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# THE IMPACT OF THE GREAT WAR ON URBAN HEALTH: A CASE STUDY OF CONTAGIOUS DISEASES IN THE DUBROVNIK CIVIL HOSPITAL, 1914–1924

**Abstract:** Infectious diseases were a leading cause of mortality among soldiers and civilians during World War I. While most of these pathogens were known prior to the conflict, wartime conditions catalyzed their transition into widespread epidemics. Although vaccines for typhoid, cholera, and tetanus significantly reduced mortality, their implementation was often delayed or met with public resistance. This study analyzes the epidemiological profile of the Dubrovnik Hospital, which functioned as both a civil and military institution. Strict infection control was maintained, notably through mandatory smallpox vaccination for all hospital admissions. During the war, the hospital treated an average of 1,100–1,200 patients annually, one-third of whom were military personnel. While Dubrovnik recorded cases of louse-borne spotted typhus, it avoided the catastrophic outbreaks seen on the Eastern Front. However, the proximity of the Neretva River marshes, combined with the influx of infected soldiers, resulted in high malaria mortality. The final year of the war was marked by the emergence of the Spanish flu, which caused a high death toll in 1918 due to severe pulmonary complications. Tuberculosis remained a persistent threat throughout the period, while the high incidence of sexually transmitted diseases among soldiers significantly impacted military readiness. Other diseases such as diphtheria, tetanus, erysipelas, and scarlet fever further complicated the public health landscape. This research also addresses the challenges of fragmented archival records and the loss of documentation from the Military Garrison Hospital and St. James's Lazaretto, which limits a complete statistical reconstruction of certain war years and child mortality rates.

**Keywords**: First World War; urban health; infectious diseases

Non MeSH: Dubrovnik hospital; epidemiological profile; wartime medicine

## Introduction

During the First World War, Dubrovnik struggled with an inadequate water supply, transport isolation, a lack of both food and medicine, a shortage of medical staff, and a large number of soldiers who were stationed in the City or sent there from the battlefield for treatment. The city was placed under strict military censorship. Landmarks were repurposed for the war effort; for example, the copper roofs of the Dubrovnik Cathedral were famously stripped to be melted down for ammunition. The local economy, which had begun to rely on early tourism, was completely halted. Trade was restricted by naval blockades in the Adriatic, leading to chronic shortages of basic goods like sugar, textile products, and coal. [1] By 1915, severe food shortages led to the introduction of food stamps for bread. [1] Resources were so scarce that vegetables like potatoes and beans were distributed only occasionally, often requiring women and children to wait in long lines overnight at public squares for small rations. [1] According to the census, in 1914 the city of Dubrovnik had approximately 14,000 inhabitants, while the broader district of Dubrovnik reached roughly 50,000 people. Regarding the military presence, Dubrovnik served as a significant garrison for the Austro-Hungarian Imperial and Royal Army (k.u.k.) and the Imperial-Royal Landwehr. At the start of World War I in 1914, the permanent garrison was approximately 2,500 to 3,000 soldiers. This number fluctuated significantly during the general mobilization in late July and August 1914 as troops were deployed to the Serbian and Balkan fronts.

The Dubrovnik Provincial Hospital during World War I provided services to the civilian population of the Dubrovnik and Kotor districts, as well as to soldiers, despite the existence of military health institutions such as the Home Guard Hospital in Gruž and the military hospital in city. In terms of administrative rank, it was the Royal Provincial Public Hospital. [2] In 1914, the hospital complex consisted of five buildings without organized departments that were created in 1922, initially the surgical, venereal and internal diseases departments, and in 1924 the tuberculosis department. [3] Until 1922, two doctors worked in the hospital, one primary physician who was also the director of the hospital, and one secondary physician. According to the Report on the Development of Medical Institutions and the Material Survey from 1919 to 1936, the Pulmonary Diseases Pavilion of the Dubrovnik Banovina Hospital, built of reinforced concrete, was built in 1910 when it had 10 beds, and in 1918 it had 15 beds: two rooms with five beds each, two with two and one with one bed. Just before the renovation in 1920, it had 17 beds. [3] The organization of the hospital strictly monitored the number of health personnel, especially nurses capable of providing medical care to civilians and soldiers. There were 24 nurses per 150 beds, 22 under the age of 20 and two under the age of 30. [1]

## Sources and Methodology

This study is based on a systematic analysis of primary archival sources held at the State Archives in Dubrovnik (DADU), primarily within the collection HR-DADU-186 (General Hospital Dubrovnik 1880–1941). The research corpus encompasses 39 archival units (boxes) containing:

1. Patient Movement Reports: key documentation for the years 1914, 1917, 1918, and 1919, as well as the post-war period (1921–1926).

2. Military and administrative correspondence: weekly military reports (e.g., Box 108) and official correspondence from the District Prefect's Office in Dubrovnik and the Dalmatian Governorate in Zadar.

These are supplemented by specialized registers, including municipal records of the Municipality of Dubrovnik (Register of Prostitutes 1909–1925), death registries from the Diocesan Archives, and archival materials from the Franciscan Monastery.

## Methodology

A quantitative analysis was applied to the data extracted from hospital registers and patient reports to reconstruct the institution's epidemiological profile. This involves statistical processing of morbidity and mortality rates for infectious diseases. Furthermore, a comparative method was used to distinguish between civilian and military patient demographics.

## Archival Limitations

A significant challenge in this research is the fragmentation of the archival material. Due to the lack of preserved documentation for the Garrison (Military) Hospital and the St. James's Lazaretto, the presented figures should be interpreted as baseline minimums. While the gaps in documentation for specific war years (particularly regarding child mortality and certain military sectors) prevent a complete statistical reconstruction, the available data are sufficient to identify dominant epidemiological trends and the hospital's response to wartime crises.

