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The Emergence of State Medicine and Municipal Doctors in the Ottoman Empire : The Medical and Sanitary Organization in Izmir during the Late 19th and Early 20th Centuries

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Abstract

This study focuses on municipal doctors and examines the emergence of "state medicine" in the modern Ottoman Empire. The establishment of local medical and sanitary organizations proceeded as an inseparable part of the reorganization of the new provincial system. Municipalities established in each administrative unit became the center of public health measures, and doctors trained at the new civilian medical school (1867) were appointed to each municipality. The percentage of municipal doctors employed in each region of Aydın Province gradually increased, from 40% in 1880 to 50% in 1890, and then to 80% in 1900. Hence, the turn of the 20th century signaled a time of change in the spread of state medicine in the modern Ottoman Empire. When the number of municipal doctors began to increase in the 1890s, significant efforts to improve the local sanitation administration also accelerated. These included the development of laws related to smallpox vaccination and food hygiene, employment and training of auxiliary personnel such as vaccinators and chemical inspectors, production of domestic vaccines, and development of chemical testing facilities.

Introduction

In the modern Ottoman state, the relationship between state and its people has undergone a major transformation. The structural transformation of the state, accompanied by the reform of the military and administrative systems, required raising the level of education and health of not only a few elites and members of the upper classes, but the entire population.[1] Since the modern state demanded a constant

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* Dates other than the Gregorian calendar are in the *Rumi* calendar unless otherwise noted. Month names are abbreviated as III~XII, I, II, starting from Mart.

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supply of useful human resources that had a certain level of education and a healthy body, the entire population became not just a tax-collecting unit, but a group directly related to national power.[2] This led to the reorganization of the educational system, with the expansion of public education on the one hand, and the development of "state medicine," i.e., a state-led medical and sanitary system, on the other.[3]

In the late 19th century, the Ottoman Empire embarked on reforms to improve medical and sanitary conditions in the countryside. In 1867, a civilian medical school (*mekteb-i tıbbiye-i mülkiye*) was opened in Istanbul. Graduates were appointed and employed throughout the empire and were expected to protect the lives and health of the local population. Most were employed in a municipality (*belediye*) established during the same period. In 1871, the "Regulation on Medical Administration" was enacted; this regulation defined the duties of municipal doctors, such as providing free medical treatment for inhabitants, reporting infectious diseases, investigating medical geography in each area, and performing legal autopsies.[4]

At the turn of the 20th century, the Ottoman territories continued to suffer from epidemics of plague, cholera, and other infectious diseases. However, the appointed doctors were not temporary health officers dispatched to infectious disease outbreaks, but were employed full-time in each community and assigned a broader role in promoting the health of society. They were required to target tens or hundreds of thousands of people in the local populations, compile statistics on their lives and deaths, investigate etiologies specific to the region and address them appropriately, and improve maternal and child health care through improved sanitary conditions and

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[1] For an overview of modern Ottoman medical and sanitary policies from this perspective, see İsmail Yaşayanlar, "Osmanlı Devleti'nde Kamu Sağlığın Kurumsallaşmasında Koleranın Etkisi," in Burcu Kurt and İsmail Yaşayanlar (eds.), *Osmanlı'dan Cumhuriyet'e Salgın Hastalıklar ve Kamu Sağlığı,* İstanbul: Tarih Vakfı Yurt Yayınları, 2017, pp. 2–24. Bureaucratic reforms and the transformation of the state structure, see Carter V. Findley, *Bureaucratic Reform in the Ottoman Empire: The Sublime Porte,1789–1922*, Princeton: Princeton University Press 1980; Carter V. Findley, *Ottoman Civil Officialdom: A Social History*, Princeton: Princeton University Press, 1989; Kemal Karpat, "The Transformation of the Ottoman State, 1789–1908," *International Journal of Middle East Studies*, 3/3, 1972, pp. 243–281.

[2] In his classic work, George Rosen argued that the development of public health ran parallel to the emergence of a centralized state that increased its concern for population and health to increase national power (George Rosen, *History of Public Health*, Baltimore: Johns Hopkins University Press, 2015).

[3] A few pioneering studies on this topic in Ottoman history can be found in the field of women and gender. See, Gülhan Balsoy, *The Politics of Reproduction in Ottoman Society, 1838–1900*, London: Pickering and Chatto, 2013; Tuba Demirci and Selçuk Akşin Somel, "Women's Bodies, Demography, and Public Health: Abortion Policy and Perspectives in the Ottoman Empire of the Nineteenth Century," *Journal of the History of Sexuality*, 17/3, 2008, pp. 377–420.

