 and the early 2000s.

However, in 2025, measles outbreaks were reported in Canada, the US, and Mexico, related to unvaccinated or anti-vaccine population groups[10]. Also in Argentina (June 2025), an outbreak of 34 cases was confirmed, due to transmission from unvaccinated, imported cases[11].

Strengthening public health, epidemiological surveillance, preventive measures, especially vaccination, and up-to-date information on health issues are essential elements to keep us free of preventable and/or curable infectious diseases and avoid returning to the past.

References

1. Christensen R. Indigenous people and smallpox in Argentina's Desert Campaign, 1879–1881. *Ethnohistory* 2024; 71: 113-38.
2. Barcat JA. Lady Mary Wortley Montagu y la variolización. *Medicina (B Aires)* 2020; 80: 734-7.
3. Acerbi Cremades N. A dos siglos de la llegada a la Argentina de la vacuna contra la viruela, 1805-2005. *Rev de Salud Pública* 2005; 9:60-4.
4. El pacará de Segurola y la vacunación antivariólica en Buenos Aires. Nota de tapa. *Medicina (B Aires)* 2024; 84 (5).
5. Bridges EL. El último confín de la tierra (Uttermost part of the Earth), 10a ed. Buenos Aires: Sudamericana, 2019.
6. Kantor IN. La desaparición de onas y yaganes. Entre sarampión, rabia y tuberculosis. *Medicina (B Aires)* 2022; 82:564-7.
7. Potenze L. Científicos y religiosos en Tierra del Fuego. Miradas sobre el indígena en la ocupación del territorio (1826-1924). Editora Cultural Tierra del Fuego, 2021.
8. Vacarezza R. Historia de una idea: Contagiosidad de la tuberculosis. Buenos Aires: Editorial Troquel, 1978, p 110.
9. La OMS conmemora el 40 aniversario de la erradicación de la viruela. In: https://www.who.int/es/news/item/13-12-2019-who-commemorates-the-40th-anniversary-of-smallpox-eradication; accessed June 2025.
10. OPS/OMS. Febrero 2025. Sarampión. En: https://www.paho.org/es/temas/sarampion; accessed June 2025.
11. Boletín Epidemiológico Nacional N°761, SE 24, Año 2025. Sarampión, p17. In: https://www.argentina.gob.ar/sites/default/files/2025/01/ben_761_se_24.pdf; accessed June 2025.