## Diseases

### Typhoid fever

It was known from earlier wars how much diseases affect war success. [4] The medical report of the Austro-Hungarian Army's military health institute, in its semi-annual analyses, specifically monitors whether there is an increase in the frequency of measles, cholera, typhoid fever, spotted typhus, dysentery, tetanus, and frostbite. In a report from February 1916 for a period of 6 months earlier, three patients died of typhoid fever and four of dysentery in the Dubrovnik hospital. [1] Typhoid fever in the Dubrovnik hospital

was recorded throughout the war, but also in the years before the war. Thus, in the "List of Diseases" from 1898, there are five hospitalized patients with typhus. In the "List of Disease Types" (Verzeichniss der Krankheitsformen), there were no strict divisions according to age or gender of patients. In a report from January 1900 for the year 1899, six people were treated for typhus, of whom one person died. [1] Eight years later, there were 16 patients with typhus. [1] In the year before the war, in 1913, four typhus patients were treated. [1] The chronic water supply issues in Dubrovnik, stemming from the 1806 crisis in Šumet and inadequate infrastructure, directly contributed to the persistence of typhoid fever during the war. [5] The problem of water supply was exacerbated by the growth of the population in the first half of the 19th century, and in the second half by a further increase in the need for water, due to the construction of a new hospital, tourist facilities and private houses to which water was supplied. [6] Due to inadequate care by the authorities, water often ran out even in the fountains that were also used for washing clothes during the 19th century and early 20th century. [5] A serious and systematic approach to solving the water supply problem was only taken in the 1950s. [5] While qualitative evidence suggests a deterioration of hygienic condition, granular epidemiological data for specific war years reamins fragmentary due to archival losses. The weekly military report from 14 to 21 October 1914 lists three patients with typhus. [1] For the semi-annual military hospital report from 1 September 1914 to 28 February 1915, there is a requirement to fill in the columns from where soldiers came for treatment with "faithful accuracy". [1] The analysis shows that the largest number of soldiers came from the garrison, then from other health institutions and the least from the battlefield. Although the ban issued by the Chief of General Staff was lifted at the beginning of the second year of the war and vaccination against typhus became available to soldiers, it was very unpopular. [7]

Household epidemics of typhus occasionally occurred among the civilian population. In August 1916, in a family in Zaton (Zaton near Dubrovnik), three girls fell ill with typhus but could not be admitted to the St. James (Sv.Jakov) lazaretto for Infectious Diseases because a soldier with spotted, "black" typhus had been admitted there. [8] According to the available material for 1917, 44 people were treated for typhus in the hospital and no hospital deaths from the disease were recorded that year. Two months of that year stand out by the number of affected patients, namely June with eight and July with 24 patients. [1] According to reports on the movement of patients in Dubrovnik Hospital, in 1918 there were 20 patients treated for typhus in Dubrovnik Hospital and two died. In 1919 and 1920 there were two patients treated for typhus each and in 1921 there were five cases with three deaths, a year later there were nine patients but no deaths. However, typhus was not easy to overcome and in 1925 eleven people were treated in the hospital and one person died. [1]

Famine and typhus did not spare the Dubrovnik monasteries either. Thus, from the monastery of the Little Brothers, Urban Talija, who was a guardian of the monastery writes a letter to General Klumper on January 25, 1924, in which he describes the situation in the monastery during the war.

"During the war, but also after the war, Dalmatia and Istria were short of food, and people suffered and died of hunger. In the Dubrovnik monastery, two old men died of hunger, and some young people fell ill with 'Hungerstyphus' (a disease caused by Rickettsia typhi and Rickettsia felis and spread by rat fleas, op. a.). [9] In those terrible moments, the poor priests, tormented by hunger, walking corpses, had to use everything to save their lives, which they did. Anyone who has not found themselves in those terrible situations when their knees buckle under the weight of their bodies, due to weakness, cannot understand, but I know this because I experienced it. Memories are still vivid and fresh of what the monks did to avoid starvation. If the Visitor reflects on these facts, he speaks the truth; but in these circumstances, the religious were not to blame, it was their own existence." [10]

## Cholera

In the first three years of the war, 16,266 soldiers of the Austro-Hungarian Monarchy died of cholera in Galicia, the Russian part of Poland and in Bosnia and Herzegovina. [7] World War I emerged during the sixth cholera pandemic. It is a disease accompanied by profuse diarrheal stools and is caused by ingestion of food and water contaminated with Vibrio cholerae. In Dubrovnik at the end of the 19th century, measures were taken to prevent the spread of cholera in the city.

The measures include that innkeepers report the arrival of foreigners to the authorities, that innkeepers make sure that their eating utensils are clean and well tinned, that citizens clean and disinfect drains and toilets, that apartments are kept clean and that they do not throw garbage and any other abomination into the drains, that there are no manure stores in houses and yards, that toilets and human excrement are not discharged into public drains.[1]Four years before the start of World War I, due to a new threat of a cholera epidemic in Dubrovnik, the hospital, on the recommendation of the Dalmatian Viceroy, attempted to organize healthcare provision under epidemic conditions. A list of doctors who could treat and implement public health measures was compiled. Doctors who worked during the epidemic were called "cholera doctors" or "epidemic doctors." They would be paid for their travel expenses, provided with free housing in the places where they worked, and granted a daily allowance of 30 - 40 crowns, depending on the financial capacity of the local authorities where they would work. If a doctor fell ill with cholera during his work, he would be paid for treatment in a first-class nearby hospital. In the event of the death of a doctor who had contracted the disease while performing his duties, his widow and orphans were entitled to certain fees, according to the decision of the Ministry of the Interior of 6 May 1856, No. 113. Doctors who accepted to be "cholera doctors" would also have priority when applying to a position in civil service. Municipalities would be obliged to provide free housing and transportation in the places where they would work. [1]

At the beginning of the war, there was great fear of a cholera epidemic. The Cholera Instruction issued in October 1914 stated that cholera is a disease transmitted

from a person who excretes disease germs in his feces. Caring for cholera patients is safe "if you avoid any contamination with their feces, do not eat, drink, or smoke in the patient's room." [11] The danger also lies in objects that are contaminated with the feces of cholera patients. It is stated that it does not spread through the air and that hygiene measures are very important: "cleanliness of the body, especially washing hands after every defilement (e.g. after using the toilet, op. a.) certainly before every meal; cleanliness of the apartment (especially the kitchen and toilet); keeping flies away, avoiding the use of suspicious drinking water (boil dirty water!)." [11] A light diet consisting mainly of fruits and vegetables is recommended. It is emphasized that they have no benefit in treatment: "protective medicinal products: brandy, cholera drops. Alcoholic beverages do not protect against or cure cholera. Recently, anti-cholera vaccination has often been recommended. In cholera, a period of half a day to five days elapses between infection and the onset of the disease. The most obvious are severe diarrhea of the "rice slime" type, vomiting, unquenchable thirst, cessation of excretion, urination, muscle cramps with pain (especially cramps in the calves of the legs), hoarse voice, and severe exhaustion." [11]