[4] "İdare-i Umumiye-i Tıbbiye Nizamnamesi (20 Jul. 1871/9 VII 1287)," in *Düstur*, Vol. 2, İstanbul: Matbaa-i Amire, 1289, pp. 800–803.

the dissemination of vaccinations. As epidemiology and bacteriology were rapidly progressed, they became the driving force behind preventive medicine. The "Duties of the Health Inspectors and Municipal Doctors" was published in 1909 after the beginning of the Second Constitutional Period; its preface concludes with the following:

> The health inspector and the municipal doctor must always keep in mind the national interest (*menafi-i vatan ve memleket*), and must serve the health of the dear people by engaging in a war of civilization (*mübareze-i medeniye*) against ignorance (*cehalet*), based on law and conscience.[5]

Municipal doctors were expected not only to work as medical professionals and treat the sick, but also to serve the "national interest," to fight against the "ignorance" that pervades society, and to serve the health of the people. In other words, the municipal doctors who grew up in modern governmental medical school were to serve the "national interests" by improving the level of health in the society as a whole by targeting both the sick and the healthy people in the community.

The prevalence of medical and sanitary policies in the countryside and the importance of the medical profession in those areas are common features in many modern states.[6] Several recent pioneering studies of Ottoman history have emphasized the co-temporality of the modern state. While the training of doctors and the development of laws have been discussed, the general trend has been arguing that local health policies have stagnated. Studies have emphasized the small number of doctors, those whose salaries have not been paid due to financial difficulties, and protests by the local population.[7] However, as this study shows, the number of municipal doctors in the Aydın Province has steadily increased over time, and in some areas, such as Izmir, several doctors were employed, as well as a vaccinator and a midwife. Therefore, the question at hand is how "state medicine" materialized in each

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[5] Meclis-i Umur-ı Tıbbiye-i Mülkiye ve Sıhhiye-i Umumiye, *Sıhhiye Müfettişlerine ve Etibba-yı Belediyeye Ait Vezaif*, İstanbul: Arşak Garoyan Matbaası, 1326, p. 5.

[6] For an example of a discussion related to other countries and regions, see Nancy Frieden, *Russian Doctors in an Era of Reform and Revolution, 1856–1905*, Princeton: Princeton University Press, 1981; Evelyn Ackerman, "Medical Care in the Countryside near Paris, 1800–1914," *Annals of the New York Academy of Sciences*, 412, 1983, pp. 1–18.

[7] Ceren Gülser İlikan-Rasimoğlu, "The Foundation of a Professional Group: Doctors in the Nineteenth Century Modernizing the Ottoman Empire (1839–1908)," Ph. D. Dissertation, Boğaziçi University, 2012; Rüya Kılıç, *Hasta, Doktor ve Devlet: Osmanlı Modern Tıbbında Hastalıkla Mücadelenin Bitmemiş Hikâyeleri*, İstanbul: Kitap Yayınevi, 2020; Erdem Aydın, "19. Yüzyılda Osmanlı Sağlık Teşkilatlanması," *Osmanlı Tarihi Araştırma ve Uygulama Merkezi Dergisi*, 15, 2004, pp. 185–207.

region where the municipality and municipal doctors functioned, considering the medical and sanitation environment of the surrounding society.

The main sources for this study are local Ottoman newspapers, sanitary journals, *Düstur*, contemporary literature, provincial yearbooks, and doctors' biographies. Taking the port city of Izmir and the surrounding areas in Western Anatolia as a case study, this study elucidates the specific duties and roles of municipal doctors. How widespread were municipal doctors throughout the region during the late 19th and early 20th centuries? How were their various duties performed in the local medical environment? Did the shift from treatment to prevention in medicine change their roles? To clarify these aspects, we will examine the spread of state medicine to local societies in the modern Ottoman Empire.

Opening the Civilian Medical School

The Civilian Medical School, which opened in 1876 in Istanbul, began by borrowing a building from the existing Imperial Medical School. The school produced 584 doctors and 422 pharmacists in 25 years between its opening and the end of the 19th century[8]; it became the medical faculty of *Darülfünun* in 1908, when it merged with the Imperial Medical School and continued to send modern doctors to various parts of the empire.

This school was established primarily to resolve the shortage of doctors in the countryside. This shortage occurred because modern medical education in the Ottoman Empire began as part of military reforms. The Military Medical School, which opened in 1827 and later became the Imperial Medical School, primarily produced military doctors. Mustafa Münif Paşa, an obstetrics teacher at the civilian medical school, explained the reasons why the school was opened, stating that foreigners who heard that medical specialists were in demand in the Ottoman territories had become *şarlatan* (quacks) by attending medical institutions for only a few months, obtaining certificates, and then roaming all over the Ottoman Empire.[9] Dr. Salih Efendi, who was the Director of the Imperial Medical School at that time, wrote in a letter to the Grand Vezir that the war had called local doctors out of the country, and that these vacancies were being filled by foreigners without formal

[8] Besim Ömer, *Nevsal-i Afiyet*, İstanbul: Alem Matbaası, 1315, p. 74. The 25 years from 1290 A.H. to 1315 A.H. correspond approximately to the period from 1874 to 1899.

