PREVENTIVE MEDICINE IN CROATIA THROUGH TIME AND SPACE

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The Croatian preventive medicine was well-known in the world through history. It was famous from the time of the quarantine in Dubrovnik, through sanitary cordon and contribution in obligatory first immunization against smallpox. Croatia presented Andrija Štampar as the leader in preventive medicine from the World war I till the sixties. We owe him all kinds of public health work both in organization and education as well as the initiating the World Health Organization.

Knowledge and capabilities of Croatian preventive medicine workers were demonstrated the most clearly during the Croatian homeland war in 1991/92 when the infectious diseases as permanent war companions did not have effect on the state of health of the people in Croatia.

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Croats came to the areas in which they live today at the end of sixth and in the beginning of seventh century and quickly accepted the civilization of Ancient Rome. Coastal towns from Akrila to Drač became the foci of preventive medicine ideas. Urbanized cities with high levels of infrastructure and verified Phoenician-Mediterranean traditions of communicable disease control were the best defense against the pandemic spread of plague diseases. The ruling period of the Croatian kings has left us little evidence, but one could conclude that infectious disease control was successful since the blossoming of any state in those times was not possible without a well-organized medical service. Due to the loss of independence and partial loss of sovereignty by Pacta Conventa in the year 1101, economical impoverishment, the Mongol invasion, and Turkish army at the borders, health conditions throughout Croatia deteriorated a great deal. The only free territory in the Croatian state was the Republic of Dubrovnik. Dubrovnik lived open to the world, and was subsequently vulnerable to the disasters of those times like pandemics of plague diseases. Citizens of Dubrovnik could not give up the trade that provided their living, but did not want to permit the entry of contagious diseases to their town, since this would mean the end of their independence as in many other instances of city-states in the Mediterranean.

On July 27, 1377, the health officers suggested, and the Great Council of Dubrovnik ordered, an obligatory quarantine for all the people, cattle and goods coming from the unsafe Mediterranean areas.

The Lazaret of Split was opened in 1592, but afterwards it was forgotten for a long period. Its importance was fully reviewed last year on the celebration of its 400th anniversary. It was built by a Split citizen, Daniel Rodrigo. Documents on the Lazaret of Split were published, but its exceptional role in Croatian, European and world history was not yet fully recognized. In those times Split was a "golden ring" between the East and the West. The significance of the Lazaret of Split was not in the size of the building front, which was bigger than Diokletian’s palace. The importance of this institution was rather in its perfect organization of the acceptance and disinfection of goods, and in its quarantining all the passengers approaching the door of Europe in numerous caravans. The Lazaret of Split could not be useful without being incorporated in the complex and strict design of an infectious disease control system. The whole border between southern Croatia and Turkey was included, together with a firm sanitary review of the caravans and goods on their way from the border to the Lazaret in Split.

The sanitary cordon was the next preventive concept on Croatian soil. On October 22, 1728, Karlo III issued a patent that introduced protective measures against infectious diseases coming from Turkish lands. This date marked the beginning of the sanitary cordon of the Military Krajina (frontiere). It was essentially a police and military preventive measure having an additional medical meaning. Two different worlds were confronted at this border, reflecting two militant strategies, two cultures, two religions, and two opposite life-styles. Therefore, a health certificate was introduced for the identification of each traveler, and a statement was also made on traveling through infected areas. This was followed by the separation of the passen-
ger and his cargo, the latter being examined for infestation and disinfected. The sanitary cordon that was adopted on the continental parts of Croatia provided land to land protection against contagious diseases, in contrast to the Lazzaret of Split, which provided the sea to land protection.

The first medical book printed in the Croatian language had a great meaning for the history of medicine in Croatia. It was published in Varadžin by the physician Jean Baptista Lalangue in 1776. The book gave practical advice to the public on the treatment of the diseases. It represented a sociological-medical evaluation of public health circumstances in Croatia in those days.

Immunization was the greatest discovery in the prevention of infectious diseases. In 1788, E. Jenner introduced this method with his smallpox prophylaxis. The first proclamation on free vaccination against smallpox in Dalmatia was dated as early as December 10, 1803, and from the year 1807 the vaccination was obligatory and carried out very rigorously.