In World War I, cholera was treated by isolation and by giving lemon slices and water with a few drops of iodine. [12] The introduction of the cholera vaccine also led to a significant decrease in mortality. According to the instructions for cholera vaccination, the vaccine was a "dead vaccine" without the risk of causing infection. It was produced at the State Bacteriological Institute in Budapest. The vaccine was kept in a closed jar in a cool place and had to be shaken before use. First, the vaccine was poured into pre-heated porcelain dishes and then, after the skin was cleaned, it was injected. A Pravaz syringe was to be used for vaccination. Charles-Gabriel Pravaz (1791-1853) introduced into medical practice the use of the hypodermic syringe. The syringe was provided with an external nut working on a thread cut about the piston so that the contained liquid could be extruded drop by drop. Another novel item of this syringe was a slip joint, the needle being of steel and the hub of hard rubber. [13] The needle was changed after each vaccination. The needles were then boiled. A single dose of vaccine with a larger volume could be given or a double dose of vaccine, where half a cubic cm of vaccine was injected the first time and the entire cubic cm of vaccine was injected a week later. Since local reactions such as swelling or a rise in temperature and weakness could occur, soldiers had to be vaccinated at least a week before going to the battlefield. For two days after the vaccination, soldiers were spared from everyday activities. According to the military doctrine in Austrian army of the time in 1914, it was thought that about 600 soldiers could be vaccinated over two mornings in a 5-hour period. [14] Refusal to be vaccinated was considered military insubordination. [15] Depending on the severity of the insubordination, the punishment could be up to the death penalty. [15] During the war, there were mostly sporadic outbreaks of imported cases of cholera.

## Dysentery

The newspapers of the time wrote about the dangers of dysentery: "Dysentery is a transmissible intestinal disease that affects children and adults and can be fatal. It usually manifests with abdominal pain, straining, and bloody-mucous bowel movements. Dysentery can be defeated not only by treatment but even more so by prevention of infection, so cleanliness is the most effective tool." [16] Dysentery appeared in Dubrovnik even before the war. In 1898, 11 people were treated for dysentery in the hospital, of whom three died. A year later, there were 17 patients with no fatalities. In 1908, there was not a single case of dysentery, but with the arrival of the war, the situation changed. It was clear that the deterioration of hygienic – epidemiological conditions and the arrival of a large number of soldiers created the conditions for a large number of sick people. The newspaper *Narodni list* first warned more extensively about the danger of dysentery in September 1914. In the following years, there were occasional epidemics of dysentery in Dalmatia, and the situation was exacerbated by the arrival of sick soldiers. Dysentery is a disease characterized by abdominal cramps, frequent bloody and mucous stools, and tenesmus. The causative agents of dysentery are bacilli of the genus *Shigella*. [9] Vaccination against dysentery began in the Austro-Hungarian army in the second year of the war, only after more than 120,000 soldiers fell ill and 5,000 died.

In 1917, there were a total of 99 cases of dysentery. The following months stand out: July with eight cases and two deaths, August with 39 cases and two deaths, and September with 42 cases and two deaths. The following year, in 1918, there were seven cases of dysentery, two of which died. In 1919, there was a further decline in the number of cases of dysentery, with only two cases. [1] Dysentery continued to occur sporadically, as in 1925 with three deaths and in 1926 with two cases. [1]

## Tuberculosis

Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis*. The source of infection is a patient with pulmonary tuberculosis or tuberculosis of the larynx. [17] A patient with pulmonary tuberculosis excretes 10,000 bacilli in 1 mL of sputum, measuring 0.3–0.6 x 1–4 μm, so the disease is transmitted by droplets when the patient coughs, sneezes, sings, or spits. [19] It is believed to have existed for thousands of years. [17]

The First World War led to an increase in tuberculosis morbidity and mortality in most European countries. [18] In Germany and the Austro-Hungarian Monarchy, which Dubrovnik was a part of until the end of the war. there was a sharp increase that had not returned to the 1913 level even by 1920. [18] The state of war, poverty, and stress was exacerbated in 1918 by the influenza epidemic known as the Spanish flu, and tuberculosis mortality also increased due to the exhaustion of the body. [18] For example, in Austria in 1913, the annual mortality per 100,000 inhabitants was

259, while in 1918 it was as high as 403. [19] In the United Kingdom, the tuberculosis mortality rate increased again and interrupted its long-term decline, particularly in England and Wales. [20]

The recommendation of the Imperial – Royal Dalmatian Governorate in Zadar during peacetime was not to allow voluntary assistant caregivers to participate in the care of tuberculosis patients due to the possibility of "self-infection". [1] Under wartime conditions, the recommendation changed, allowing "voluntary caregivers to help those suffering from tuberculosis, but only those who have declared that they are ready and aware of the risk of contracting the disease, are trained, and reside in the institution under strict medical supervision and with regulated working hours". [1] During the first three years of the war in the Austro-Hungarian Monarchy, at least 100,000 soldiers died of tuberculosis, [21] and in the fourth year, another 17,000. [21] In wartime conditions, there was a shortage of medicines, vaccines, and medical supplies, while famine raged. [21] In 1916, 40% of newly infected people were recorded on the fronts due to inadequate supply and exposure to moisture and rain. [21] The disease was particularly prevalent among young soldiers. [21] In 1917, there were 433,000 tuberculosis soldiers in the Monarchy. In October 1918, a monthly report from the disabled welfare office of the Austro-Hungarian War Ministry listed nearly 40,000 tuberculosis invalids in hospitals in the hinterland alone. Over 50 percent of the disabled were Austrians, 40 percent were Hungarians, Slavonians and Croats, and slightly more than 7 percent were from Bosnia and Herzegovina. [21] The damage due to the care of the sick and the loss of working and military capacity was estimated at 160 million crowns. [21]

On May 22, 1916. Minister of the Internal Affairs for Cisleithania (the Austrian part of the Monarchy to which Dubrovnik belonged) Prinz Konrad of Hohenlohe-Schillingsfürst called for more energetic measures in the fight against infectious diseases, especially tuberculosis. [21] The reasons were the lack of militarily capable men, the decline in the birth rate, and the poor physical condition of children, who were future soldiers. [21] Tuberculosis patients were isolated in infectious and military hospitals in the hinterland and institutions organized by the Red Cross. [21] 18 million crowns were allocated for the construction of institutions and care for TB. [21] The reporting of the sick in the army was late, and it was only insisted upon from June 3, 1916. [21] The reporting of tuberculosis cases functioned completely only from February 24, 1919. [21]

Soldiers from the Dubrovnik area fought on numerous fronts (Serbia, Soča, East Prussia, Galicia, Greece) and fell ill and even died of tuberculosis. [6] The increased incidence of the disease among soldiers from Dubrovnik on the northern fronts was explained as a reaction to the colder climate. [22]

According to Austro-Hungarian military statistics per 1,000 soldiers, northern garrisons (Vienna, Budapest, and Graz) were less affected than southern garrisons transferred to the north (from Mostar, Kotor, Dubrovnik, and Zadar), while southern garrisons had fewer sick and dead from tuberculosis before the transfer. [22] According

to Dr. Orlić, at that time it was believed that soldiers from southern garrisons were accustomed to a milder climate and that heredity and national (!) disposition favored the development of tuberculosis. [22]