[9] Mustafa Münif Paşa, "Mektebi Tıbbiyei Mülkiyenin Tarihçesi," in Mazhar Osman, *Sıhhat Almanakı*, İstanbul: Kader Matbaası, 1933, p. 68.

qualifications.[10] Mustafa Enver, who graduated from the Civilian Medical School in 1876 and later worked at *İzmir Gureba-i Müslimin Hastanesi*, was assigned to the reserve corps in Muğla as a military doctor right after graduation. He served in the Balkans for about three years before taking a local position.[11]

The civilian medical school sought to resolve the shortage of doctors by offering medical students certain benefits, such as medical license (*diploma*) holders being exempt from conscription, receiving decorations at the rank of civilian doctor, and being exempt from doctoral examinations. Graduates then worked in government organizations in various regions after graduation.[12] Admission was open to all Ottoman subjects, regardless of their religious affiliation, who were aged 16–25 and had graduated from a *Rüşdiye* school or possessed equivalent knowledge. The study period was originally five years but was soon changed to seven years when clinical education was added. There have been several changes since then; in 1898, for example, the program was six years long and comprised four years of basic studies and two years of clinical training. Although the school recruited applicants from the countryside, it lowered costs by functioning as a commuter school rather than a boarding school.[13]

The longer study period required by the French-language medical education was recognized as one factor that made it difficult to train doctors; therefore, medical education in Turkish was introduced at the school. In 1870, the military medical school also began using Turkish in lessons.[14] The translation of foreign medical books and medical terminology into Turkish began even before the civilian medical school

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[10] Ayten Altıntaş, "Mülkî Tıbbiye'nin Kuruluşu," *Tarih ve Toplum*, 184, 1999, pp. 217–218. Salih was the last Ottoman court doctor (*hekimbaşı*, abolished in 1850) and was appointed as the head of the medical school in 1865.

[11] Cemil Şerif, *Merhum Şeyhületibba Operatör Mustafa Enver Beyin Hatıraları*, İzmir: Bilgi Matbaası, 1933, pp. 8–10.

[12] As discussed below, it was a little later that public service in the provinces became obligatory (Galip Ata, *Tıp Fakültesi*, İstanbul: Yeni Matbaa, 1341 [1925], p. 138).

[13] Ömer, *Nevsal-i Afiyet*, pp. 71–74; Ekrem Kadri Unat and Mustafa Samastı, *Mekteb-i Tıbbiye-i Mülkiye (Sivil Tıp Mektebi) 1867–1909*, İstanbul: İstanbul Üniversitesi Cerrahpaşa Tıp Fakültesi Yayınları, 1990; Nuran Yıldırım, *History of Healthcare in İstanbul,* İstanbul: Avrupa Kültür Başkenti Ajansı, 2010, pp. 294–298.

[14] However, the French language itself did not disappear from the curriculum, and the length of study was subsequently lengthened due to the enhancement of clinical education. For more information on the medical education curriculum, see Nuran Yıldırım, "An Overview of the Educational Models in Terms of the History of Medical Education in Our Country 1827–1933," in Ayşegül Demirhan Erdemir and Öztan Öncel (eds.), *1st International Congress on the Turkish History of Medicine 10th National Congress on the Turkish History of Medicine: Selected Papers on Turkish Medical History*, İstanbul: Türk Tıp Tarihi Kurumu, 2008, pp. 169–211.

was established, and the pioneering translation project began in 1857 in the "Selected Class (*mümtaz sınıf*)" within the Imperial Medical School. Due to protests by foreign teachers, this class was abolished in 1859, but in 1862, an informal organization called *Cemiyet-i İlmiye-i Tıbbiye* was established, and translation work continued outside the medical school. When the civilian medical school was established in 1867, the idea of creating an organization to handle translation work was raised again, and in the same year, a public institution called *Cemiyet-i Tıbbiye-i Osmaniye* was established.[15] It achieved noteworthy results, including the publication of a French-Turkish medical dictionary in 1873.[16]

Reform of Provincial Administration and Development of Local Medical and Sanitary Organizations

Before the first students graduated from the civilian medical school, the "Supplement to the Regulation on the Civilian Medical School" of 1870 stipulated the treatment of graduates who would be assigned to various locations. According to it, civilian doctors (*etibba-yı mülkiye*)[17] were divided into three ranks: *liva etibbası sınıfı*, *vilayet etibbası sınıfı*, and *teftiş sınıfı*. Each was awarded a monthly salary of 1,000, 1,500, or 2,000 *kuruş*, respectively, and a medal (Article 3). Promotion from the rank of *liva etibbası sınıfı* to *vilayet etibbası sınıfı* and from *vilayet etibbası sınıfı* to *teftiş sınıfı* was made on the basis of three years of service in each rank, in order of length of service and ability from among those who qualified (Article 4).[18] In the "Regulation

[15] Previously, it was believed that the medical society was established before the civilian medical school (Unat and Samastı, *Mekteb-i Tıbbiye-i Mülkiye*, p. 4), but Altıntaş, relying on archival documents, demonstrated that the order is reversed (Altıntaş, "Mülkî Tıbbiye'nin Kuruluşu," pp. 216–222).

[16] Unat and Samastı, *Mekteb-i Tıbbiye-i Mülkiye*, p. 5.