Vice roy V. Dandolo, along with this great preventive decision, was also connected with the opening of medical schools in Dalmatia. In the town of Trogir he founded St. Lazare College, and in 1806 the first medical faculty in Zadar, providing education in internal medicine, surgery and pharmacology.

In the beginning of the nineteenth century specialized hospitals were also opened. One of these was located in Kraljevica and specialized in the treatment of certain forms of endemic syphilis.

On July 7, 1878, a water supply system was opened in the city of Zagreb. Accordingly, citizens were provided with high quality drinking water, and, moreover, the path towards communal hygiene as an important discipline in public health was opened.

At the end of last century several interesting discoveries in the field of preventive medicine were made in Croatia.

Antun Heinz, a professor of botany at the University of Zagreb, was the first to use a microscope to examine the faeces specimen for cholera in 1886, and that happened only two years after Robert Koch had identified the causative agent. He founded the bacteriological laboratory on the Botanical Institute, which performed bacteriological analyses for the public health service. In the same year, a military physician in the Austrian army forces named Jelinek, a Czech by birth, was the first to describe sandfly fever (Febris pappataci) in our country, although it was the Austrian Pick who was honored for the discovery. The manifestation of endemic syphilis, the so-called ‘škrjevska bolest’, and sandfly fever as reported from Croatia were the first in medical literature on those subjects.

In the Šibenik town hospital Božo Perić used a microscope for echinococcus diagnosis. In this way he contributed to the struggle against a disease that presented a major health problem in southern Croatia.

In 1891, the Institute for Sea Biology was founded in Rovinj. Since 1900, this organization has grown into a true scientific institute. Many well-known scientists worked there, and the most famous among them were: Fritz Schaudin, who discovered the causative agent of syphilis; Stanislav Prowazek; and Robert Koch, who continued his work on the Brijuni islands. His microscope, which still stands there, keeps the memory of his presence.

As they discovered usefulness of immunization against smallpox, Croatian physicians took the initiative in vaccination promotion as well as in introducing animal lymph vaccination. All of this led to the making of vaccines.

In 1875, Tomo Marek suggested "The organization of making pure bovine vaccine under authority of the government." It was proposed that the Institute should be located on the land of Count Erdey in the Moslavina region. The medical council rejected this idea. However, fifteen years later, without any legal permission, Izidor Schlick, the city physician in Bjelovar, began the manufacturing of an animal derived vaccine against smallpox. In the same year 7,400 children in Croatia were vaccinated with the vaccine he had produced. The law on vaccination against smallpox was accepted on July 6, 1891.

In 1893, Adolph Fodor founded the Institute for Animal Vaccine Against Smallpox in Zagreb. At the beginning the Institute was located at Gundulićeva Street 33, and in 1896 it moved to a new building at Gundulićeva Street 57. The Institute produced vaccines against smallpox for Croatia, Slavonia, Dalmatia and Istria. Today the Institute of Immunology in Zagreb continues this work.

In 1901, Ferdo Kern, a doctor of veterinary medicine and a bacteriologist, founded the first private bacteriological institute that produced biological substances for veterinary medicine. Until 1907, he also performed analyses in the field of human medicine, when needed.

In 1907, Ljudevit Gutschi founded the first private bacteriological institute in Zagreb. His institute served as a nucleus for the development of the State Institute of Bacteriology in Zagreb, which was founded in 1912. Since 1914, vaccines against typhoid fever, paratyphoid and cholera, and dysentery have been produced in the Institute.