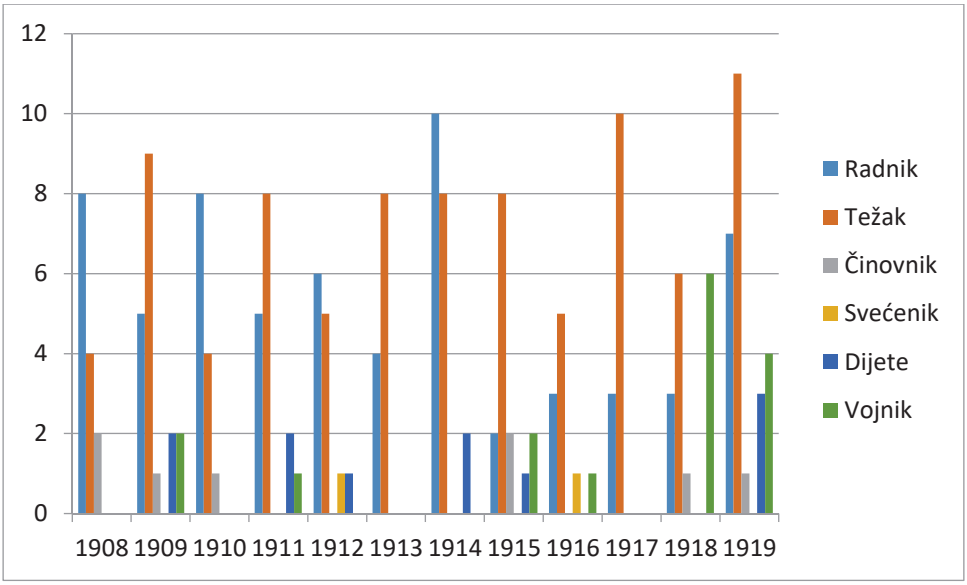
The longitudinal data from the Dubrovnik Hospital archives (1908–1919) reveals that pulmonary tuberculosis (TBC pulmonis) was the dominant clinical manifestation throughout the period, consistently representing the highest morbidity across all analyzed years. A gender-based distribution shows a persistent disparity, with males consistently outnumbering females, particularly during the peak years of the conflict. While the pre-war years (1908–1913) maintained a relatively stable baseline of about 10 deaths per sex per year, the onset and progression of World War I catalyzed a visible change in the hospital's epidemiological profile.

A significant surge is observed in 1914, likely corresponding to the initial mobilization and the arrival of the first waves of military personnel. However, a critical escalation of disease and death due to tuberculosis occurred in 1918, when a total of 49 people were treated, 26 died, 23 of them from pulmonary tuberculosis. [1] The high mortality rate remained the year after 1919, when 36 people died out of a total of 69 patients, 31 from pulmonary tuberculosis. [1] Beyond the pulmonary form, the data highlights the presence of more severe, systemic variations of the disease. Miliary tuberculosis and tuberculous meningitis — forms typically associated with high mortality and weakened immune systems — showed a notable clusters in 1918 and 1919. Other localized forms, such as intestinal and skeletal tuberculosis,remained sporadic but persistent, further complicating the clinical landscape. The emergence of generalized tuberculosis in the later war years underscores a total collapse of immune resilience among the treated population, serving as a stark indicator of the broader public health crisis that gripped Dubrovnik at the war's end.

In the increase of tuberculosis during the war years 1917–1919, the highest mortality of men and women is observed in the age group 16–30, and in 1918 and 1919, the highest increase in tuberculosis mortality among soldiers. [6] The category of soldier in tuberculosis mortality appears in the graph only from 1909, but it is most pronounced in the war years. The occupational data reveals that peasants and manual workers were consistently the most affected groups, reflecting their socio-economic vulnerability. However, the emergence of soldiers in 1918 and 1919 serves as a clear epidemiological marker of the war's end and the return of infected troops to the civilian hospital. The worsening of tuberculosis mortality in the war years of 1918 and 1919 among peasants and workers is a likely consequence of returning from the front and the Spanish flu. (Chart 1.)

Chart 1: **Distribution of patients by social status and occupation (1908–1919).**

Source: Antun, Car. *Skonsumacijun – Tuberculosis in Dubrovnik Society from 1825 to the mid-20th century. Dubrovnik: University of Dubrovnik; 2023.*




**Legend:**
**Worker** (*Radnik*), **Day Laborer / Peasant** (*Težak*), **Civil Servant / Official** (*Činovnik*), **Clergyman / Priest** (*Svećenik*) **Child** (*Dijete*), **Soldier** (*Vojnik*).

## Malaria

Malaria is an infectious protozoan disease of humans caused by blood parasites of the genus *Plasmodium* and transmitted by the bite of mosquitoes of the genus *Anopheles*. It is characterized by periodic attacks of fever, splenomegaly, and anemia. [9] Worldwide, the danger of malaria was recognized and serious eradication measures were undertaken. Istria encountered malaria in the late Middle Ages. According to American medical historian Frank M. Snowden, malaria is a social disease, a marker of poverty, economic impotence, and general underdevelopment. [23] By engaging Robert Koch and his associates in Istria, through the proper administration of quinine to the population, petrolization, mechanical protection of household windows, and microscopic control of immigrants, significant success was achieved in the fight against malaria. [23] The First World War led to an "explosion" of malaria in the Kingdom of Italy. [23] Istria was close to significant malarial areas of Italy—the Isonzo (Soča river) front (between Austria and Italy, between the inaccessible Dolomites, the high areas of Trentino, and the coastal, lowland area between the Isonzo, Tagliamento, and Piave rivers). The conditions that worsened the malaria infection were the high concentration of people in a small area,

the importation of *malariae tropicae* from the Salonika front to the Isonzo front, the avoidance of taking quinine by soldiers hoping that they would be sent home after falling ill, and the creation of new mosquito habitats in deep craters caused by heavy artillery bombardments. [23]

At the end of the First World War, Italy still had a high mortality rate from malaria, about two million people annually. [4] In September 1915, more frequent illness and death from malaria were also noted in the Austro-Hungarian army. The Dalmatian Viceroyalty instructed hospital doctors to watch for possible malaria and, if they suspected it, to prove it with microscopic blood analyses and then to start treating it with quinine as soon as possible. The nearest large reservoir of malaria to Dubrovnik was the Neretva valley. Historically, along with the Neretva, Rijeka Dubrovačka, Ston, and Župa Dubrovačka were seats of malarial threats. As a small town in a field surrounded by water-filled inlets, Ston was particularly exposed to the infection. Some citizens of Ston still repeat the urban legend that the walls of Ston are in the shape of the letter M due to the 3 M's: Malaria, Maledizione, Morte (malaria, curse, death). There were several other malaria hotspots in the Dubrovnik area.