[17] The civilian doctor is the counterpart of the military doctor and refers to a doctor belonging to the civilian medical class with an office and rank. Young's French translation gives it as Médecins civils ("Médecins et pharmaciens civils, loi," in George Young, *Corps de droit ottoman*, Vol. 3, Oxford: The Clarendon Press, 1905, pp. 203–205). Thus, "*liva tabibi* " and the like below also indicate rank rather than the actual name of the official position. However, it is natural that a civilian doctor with the rank of "*liva tabibi* " would be appointed to a municipality at the *liva* level, and a civilian doctor of a higher rank would be appointed to a municipality in a higher administrative division (for example, a "*vilayet tabibi* " would be appointed to the municipality of Izmir, which is a provincial center, a "*liva tabibi* " to Manisa, which is a center of *liva*, and a "*kaza tabibi* " to Alaşehir, which is a center of *kaza*), and in this sense, rank and actual official position were only slightly related. However, that was only by design of the system and did not mean that it was true, since there were not enough doctors. Furthermore, the doctors were called "*belediye tabibi* " without distinction.

[18] "Mekteb-i Tıbbiye-i Mülkiye Nizamname-i Esasisine Müzeyyel Mevadd-ı Nizamiye (8 Oct. 1870/26 IX 1286)," in *Düstur*, Vol. 2, İstanbul: Matbaa-i Amire, 1289, pp. 812–813.

on Country Doctors and Pharmacists" of 1888, the ranks of civilian doctors were replaced into four ranks: *kaza tabibi sınıfı*, *liva tabibi sınıfı*, *vilayet tabibi sınıfı* and *müfettiş sınıfı*, and monthly salaries of 600, 800, 1,200, and 2,000 *kuruş*, respectively, medals, and promotion rules were established for each of them (Articles 3–15). The 1888 regulation also stipulated that graduates of the civilian medical school must serve for a total of five years: two years as a *kaza tabibi* and three years as a *liva tabibi* (Article 10).[19]

Some civilian doctors in these ranks became provincial health inspectors or public hospital doctors. However, there was only one provincial health inspector in each province, and in many cases, the municipal doctors also worked in the regional public hospitals.[20] The majority of civilian doctors' posts were in municipalities. Thus, the reform of medical and sanitary organizations in the countryside was based on the training of doctors in the civilian medical school and their appointments to municipalities.

The establishment of local medical and sanitary systems has been inseparably linked to the reorganization of provincial administration since the late 19th century. The Ottoman provincial administration was reorganized into a hierarchical structure —*vilayet*, *liva*, *kaza*, and *nahiye*— with each administrative unit having its own municipal government, *belediye*, at its center. The beginning of these reforms can be traced back to the decree of 1865 on Ruse, the capital of the Danube Province, which served as a model for provincial administrative reform. It is noteworthy that the Ruse council already included a *memleket tabibi* (country doctor) as a member of its advisory committee.[21] The "Regulation on Provincial Administration" of 1871, which laid out the general framework for provincial and municipal administration throughout the empire, also stipulated the participation of doctors in the city councils (Article 112).[22] In other words, the participation of medical professionals in municipal administration was already envisioned before the establishment of the civilian medical school in 1867 and the "Regulation on Medical Administration" of 1871. Graduates of the civilian medical school were primarily employed by municipalities, which were gradually being developed in various regions and were expected to play a role in medical and sanitary reforms in the countryside.

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[19] "Memleket Etibbası ve Eczacıları Hakkında Nizamname (16 Apr. 1888/4 IV 1304)," in Osman Nuri (Ergin), *Mecelle-i Umur-ı Belediye*, Vol. 4, İstanbul: Arşak Garoyan Matbaası, 1331, pp. 20–24.

[20] İlikan-Rasimoğlu, "The Foundation of a Professional Group," p. 234. Enver also held both hospital and municipal doctor positions for a time (Şeref, *Merhum Şeyhületibba,* pp. 10–11).

[21] Tetsuya Sahara, *Modern Balkan Urban Social History: Religion and Ethnicity in Pluralistic Space* (in Japanese), Tokyo: Tosuishobo, 2003, p. 85.

[22] "İdare-i Umumiye-i Vilayat Nizamnamesi (22 Jan. 1871/9 I 1286)," in *Düstur*, Vol. 1, İstanbul: Matbaa-i Amire, 1289, p. 649.

Because there were not enough graduates to work in each local municipality, hiring local doctors, who were sometimes unlicensed,[23] was common.[24] The above-mentioned regulation of 1888 stipulated that employed municipal doctors must be Ottoman subjects who had graduated from the civilian medical school, with the exception that those who had already worked as municipal doctors for a long time and were in good standing; these individuals could be included in the ranks of civilian doctors as long as they were Ottoman subjects (Article 19).[25]

The pioneering legal framework for local health administration was the "Regulation on Medical Administration" of 1871, which defined the duties of municipal doctors and specified the direction of state medicine.[26] According to this regulation, municipal doctors were appointed through consultation between local authorities and the civilian medical bureau, and the doctors' salary was paid through the municipality's budget (Articles 1–2). The duties stipulated in this regulation can be roughly divided into three categories: (1) free treatment of the sick and vaccination; (2) dealing with infectious diseases and investigating the causes of disease outbreaks in the area of assignment; and (3) forensic medicine. For treating the sick, the doctor's duties were to provide free medical care at a fixed location twice a week and to make home visits to patients at their request (Article 5). In addition to reporting outbreaks of infectious diseases to local authorities, implementing necessary countermeasures, and reporting to the Civilian Medical Bureau (Article 10), municipal doctors were authorized to issue warnings to local authorities based on instructions from the center (Article 15). The doctors conducted forensic medicine, such as autopsies, to provide necessary medical findings in the case of crimes, such as murders (Article 16).