The Pasteur Institute was founded by Decision No. 657 of the Health agency of Peoples Council of the State of the Slovenes, Croats and Serbs, on November 19, 1918. It was the first institution of this kind in Croatia. The institute’s establishment was closely connected with the decomposition of the Austro-Hungarian Monarchy. The Croatian Parliament, in its session on October 29, 1918, concluded that the legal state connection of Croatia with Hungary had ended. Among many difficulties that arose after the breaking of the old Monarchy was
also inability of sending individuals bitten by rabid animals to Vienna or Budapest. However, the Peoples’ Council was able to make the decision on starting the Pasteur Institute in Zagreb, since all the necessary conditions had already been fulfilled. There were well-educated personnel present under the leadership of Ljudevit Gutschy, as well as the outstanding laboratory of the Hygienic-bacteriological Institute in Kačićeva street in Zagreb. Gutschy had worked in Vienna with Paltzau and collected the knowledge essential for producing the rabies vaccine and its administration to persons bitten by infected animals. From the year 1916 till 1918, he carried out with agility the arrangements for the opening of a new Pasteur Institute. Upon learning that the Pasteur Institute would be opening, he returned to Zagreb and finished the first series of the rabies vaccine as early as December 26, 1918. He instantly made appropriate posters and exhibited them at the Zagreb Railway Station. In these posters he informed the public that people bitten by animals did not need to travel to Vienna or Budapest for antirabies treatment. Complete vaccination could be performed in the Pasteur Institute in Zagreb. The antirabies vaccine made in Croatia was administered for the first time on December 26, 1918. From the inadequate quarters in Kačićeva street, the Pasteur Institute moved to the Zaklada (founding) Hospital, and soon afterwards to the Orthopedic hospital in Kukovićeva street, and in 1921 to the Sisters of Mercy Hospital. When needed, the hospital in Velika Gorica was also used for the patients of the Pasteur Institute.

On October 1, 1927, the Pasteur Institute moved to the new Hygienic Institute and School for Public Health building, and was renamed the Antirabies Department of the Hygienic Institute. The patients were hospitalized in the Hospital for Infectious Diseases »Zeleni brije«. The Institute carried out the organization of the antirabies service, as well as preparation and production of the rabies vaccine or human use and biological investigations on the rabies virus. In 1958, the Institute finally moved to the City Hygienic Institute building at Mirogojska street 16. Under the name of the Antirabies Station fulfilled its duties in rabies control and vaccination protection.

The development of preventive ideas in Croatia after World War II was marked by the work of Andrija Stamper. All the thoughts and ideas that Stamper presented and implemented as a creator of modern preventive medicine in Croatia and in the world are hard to enumerate.

The Hygienic Institute and the School of Public Health are symbols of Croatian preventive medicine. Both institutions were built by Stamper with help from the Rockefeller Foundation. The Hygienic Institute was the axis of all preventive medicine institutions in Croatia, since it became a prototype for other similar institutions formed later on Varazdin to Osijek and Split. The objective of these institutions was the prevention of infectious diseases, and education on health preservation. The School of Public Health is the basic teaching and scientific institution in the field of public health in Croatia. According to the original idea of Andrija Stamper, the basic schools were opened for health workers in the field of public health affairs, and professionals in hygiene and sanitation were educated. Huge preventive campaigns were carried out. Actions on malaria control took place in Dalmatia and along riversides in Croatia. Andrija Štarčić founded the Institute for Malaria Investigations and Control in Trogir.

Numerous stations for trachoma control were established, as this disease had been an important health problem in many parts of Croatia.

Medical care facilities for the prevention and treatment of syphilis and other sexually transmitted diseases also represented the public health work of Andrija Stamper. His idea to provide health protection for the whole population was most obvious in his founding of the health stations and health homes that developed in many places and cities. Different specialized medical facilities were opened. Particular attention was given to preschool and school children, pregnant women, and, in those days, to the large population which was sick with tuberculosis.

Within the preventive institution framework, the Disinfecting Institute in Zagreb was founded, with its main activity in lice control, as body lice were of great medical importance in louseborne typhus transmission. This institute played a significant role during the World War II.

In the period when Banovina Hrvatska was created and later, under the administration of the Independent State of Croatia, the endemic syphilis problem was present in Bosnia. The endemic syphilis control campaign was organized and carried out by Ante Vuletić. Branko Richter made a large contribution by organizing the Malaria Eradication Program in the Continental Areas. It was the first such program carried out in Europe, and it resulted in the total eradication of malaria in our country.

After World War II, significant changes in the obligatory vaccination schedule were made. Consequently, introducing vaccination against tetanus and diphtheria, led to a great decrease in the incidence rates of those diseases. Afterwards, vaccination against diphtheria, tetanus and pertussis was introduced.

The first controlled vaccination campaign against typhoid fever was performed by Branko Cvjetanović and Zlatko Benčić in Osijek in the early fifties.

After the oral vaccine against poliomyelitis had been introduced, its morbidity rates decreased so much that in many years there were no reported cases.
At the end of the sixties, vaccination against measles and subsequently against mumps and rubella was introduced in the immunization schedule.