Rijeka Dubrovačka was a smaller focus first described in the Republic of Dubrovnik in 1459. At the beginning of the 20th century for malaria in Župa Dubrovačka, residents blamed the numerous excavations of Count Bernard (Brnje) Caboga's brick factory, where water would accumulate and mosquitoes would breed. Dubrovnik representatives even sought the intervention of the imperial government, but Caboga's influence was too strong. Nevertheless, the government began to carry out land sanitation and drainage channels before the war, but Count Caboga "continued to irrationally and without lawful permission, make pits in which water was retained even during droughts." [24] In the lists of diseases at the Dubrovnik hospital, the name *febbre intermitente* was used, and in the Dubrovnik area, also *f. algida* and *f. perniciosa*. [25] Pernicious fever is an outdated term used to describe a severe form of malaria, also called pernicious malaria, primarily caused by the parasite *Plasmodium falciparum*. It manifests with high fever and impaired consciousness and, if left untreated, can progress to coma and death. In the report for 1898, 27 people were recorded under the diagnosis *febbris intermittens*. [1] In the report for January 1900, there were 45 cases of *febbris intermittens*, and in 1908, already 68 cases. [1] It is interesting that despite such high numbers of hospitalized patients, there were no deaths, unlike the war years when exhausted soldiers, despite their youth, died in large numbers. Namely, at the end of the war, local Dubrovnik newspapers reported the names of dozens of soldiers who died of malaria in the military or city hospital. These were mainly soldiers who did not fall ill in these areas but were sent for treatment to Dubrovnik healthcare institutions. In *Prava Crvena Hrvatska*, the death of several young soldiers from malaria in Dubrovnik was recorded during one week. In another article in the same month, it was stated that during two weeks in October 1918, 48 soldiers, mostly from different parts of the Austro-Hungarian Monarchy, among them several

deceased soldiers of unknown identity and rare Russian prisoners, died of malaria in two military hospitals, in the city and in Gruž. [26] In 1919, 56 cases of malaria were treated in the Dubrovnik hospital, 55 a year later, and 17 cases of malaria in 1921. [1] In 1922, the gradual decline in malaria incidence continued with 20 patients. [1] However, there was no lasting reduction in the number of malaria patients. After 1923, the number of patients dropped to 11, and in 1924, there were 40 patients treated in the hospital, in 1925, there were 67, and in 1926, 17 patients were treated in the hospital. [1] Only later did measures to clean up malaria hotspots in the Dubrovnik area lead to the complete eradication of malaria years later.

**Relapsing Fever**

The Dubrovnik District Governorate warned on April 8, 1915, about the danger of relapsing fever (*febbris recurrens*) and the need to destroy the lice that transmit it. [1] Relapsing fever had existed in Europe since ancient times and was first described by John Rutty in 1939. In 1868, Otto Obermeier discovered the causative agent. The causative agents are various species of spirochetes of the genus *Borrelia*. [9] The letter from the District Governorate particularly drew attention to the characteristic symptoms of the disease, the alternation of periods of high fever and myalgic syndrome with spleen and liver swelling, followed by a period of profuse sweating with a drop in temperature when the patient feels well. It warned of the danger of infection during blood analysis or contact with the spirochete, the causative agent of the disease. It is evident that there were many cases of misdiagnosis of the disease due to possible combinations of infectious diseases: typhus, typhoid fever, and dysentery. The Governorate also recommended that *febbris recurrens* be treated with salvarzan or neosalvarzan and typhus symptomatically. [1] *Febbris recurrens* remained a problem for Dubrovnik for years, with seven patients still being treated at the Dubrovnik hospital in 1921. [1]

The Provincial Red Cross Aid Society for Dalmatia asked the Dubrovnik hospital to complete patient reports for the half - year period. In the "Remarks" section of the reports, the diagnoses of diseases that were specifically monitored were listed: measles, cholera, typhoid fever, typhus, dysentery, tetanus, and frostbite. [1] In a letter from the District Governorate titled "War, danger of smallpox," it was requested that all doctors, nurses, orderlies, and administrative hospital staff who had not been vaccinated in the last six years be urgently vaccinated against smallpox. [1]

**Epidemic Typhus, Spotted fever**

Epidemic typhus was a dangerous disease that spread explosively through Serbia in 1914, where around 150,000 people died in the first six months. [9] It is characterized by a sudden onset of illness, high-grade fever of the *continua* type, severe headache, a generalized rash, encephalitic symptoms, and a relatively high mortality rate. [9] Between 1917 and 1922, it is estimated that there were between 25 and 30 million cases of typhus,

with about three million deaths in Eastern Europe (including parts of what would later become the Soviet Union). [17] Given that epidemic typhus (*typhus exanthematicus*) is an acute infectious disease caused by the microorganism *Rickettsia prowazekii*, which is transmitted by the body louse (*Pediculus humanus corporis*), Vladimir Ilyich Lenin is said to have stated: "Either socialism will defeat the louse, or the louse will defeat socialism." [17] The pathogen, *Rickettsia prowazeki*, was discovered in 1916 by da Rocha Lima. He named it in honor of the American H.T. Ricketts and the Pole S.V. Prowazek, who both became infected and died while researching typhus. [9]

On the Western Front, the fight against lice was carried out with mobile laboratories, laundries, bathing, disinfection, and shaving of soldiers, as well as exposing clothing and laundry to steam, gases, and rubbing clothes with special anti-louse soaps. [17] The District Authority of Dubrovnik requested the director of the Dubrovnik hospital to strictly control for the presence of lice in sick soldiers admitted to the hospital, due to diseases transmitted by lice. [1] One Dubrovnik soldier described his encounter with body lice: "The nasty lice have attacked again like a wild pack. They give no peace, day or night!" [27] Epidemic typhus also appeared occasionally in towns surrounding Dubrovnik. For example, a case of typhus in a woman from the village Brgat is mentioned; she was later hospitalized in the infectious diseases lazaretto on St. James (Sv. Jakov), along with all her household members. According to local newspaper reports, she had a milder form of the disease and survived. [28] Two deaths from typhus were recorded at the Dubrovnik hospital in 1919 and 1921. [1]