While the "Regulation on Medical Administration" of 1871 did not clearly define the duties of inspectors and municipal doctors, the "Duties of the Health Inspectors and Municipal Doctors" of 1909 enumerated the duties of the provincial health inspector, public hospital doctors, municipal doctors, and local boards of health (*heyet-i sıhhiye ve mecalis-i sıhhiye-i mahalliye*).[27] There were also significant

[23] Scherzer, who had seen Izmir and its surroundings in the early 1870s, noted that "the urban or regional medical system was completely unknown in the region, and that the majority of the doctors (*memleket-tschekemi*) who should provide this service were unlicensed, whose sole activity was to care for sick gendarmes and prisoners, and to perform forensic medical examinations" (Karl von Scherzer, *La province de Smyrne: considérée au point de vue géographique, économique et intellectuel,* Vienna, 1873, p. 26).

[24] İlikan-Rasimoğlu, "The Foundation of a Professional Group," pp. 235–249.

[25] "Memleket Etibbası ve Eczacıları Hakkında Nizamname," in Ergin, *Mecelle*, Vol. 4, p. 23.

[26] "İdare-i Umumiye-i Tıbbiye Nizamnamesi," pp. 800–803.

[27] Regarding local sanitary committees, we can surely confirm the existence of a sanitary committee

differences in the content (Table 1). For example, roles in related to urban public health, such as food sanitation, drinking water hygiene, waste disposal, and burial, were clearly defined. Municipal doctors were also responsible for promoting modern medical knowledge by publishing enlightening scientific articles and giving lectures to the public. The preface of "Duties of the Health Inspectors and Municipal Doctors" was republished in the Izmir local newspaper, *Ahenk* ; the following day, the paper's chief writer, Şinasi, discussed the roles doctors were expected to play.[28] According to him, its role was the dissemination of sanitary knowledge (*malumat-ı sıhhiyenin neşr ve tamimi*). He correctly points out that using proper hygiene does not necessarily require significant expertise, and that it is essentially different from medicine in this respect; he then criticizes previous literature on hygiene for being written in such a complex way that teachers, much less students, have not been able to understand it. He argues that, if doctors work to enlighten the public about sanitation through plainer language, they will contribute greatly to population growth (*tezayid-i nüfus*) as well as to the prosperity of the land and people (*saadet-i mülk ve millet*).[29] This idea of national and regional prosperity being created through the spread of modern medicine and sanitary knowledge was shared in Izmir's public discourse at the beginning of the 20th century.

While the duties detailed in the "Regulation on Medical Administration" of 1871 were reactive in nature, such as treating the sick and responding to outbreaks of infectious diseases, the "Duties of the Health Inspectors and Municipal Doctors" of 1909 detailed a variety of duties related to public health, with an emphasis on preventing disease outbreaks.[30] This was presumably a reflection of both the changing focus of medicine at the time, from treatment to prevention, and the direction of the state's medical policy; this shift shows the change in the expected role of municipal

(*sıhhiye komisyonu*) in the Aydın Province. However, according to the Provincial Health Inspector Zeki in 1907, the actual duties of this committee were limited to the investigation of reports of judicial opinions. He therefore proposed the establishment of a new medical and sanitary organization in 1907 to always oversee the sanitary conditions of the region and to exchange medical knowledge ("Bir Teşebbüs-i Nafi," *Ahenk*, 3352 (25 Jul. 1907/12 VII 1323), p. 1). Rather, temporary assemblies or committees were more often established in the event of an acute infectious disease outbreak or a temporary intensification of measures.

[28] *Ahenk*, 4017 (18 Jan. 1910/5 I 1325), p. 2.

[29] Şinasi, "Malumat-ı Sıhhiyenin Tamimi," *Ahenk*, 4018 (19 Jan. 1910/6 I 1325), p. 1.

[30] The "Regulation on Provincial Health Administration" of 1913 reorganized local health administration and introduced *hükumet tabibi* (governmental doctor) in each administrative divisions ("Vilayat İdare-i Sıhhiye Nizamnamesi (1913)," in *Düstur: Tertib-i Sani*, Vol. 5, İstanbul: Matbaa-i Amire, 1332, pp. 363–367). However, due to the outbreak of World War I soon after and the dissolution of the Ottoman Empire in 1922, the actual condition of the system is not known; this is an issue that should be examined, including the early years of the Turkish Republic.

doctors. In the next section, we examine the employment situation of municipal doctors in the Aydın Province, where Izmir is located.