The Antirabies station of the Zagreb Institute of Public Health made a substantial innovation in anti-rabies vaccination. It was called the Zagreb Vaccination Scheme. The procedure, designed by Željko Baklaić, Mate Ljubičić and Janko Vodopija, was adopted by the World Health Organization as one of the official procedures in post-exposure protection against rabies.

Croatian preventive medicine had a major role in rat control programs since 1934, when Josip Berlot organized a program of that kind in the city of Zagreb. Later, the procedure was substantially improved.

In the summer of 1969, the mosquito control program in Zagreb was organized, consisting of aerial treatments from the ground as well as from the air. The procedure was later practiced in Osijek and on the Adriatic riviera. With constant improvements, the program is still in operation.

In the newest history of the Croatian state, from the year 1991 to the present, preventive medicine has shown its historic qualities. In the serious days of warfare the public health service had the important assignment of preserving the health and lives of people living under elevated risk. In focus were infectious diseases and all the procedures used for their prevention.

Despite the war’s destruction, displaced persons and refugee camps, and generally low standards of living, minimal living conditions had to be maintained on each part of the territory:

• providing the people with sufficient quantities of healthy drinking water;
• safe and medically supervised public nutrition;
• accurate surveillance of the incidence rates of infectious diseases and epidemic outbreaks on the whole territory;
• special surveillance of number, sex distribution and morbidity of infectious diseases among the displaced persons and refugees as especially vulnerable populations, and supervision of the camps.

In order to secure the fulfillment of all the necessary measures and procedures in a unique and efficient way, a system of vertical and horizontal connections between public health workers in Croatia was organized. On April 15, 1991, by order of the Minister of Health, the Department for Preventive Medicine situated in Zagreb, as a part of Medical Headquarters Corps of Ministry of Health, acted as central and coordinative body. Preventive medicine protection in the field was carried out by the Hygienic-Epidemiological Centers organized in each dominant region. Each Center was conducted by a coordinator — an epidemiologist from that particular region.

By such organization, a unified doctrine of preventive acts and measures was established. Water supply and public nutrition supervision were provided in a unified manner according to the directions of the Central Preventive Medicine Department. Accordingly, tetanus vaccination of vulnerable populations, as well as a vaccination campaign of displaced and refugee children were organized in a unified way over the whole territory. Principles of battlefield sanitation were established. A rat control program was started for areas destroyed by war. Many other problems were solved.

All the necessary preventive medicine, as well as hygienic and sanitary procedures, were provided by local professional and financial resources under the supervision of the Hygienic-Epidemiological Center coordinators. When needed, the Central Preventive Medicine Department provided professional advice and physical help. During the very hard times of war and the post-war period, despite shortage of materials and finances, the preventive medicine workers of Croatia successfully faced the increased risk of infectious disease morbidity and eliminated their influence on public health.

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Činjenice Pasteurevog zavoda 1918. godine u Zagrebu znači prekretnicu u zaštitu ljudi od bjesnoće i stvaranje nacionalnog zavoda u hrvatsko–ugarskom kojoj nastaje, između dva svjetska rata Hrvatska prevencija prožeta je poznatima, a kasnije svjetski poznatim javnozdravstvenim liječnicima Andrijom Stamparom, osnivačem zdravstvenih stanica, domova zdravlja, dispenzera, higijenskih zavoda i educativno–znanstvene institucije javnog zdravstva. Škola narodnog zdravlja u Zagrebu stvorena je uz pomoć Rockefellerove fundacije. Zdravstveni odjel i proizvodnja ukuće bili su osnove Stamparovog rada. Njegovo ime vezano je i uz osnivanje Svjetske zdravstvene organizacije.


I zaštitu ljudi od bjesnoće Svjetska zdravstvena organizacija prihvatila je zagrebački postupak koji je brzi, sigurniji i jeftiniji. U hrvatskom obrambenom ratu 1991/92. godine preventivna medicina je pokazala sve svoje povijesne odlike. Sve preventivno–medicinske mjere provode se kontinuirano od crte bojislnice do pozadine, primjenjujući suvremena saznanja preventivne, tako da povećani rizici bolje uživaju od zaraznih bolesti bivaju poništeni i bez utjecaja na zdravstveno stanje pučanstva.