## Spanish Flu

Upon review of the documents from the Gendarmerie Stations, some of which are located in the Archive of the Dubrovnik Hospital, data on Dubrovnik and other subjects of the Monarchy who were killed, went missing, or died can be found. The Spanish Flu, or simply the "Spaniard", also took its toll. It is believed that during the six months of the most intense breakout, it led to the deaths of more than 25 million people worldwide. [4] "The disease did not originate in Spain, but it was named after it because uncensored reports on the extent of the disease came from there, which other countries did not want to publish due to the demoralizing effect, as well as the desire for enemies not to find out about losses in manpower." [18] This was followed by an epidemic of lethargic encephalitis in 1919–1920, and then another wave of the Spanish flu. It appeared in three waves. The first wave went almost unnoticed, but in August 1918, the second wave of influenza was accompanied by severe, often fatal pneumonia. It disappeared as suddenly and mysteriously as it had appeared. [17] Even so many years after the epidemic, there is no completely accepted scientific explanation for how it appeared simultaneously in various parts of the world, or whether it was a consequence of the disease spreading through asymptomatic carriers. It is estimated that the Spanish flu affected between one-third and one-quarter of the world's population. One soldier

from the Dubrovnik hinterland who contracted the Spanish flu said: "Then the Spanish flu appeared. First on my friend Andro Miloslavić from Buići, and then on me. This way, we could at least serve one another. I was very scared because I had a high fever. A lot of people were dying every day in Zadar and Arbanasi, but my illness took a turn for the better". [27]

In the City, schools were closed, there were about a thousand infected people in October, and entire families were falling ill. [29] The hospital, which only had 150 beds, certainly could not have accommodated thousands of infected people, so it is assumed that a large number of those infected died at home.

In Vela Luka, the Spanish flu claimed 48 lives between November 6, 1918, and February 8, 1919; 75% of them were women aged 18–37. [30] In the entire Korčula district, it is believed that 295 people died from the Spanish flu. [31] The worsening epidemiological situation on the island of Korčula, as well as in other areas, was accompanied by the return of soldiers from the front at the end of World War I and the transmission of the Spanish flu virus. The average age of death in the Korčula district was 27.7 years, with children and young people under 15 accounting for a quarter of all deaths, and strong, healthy people aged 20–39 accounting for 43.1%. [31] Recipes for treating the Spanish illness in its initial stages also appeared in newspapers: "As soon as the patient feels weak, let them lie in bed and take elderflower tea (*sambucco*), linden flower tea, or black tea every 2 hours. But now comes the most important part: the cross-shaped poultice. A towel should be soaked in water, wrung out well, folded once, and placed from the right shoulder to the left hip, and another one in the opposite direction, from the left shoulder to the right hip. A dry towel is placed over it all and held for 3 to 4 hours, during which time the patient must sweat. At the beginning of the illness, even if the patient has a fever of 40 or 41 degrees, the fever can be driven out with these poultices in one or two days". [32] Among numerous attempted treatments, salicylates, tea, and mulled wine were given. [31]

In 1918, 61 people were treated for influenza with pneumonia (Spanish flu) at the Dubrovnik hospital, and 18 of them died.[1]It is likely that, due to overlapping symptoms, some of those who died from the Spanish flu were also diagnosed with pneumonia or fever.

## Diphtheria

Diphtheria is an acute infectious disease caused by *Corynebacterium diphtheriae*, which causes local inflammatory reactions of the mucous membranes of the nose, pharynx, or larynx with characteristic pseudomembranes. [9] Diphtheria primarily spreads through respiratory droplets (coughing, sneezing) and contact with infected wounds or lesions. Poor hygiene and sanitation, common in war-torn areas and overcrowded living conditions, facilitated transmission.

Due to the localization of diphtheria in the larynx, death by suffocation can occur. It can cause severe damage to other parts of the body through the action of its

toxins. The discovery of the anatoxin enabled active immunization and a successful fight against diphtheria. [9] Malignant forms had a high mortality rate. In more severe, complicated forms of the disease, patients most often die from myocarditis, and less frequently from suffocation. [33] It most often occurred in autumn and winter and was first mentioned in the City as a cause of death in Pile in 1862, and often affected children. [34] The number of diphtheria cases in the City increased sharply in 1917 due to the effects of World War I, poverty, hunger, and the lack of widespread vaccination at the time. Tracking the incidence in Dubrovnik in 1917, it was most common in September and October. According to some reports, almost 50 people have fallen ill, and one person died. Only one year later, in 1918, two people had diphtheria in the Dubrovnik hospital, one of whom died. [1] In 1921, two people were treated for diphtheria in the Dubrovnik hospital. [1]

**Anthrax (Black Pustule)**

During the war, no anthrax patients were found in the Dubrovnik hospital. After the war, in 1923, 1925, and 1926, individual cases of anthrax with fatal outcomes occurred in the Dubrovnik hospital. [1] For biological warfare, knowledge of spores as a method of disease transmission was important, as established by Louis Pasteur, thereby confirming that the causative agent of anthrax is *Bacillus anthracis*. Casimir Joseph Davaine and Aloys Pollender had previously hypothesized this, but could not prove it before Pasteur. Spores are very resistant to external influences and can survive for decades in the soil, on the skin, or in the wool of infected animals. In humans, the disease usually manifests as the cutaneous form, *pustula maligna* or malignant edema, and less frequently as the internal form, pulmonary and intestinal anthrax. [9]

**Tetanus**

Tetanus was a major problem during the First World War because the causative agent, *Clostridium tetani*, most often contaminated wounds caused by explosions of mines, grenades, or bullets. Tetanus was written about as far back as antiquity. Araeteus, a physician who also mentioned another important doctor for Dubrovnik, St. Blaise, the patron saint of the city, was the first to provide a detailed description of the disease itself. He described it as a disease of painful, life-threatening spasms. The body is so stiff that it cannot be turned or lifted, and this is followed by severe spastic spasms. If the body arches upwards, he speaks of opisthotonos, and if it arches downwards, emphrostotonus. From 1915, every wounded soldier received antitoxin (AnaTe), and tetanus was dramatically reduced. [4] Civilians, and even newborn infants, also died from tetanus due to the use of unsterilized instruments during childbirth. On September 27, 1918, a four-year-old boy died of tetanus in Vela Luka, and on October 26 of the same year, a child only 8 days old. [30] In 1919, one fatal case of tetanus was recorded in the Dubrovnik hospital, none

in 1920 and 1921, and two fatal cases in 1922. [1] In 1924, another fatal case of tetanus treated in the Dubrovnik hospital was recorded. [1]

### Trench Fever

Trench fever was, by classification, the second most important disease after the Spanish flu that reduced wartime capability. [17] It is caused by *Rickettsia quintana*, which lives in the intestine of human lice. It is characterized by recurring fevers and a prolonged course of illness. In humans, the rickettsia was found in the blood for up to 443 days after infection, and its peculiarity is that it survives for a long time in clothing and bedding, so the wounded can also be infected through a wound via clothing and bedding. It is estimated that about a million soldiers fell ill with trench fever during the First World War. [9] From the available records of the Dubrovnik hospital, no patients with trench fever were treated during the war years.