Employment of Municipal Doctors within the Aydın Province

Tables 2 and 3 summarize the employment status of municipal doctors in the Aydın Province and Izmir, respectively. Only fragmentary information was available for the years before 1296 A.H. and after 1326 A.H., when the yearbook of Aydın Province was not published. Referring to examples from other regions, such as Beirut, a health council (*majlis al-ṣiḥḥa*) had already been established in 1860, a public vaccination campaign was being conducted, and two doctors were employed by the municipality soon after the "Regulation on Medical Administration" of 1871 was enacted.[31] According to Malek Sharif, many of the doctors who took up the position of municipal doctor in Beirut were graduates of the Qasr al-Ayni Medical School in Cairo, and for them, the position of the municipal doctor in the Ottoman Empire was an attractive post that offered a stable income and social status.[32] In Trabzon, the provincial yearbook confirms that foreign doctors were already employed as municipal doctors in 1869, before the "Regulation on Medical Administration."[33] In the early 1870s, municipalities were frequently established in the Sivas Province, and municipal doctors were employed in Amasya, Zile, and Giresun.[34]

In the Aydın Province, municipal doctors were employed in 7 out of 29 areas in 1879, and in 13 out of 31 areas in 1880. Between 1882 and 1883, the chief doctor at the Izmir Muslim Charity Hospital, Mustafa Enver, held concurrent post of municipal doctor of the first district of the Izmir municipality because he was the only doctor who could write reports in Turkish. However, he resigned because of difficulties in managing two jobs, and the position of municipal doctor in the first district was vacant for some time.[35] The percentage of employment increased gradually, from about 10 areas in the 1880s to more than 30 at the turn of the 20th century. Therefore, 40% of the regions employed municipal doctors in 1880, 50% in 1890, and 80% in 1900.

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[31] Malek Sharif, *Imperial Norms and Local Realities: The Ottoman Municipal Laws and the Municipality of Beirut (1860–1908)*, Beirut: Ergon Verlag Würzburg, 2014, p. 182.

[32] Ibid., p. 189. The Qasr al-Ayni Medical School is a modern medical school founded by Mehmet Ali in Cairo in 1827, before the Ottoman Empire.

[33] Veysel Usta, "Tanzimattan Cumhuriyete Trabzon'da Sağlık," in Mustafa Çulfaz (ed.), *Anadolu'nun İlk Tıp Gazetelerinden Hekim*, Trabzon: Serander; Trabzon Tabip Odası Yayını, 2007, p. XIX.

[34] Ali Açıkel, "Sivas Vilayetinde Sağlık Örgütü'nün Teşkili ve Sağlık Kurumları (1867–1920)," in Ayşegül Demirhan Erdemir et al (eds.), *1. Uluslararası Türk Tıp Tarihi Kongresi – 10. Ulusal Türk Tıp Tarihi Kongresi Bildiri Kitabı*, Vol. 2, Ankara: Tıp Tarihi Kurumu, 2008, pp. 1394–1395.

[35] Şeref, *Merhum Şeyhületibba*, pp. 10–11

These figures are consistent with the increasing number of doctors with modern medical education and the replacement of unlicensed traditional practitioners, which accelerated around 1890.[36] Izmir and Saruhan consistently had two or more municipal doctors, and there were also scattered cases of employment of vaccinators, midwives, and pharmacists. However, as is clear from the example of vaccination discussed later, it is possible that the relevant health official was active, even if they were not listed in the provincial yearbook, through part-time or temporary employment. Vaccinators were often hired or had their numbers temporarily increased through local government vaccination campaigns. Even if no pharmacist was directly employed by the municipality, there were cases in which affiliated private pharmacies fulfilled this role.

Apart from Mustafa Enver, who was appointed to the Izmir Muslim Charity Hospital after his military service, Izmir's municipal doctors held the positions of municipal doctors in other areas of Aydın Province before their appointment. For example, before being appointed to Izmir, Taşlızade Edhem served as a municipal doctor in Kuşadası,[37] Hüsnü[38] and Danon[39] in Tire, and Nikolaki in Denizli.[40]

Pharmacy as a General Hospital

Municipal doctors often provided free medical care at private pharmacies in cities. This section will therefore look first at the role of pharmacies in modern Ottoman cities, and then at hospitals, which were another center for charitable medicine.

In modern Ottoman society, many doctors worked in familiar pharmacies. This collaboration between dispensaries and medical practice was born out of the difficulties faced by both doctors and pharmacists, as explained by medical historian Nuran Yıldırım. When "Regulation on the Civilian Pharmacists" of 1861 removed restrictions on the number of pharmacies in Istanbul, far more pharmacies were opened than the city needed.[41] In Istanbul, the number of pharmacies increased to 300

[36] İlikan-Rasimoğlu, "The Foundation of a Professional Group," p. 107.

[37] *Hizmet*, 252 (30 Apr. 1899/18 IV 1305), p. 1.