### Scarlet Fever (Scarlatina)

Scarlet fever is caused by beta-hemolytic streptococcus group A. It is transmitted via droplets, less often through contaminated objects and hands. It most often occurs in autumn. In the period without penicillin, such as the First World War, complications such as toxic arthritis, meningitis, or inflammation of the heart muscle or valves were common. [33] In 1917, 10 people were treated for scarlet fever in the Dubrovnik hospital, with no data on the severity of the disease; after a pause of several years, in 1921, one person with scarlatina was again recorded receiving hospital treatment. [1]

### Erysipeloid

Erysipeloid in humans is caused by *Erysipelothrix rhusiopathiae* and clinically resembles a milder form of erysipelas, which is caused by beta-hemolytic streptococcus group A. In erysipeloid, the cause is most often a carrier pig, mucus from infected fish, or shellfish. It is believed that working with a sick animal or the occurrence of the disease in a large number of people results in more severe forms of the disease and its faster spread. [9] In the Dubrovnik hospital, for years, a disease called *vrbanac* (erysipelas) was diagnosed, which likely referred to both diseases with similar clinical pictures. However, erysipelas, due to its causative agent, led to a more severe clinical picture and occasional fatal outcomes. In modern medicine, these two diseases can also be distinguished therapeutically because sulfonamides are not effective against erysipeloid, and penicillin preparations are mainly given. In 1918, two people were ill with *vrbanac*, the year after, three with one fatal outcome, and in 1920, there were four patients and again one fatal outcome. Two people were ill in 1921, one in 1922, and three in 1925. [1]

## Venereal Diseases

Before the First World War, there were letters to the management of the State Hospital Dubrovnik mentioning minor epidemics of venereal diseases among soldiers who were infected by local prostitutes. The Dubrovnik Municipality Police Regulations from 1913 stipulated that prostitutes had to be at least 17 years old, each had to have a separate room, a check-up before engaging in the profession had to determine that she was healthy and capable, and by going to the police commissioner she would be issued a health card and her personal documents would be kept. [35] It was stipulated that the health of the girls would be checked with the Wasserman test that they would be examined twice a week and that the findings would be recorded in their health cards and in the office book. [35]

All the infected prostitutes were treated at the Dubrovnik hospital. In November 1914, the Municipal Administration in Dubrovnik asked the hospital to keep infected prostitutes in the hospital for as long as possible due to the threat to public health. [1] During the First World War, the Meixler brothel became the largest, partly because they expanded their business to some smaller, earlier brothels. According to the register *Očevidnost bludnica* (Evidence of harlots) which covers the period from 1909 to 1925, records are kept of the health checks of prostitutes who, in addition to their names, also had "artistic" or rather, more attractive names for the work they did. For example, Vera was Ella, Katica was Violetta, one Marija was Bella, and the other Marija was Frida, while Stefanija became Vilma. There was also a practical reason, as there were many of the same names. The name Elizabeta was very common, so the Elizabetas themselves needed to be distinguished. At one point, there were three Elizabetas who became Vanda, Zelma, and Olga. [36] Regular examinations, which were recorded in the book Examinations of Harlots, were attended by police officers. Sometimes the doctors who performed the examinations were not satisfied with the activity of the police officers. The doctor's remark was that unskilled police officers were being sent: "Today's one did not know that he had to call the harlot in question by name and let her into the examination room. Warned that the doctor could be deceived by the harlots because there was already an uninvited Zeckier instead of Hutne on the table, he said to me – I won't be bothered!" [36] The doctor begged that such unprofessional police officers not be sent to him. If the doctor found that a harlot was showing symptoms of a venereal disease, he sent her to the hospital. In the period before the war, the number of prostitutes per examination varied from nine to sixteen. During the war, there was a great oscillation in the number of prostitutes, and their great mobility across the cities of the empire at that time was also noticeable. It seems as if they were employees of a larger organization that sent them to certain brothels and took care of how long they would stay there and where they would go afterwards. In the book *Očevidnost bludnica* (Evidence of Harlots), one can track where all the prostitutes were before arriving in Dubrovnik and where they went after working in the city. The most common cities from which they came were Sarajevo, Mostar,

Trebinje and Trieste, the last one being also as a frequent city to which the prostitutes go to. Among others mentioned are Pécs (Pecs, Funfkirchen), Sl. Brod, Kotor, Tyrol, Bileća, Mostar, Šibenik, Zagreb.

The example of the prostitute Elisabeth W. can be applied to most prostitutes. She came from a poor familiy that was further impoverished by the war. She was born in 1890 and was twenty-five years old when she was treated in the Dubrovnik hospital. All three of her brothers died in the war. Her sister remained in Hungary and Elisabeth tried to go as far as possible. So she was a prostitute in Herceg-Novi for two years in the Linenberger brothel, where she fell ill. The brothel manager, Sofija Linenberg, paid 120 crowns for the costs of her treatment. Since she was treated for a venereal disease, gonorrhea, and had no assets, the Herceg-Novi municipality subsequently compensated the costs to the brothel owner. Another prostitute from the Linenberg brothel, a Hungarian woman, twenty-four-year-old Iren, was left without both parents as a young woman. She was treated in a Dubrovnik hospital for a venereal disease. The costs of treatment were to be paid by the municipality of her affiliation, this time the Orphanage of the Pest-Piliš-Šolt County in Hungary.The hospital intervened on several occasions to have her costs paid because it was in a war zone and the money was late to the post office. The prostitutes were young. In the event that they contracted syphilis and could not continue prostitution, they sometimes stayed in brothels as maids. Working with Paul Ehrlich, the Japanese scientist Sahachiro Hata discovered a "yellow powder resembling a flower of sulfur," [37] a drug against the causative agent of syphilis, Treponema pallidum, and named it arsphenamine. This gave rise to Salvarsan ("salvation through arsenic") and then Neosalvarzan, which was also administered in the Dubrovnik hospital. [1]

Monitoring of hospitalized patients in the Dubrovnik hospital suffering from syphilis and gonorrhea from 1912 to 1918 does not show an encouraging decline in the incidence of sexually transmitted diseases (Table 1). [1] It should be noted that the increase in the number of people suffering from venereal diseases, which almost doubled from 1918 to 1919, proves that the end of the war and the return of the army (demobilization) brought greater pressure on the hospital than the war years themselves, probably due to the spread of the infection among the civilian population.