[38] Mehmet Karayaman, *20. Yüzyılın İlk Yarısında İzmir'de Sağlık,* İzmir: İzmir Büyükşehir Belediyesi Kültür Yayını, 2008, p. 35.

[39] *Ahenk*, 2229 (18 Nov. 1903/29 X 1319), p. 2.

[40] *Ahenk*, 2325 (17 Mar. 1904/4 III 1320), p. 3.

[41] Article 4 states that "the number of pharmacies is not limited" ("Beledi İspençiyarlık Sanatının İcrasına Dair Nizamname (3 Feb. 1861/ 22 Receb 1277 A.H.)," in *Düstur,* Vol. 2, İstanbul: Matbaa-i Amire, 1289, pp. 817–823). It also implies that there was a limit on the number before then, which meant the abolition of a kind of business right called *gedik*. There is much that is unclear about the *gedik* of doctors and

in a short period, intensifying competition among pharmacies and causing them to face great financial difficulties, especially after the 1880s. At the same time, doctors in Ottoman society traditionally practiced in markets and squares where people gathered, or in private clinics called *hekim dükkanı* (a doctor's store). In the modern era, however, doctors needed to spend a great deal of money to open their own practice, which required rent, furniture, and a variety of medical equipment to keep pace with advances in modern medicine. Thus, the interests of pharmacies, which wanted to attract customers, and doctors, who wanted to save on the cost of opening a practice, coincided, and doctors began to practice in pharmacies.[42]

Pharmacies in Izmir also tried to attract patients by advertising that a prominent doctor was practicing there, so that prescriptions (*reçete*) would be brought into their stores. The social status of military and municipal doctors and hospitalists, as well as their medical training in major European cities such as Paris and London, were standard sales pitches. For example, pharmacist Ali Şeref's Umumi Pharmacy, which opened in Keçeciler in 1903 advertised that Edhem (internal medicine and venereal diseases), Hüsnü (surgery), Şekik (surgery and venereal diseases), Khoury (obstetrics and surgery), Mehmet (bacteriologist, syphilis and gonorrhea), Raşid (surgery), Yoşiron (surgery and internal medicine), Alfeteriyadi (surgery), and midwife Istariyani would provide free medical care on Tuesdays at noon and in the evening.[43] Similarly, doctors listed pharmacies as the places they practiced in their advertisements. For example, in an advertisement that appeared in *Ahenk*, Mercan Ritosyan (internal medicine, surgery, dermatology, pediatrics), who graduated from the University of Paris and worked at a French hospital for 10 years, said that he would give medical treatment in the afternoon at his home on Reşadiye Street in Armenian district, from 8 to 9 a.m. at the Umumi Pharmacy note above, and from 9 : 00 to 10 : 00 a.m. at the Osmaniye Pharmacy in Konak, the center of Izmir.[44] Another advertisement in *Ahenk* stated that Nikolaki Ikonomidi (obstetrics and gynecology), who studied medicine in Paris, practiced at a private clinic on Fasulye Street in the afternoon and at Umumi Pharmacy in the morning, except on Fridays and Sundays.[45]

As this example of Umumi Pharmacy shows, pharmacies were used by doctors

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pharmacists. See also, Rengin Dramur, "Osmanlılarda Hekim ve Eczacı Gediği," in *I. Türk Tıp Tarihi Kongresi İstanbul: 17–19 Şubat 1988*, Ankara: Türk Tarih Kurumu Basımevi, 1992, pp. 149–155.

[42] Nuran Yıldırım, "İstanbul Eczanelerinde Hasta Muayenesi ve Tıbbi Tahlil Laboratuvarları," *Yeni Tıp Tarihi Araştırmaları*, 2–3, 1996/97, pp. 71–97.

[43] "Eczane-i Umumi," *Ahenk*, 2192 (6 Oct. 1903/23 IX 1319), p. 4.

[44] "Doktor Mercan Ritosyan: Fransa'da Sabık Sıbyan Müfettişi," *Ahenk*, 4461 (20 Mar. 1911/7 III 1327), p. 4.

[45] "Gureba-i Müslimin Hastanesi Emraz-ı Nisaiye ve Tabib-i Müvellidi: Nikolaki İkonomidi," *Ahenk*, 4141(26 Feb. 1910/13 II 1325), p. 4.

from various backgrounds and medical specialties. The owner of the pharmacy, Ali Şeref, was a Muslim, and the pharmacy was in a predominantly Muslim neighborhood across from Hatuniye Mosque, but Armenian and Greek doctors and midwives also used the pharmacy as a place of work. This was a common characteristic among pharmacies, as observed in newspaper advertisements from the same period.[46] This cross-community medical practice is visible in how doctors from Greek hospitals participated in surgeries in British, Armenian, and Jewish community hospitals.[47]

If the advantage of a pharmacy is that it offers many options for patients, Hüseyin Rifat's Şifa Pharmacy, which opened on Hükümet Street in 1906, fully demonstrated this advantage. When it opened, the pharmacy advertised that well-known doctors, such as Hüsnü, a municipal doctor, Isaac, a Jewish hospital doctor, and Kanavali, a British hospital doctor (otorhinolaryngology and surgery), would each provide medical services on a certain day and time.[48] In the following year, it started a business called Polyclinic (*poliklinik*) which offered what is now called second opinions.