However, a slight decrease in the incidence of syphilis is observed towards the end of the period 1921 to 1924, when the war ended, and the number of soldiers in the Dubrovnik area decreased (Table 2). [1]

Table 1. Number of people suffering from venereal diseases in the Dubrovnik hospital from 1912 to 1918

| Year/Disease | 1912 | 1913 | 1914 | 1915 | 1916 | 1917 | 1918 |
|---|---|---|---|---|---|---|---|
| Syphilis + Gonorrhea | 105 | 100 | 118 | 97 | 111 | 105 | 59 |

Source: General Hospital Dubrovnik

Table 2. Number of syphilis and gonorrhea patients in the Dubrovnik hospital from 1918 to 1924

| Year | Syphilis | Gonorrhea | TOTAL |
|---|---|---|---|
| 1918 | 18 | 41 | 59 |
| 1919 | 40 | 60 | 100 |
| 1920 | 43 | 63 | 106 |
| 1921 | 47 | 39 | 86 |
| 1922 | 41 | 32 | 73 |
| 1923 | 18 | 52 | 70 |
| 1924 | 28 | 42 | 70 |

Source: General Hospital Dubrovnik

Despite institutionalized prostitution and the measures taken by Dubrovnik society, the decline in the number of infected people was very slow and indicated a permanent exposure to the infection supported by non-institutionalized prostitution, numerous brothels in Dubrovnik and the Bay of Kotor, and the large presence of soldiers in the Dubrovnik area.

## Conclusion

The reconstruction of the epidemiological profile of the Dubrovnik Provincial Hospital during the First World War (1914-1918) and the immediate post-war period reveals a health system under extreme pressure. Although most of the infectious diseases analyzed - with the notable exception of the Spanish flu - were present in the city prior the 1914, the war acted as catalyst for their epidemic expansion.

The findings indicate that the hospital's role was dual: it served as a critical treatment center for the civilian population (primarily workers and peasents as shown in Chart 2) and as a necessary facility for the military garrison.The data suggests that a lackof a radical "explosion" in total hospitalizations, compared to the general front-line statistics, can be attributed to the parallel existence of dedicated military hospitals in the City and Gruž. However, the civil hospital remained the primary "buffer" for the local

population against diseases brought by returning soldiers and the collapse of urban hygiene infrastructure.The impact of the Great War on Dubrovnik's urban health was not merely a metter of numbers, but of shifting disease landscape. From the chronic challenges of typhoid fever caused by water shortages to the devastating peak of tuberculosis and Spanish flu in 1918, the hospital documentation reflects the socio – economic exhaustion of the era. This study confirms that the wartime epidemiological profile of Dubrovnik hospital is an essential mirror of the broader humanitarian crisis that defined the end of the Austro-Hungarian administration in Dalmatia.

**Rezime**

Zarazne bolesti bile su vodeći uzrok smrtnosti među vojnicima i civilima tijekom Prvog svjetskog rata. Iako je većina tih patogena bila poznata prije sukoba, ratni uvjeti katalizirali su njihov prijelaz u raširene epidemije. Iako su cjepiva protiv tifusa, kolere i tetanusa značajno smanjila smrtnost, njihova je provedba često bila odgođena ili je nailazila na otpor javnosti. Ova studija analizira epidemiološki profil Dubrovačke bolnice, koja je funkcionirala i kao civilna i kao vojna ustanova. Održavala se stroga kontrola infekcija, posebno obveznim cijepljenjem protiv malih boginja za sve prijeme u bolnicu. Tijekom rata bolnica je prosječno godišnje liječila 1100-1200 pacijenata, od kojih je trećina bila vojno osoblje. Iako je Dubrovnik bilježio slučajeve pjegavog tifusa koji prenose uši, izbjegao je katastrofalne epidemije viđene na Istočnom frontu. Međutim, blizina močvara rijeke Neretve, u kombinaciji s priljevom zaraženih vojnika, rezultirala je visokom smrtnošću od malarije. Posljednju godinu rata obilježila je pojava španjolske gripe, koja je 1918. godine uzrokovala visok broj smrtnih slučajeva zbog teških plućnih komplikacija. Tuberkuloza je ostala stalna prijetnja tijekom cijelog razdoblja, dok je visoka učestalost spolno prenosivih bolesti među vojnicima značajno utjecala na vojnu spremnost. Druge bolesti poput difterije, tetanusa, erizipela i šarlaha dodatno su zakomplicirale javnozdravstveni krajolik. Ovo istraživanje također se bavi izazovima fragmentiranih arhivskih zapisa i gubitka dokumentacije iz Vojne garnizonske bolnice i Lazaretta sv. Jakova, što ograničava potpunu statističku rekonstrukciju određenih ratnih godina i stopa smrtnosti djece. Rekonstrukcija epidemiološkog profila Dubrovačke bolnice tijekom Prvog svjetskog rata (1914–1918.) i neposrednog poslijeratnog razdoblja otkriva zdravstveni sustav pod ekstremnim pritiskom. Iako je većina analiziranih zaraznih bolesti – s izuzetkom španjolske gripe – bila prisutna u gradu prije 1914, rat je djelovao kao katalizator za njihovo epidemijsko širenje. Nalazi pokazuju da je uloga bolnice bila dvostruka: služila je kao ključni centar za liječenje civilnog stanovništva (prvenstveno radnika i seljaka kao što je prikazano na grafikonu 2) i kao nužan objekt za vojni garnizon. Podaci sugeriraju da se nedostatak radikalne „eksplozije" ukupnih hospitalizacija, u usporedbi s općom statistikom na prvoj crti bojišnice, može pripisati paralelnom postojanju namjenskih vojnih bolnica u Gradu i Gružu. Međutim, civilna bolnica ostala je primarni „tampon" za lokalno stanovništvo od bolesti koje su donosili vojnici koji su se vratili i kolapsa urbane higijenske infrastrukture. Utjecaj Prvog svjetskog rata na urbano zdravlje Dubrovnika nije bio samo pitanje brojki, već i promjenjivog krajolika bolesti. Od kroničnih izazova tifusa uzrokovanih nestašicom vode do razornog vrhunca tuberkuloze i španjolske gripe 1918. godine, bolnička dokumentacija odražava socio-ekonomsku iscrpljenost tog doba. Ova

studija potvrđuje da je ratni epidemiološki profil dubrovačke bolnice bitno ogledalo šire humanitarne krize koja je definirala kraj austro-ugarske uprave u Dalmaciji.

**Ključne riječi**: Prvi svjetski rat; urbano zdravlje; zarazne bolesti

Non MeSH: Dubrovačka bolnica; epidemiološki profil; ratna medicina

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