> All sick persons, or their guardians, desire to have the sick person treated using the scientific knowledge from several doctors. If they do not see the desired results after a single doctor's treatment, they will seek another option after consulting with two or three doctors. However, most sick people do not have access to this exceptional service, which is also expensive. A new general clinic (*muayenehane-i umumi*) was opened above the < Şifa > pharmacy on Hükümet Street by the above-mentioned doctors who addressed this important point; they provide consultation, treatment, and examination (*konsültasyon ile tedavi ve muayene*) for the sick who come for medical care for only < half *mecidiye* >.[49]

Six doctors specializing in venereal disease, internal medicine, neurology, dentistry, surgery, and ophthalmology were listed at the pharmacy, and the announcement stated that all doctors could be seen for a fee of "only half a *mecidiye*," and that they would be available on Monday, Wednesday, and Friday from 9 : 00 to 11 : 00 a.m.

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[46] For an example from Istanbul in the same period, see Yıldırım, "İstanbul Eczanelerinde Hasta Muayenesi."

[47] Vangelis Kechriotis, "Between Professional Duty and National Fulfillment: The Smyrniot Medical Doctor Apostolos Psaltoff (1862–1923)," in Meropi Anastassiadou (ed.), *Médecins et ingénieurs ottomans à l'âge des nationalismes*, Paris: IFEA, Maisoneuve & Larose, 2003, pp. 345–346.

[48] "Kadızade Hüseyin Rifat Şifa Eczanesi: İzmir-Hükumet Caddesi," *Ahenk*, 2935 (17 Mar. 1906/4 III 1322), p. 4.

[49] "Şifa Eczanesi (Poliklinik) i: Muayenehane-i Tıbbi-Cerrahi-Ayni," *Ahenk*, 3346 (18 Jul. 1907/5 VII 1323), p. 4.

In addition, the Şifa Pharmacy had a chemical laboratory (*kimyahane*) in which urine tests were performed. Certificates of test results were issued, and a chemical analyses of red blood cell content and the quality of breast milk were also advertised.[50] Mehmet, a bacteriologist at Customs,[51] and Şehab Sadık, a doctor and chemist who studied at Gülhane Clinical Hospital and worked at Izmir Customs,[52] conducted bacterial tests and other chemical analyses of vomit through microscopes. Thus, some pharmacies became as important as general hospitals in their function as centers of urban medicine, offering a variety of specialized departments and facilities.[53]

By the turn of the 20th century, a small number of private clinics with modern medical equipment, hospital beds, and other furnishings, as well as nurses and janitors, began to appear.[54] Dimitri Jovanovic's clinic (*klinik*), located near the Greek Charity Hospital, provided care by three full-time doctors, and outside specialists could be called in for further treatment as needed. Patients from outside the area could stay in beds where sheets were changed daily, avoiding the need to stay in a hotel. The clinic was equipped with electrotherapy, x-ray equipment, surgical instruments, and disinfectants that ensured safe surgical procedures.[55] Mustafa Enver also had a private clinic on Beyler Street, where modern equipment was used to remove kidney stones and perform leg amputations, according to a patient's letter published in the newspaper *Ahenk*.[56]

Although there were some private clinics, doctors generally used pharmacies as the place where they practiced. This practice was banned in 1927, however, after the establishment of the Republic of Turkey. The practice continued in some areas in

[50] "Kadızade Hüseyin Rifat Şifa Eczanesi," *Ahenk*, 2935, p. 4.

[51] Ibid.

[52] "Doktor Kimyager Şehab Sadkı," *Ahenk*, 3483 (29 Dec. 1907/11 XII 1323), p. 4.

[53] The Umumi pharmacy mentioned above also advertised in *İttihad* that it could perform chemical and microscopic analysis of blood and sputum, and that it was always ready to assist in childbirth ("Eczane-i Umumi," *İttihad,* 439 (29 Sep. 1910/16 IX 1326), p. 4).

[54] A similar situation could be seen in Istanbul during the same period. For example, Cemil Topuzlu, a prominent doctor who had studied medicine in France and later served as mayor of Istanbul, was not satisfied with the practice of seeing patients in a pharmacy, so he rented a four-room mansion and opened a private clinic. After he moved his clinic to Çemberlitaş, other leading doctors of the time, such as Besim Ömer and Kadri Raşid, also opened clinics in the same area, and the area became a clinic district. Nevertheless, these doctors were the exception, and many of them practiced in pharmacies (Nuran Yıldırım, "İstanbul'da Nöbet Mahalleri-Nöbet Eczaneleri (1845–1895)," *Osmanlı Bilimi Araştırmaları*, VI/2, 2005, p. 167.

[55] "Aynen Varaka," *Ahenk*, 2364 (1 May 1904/18 IV 1320), p. 3.

[56] "Manisa'dan <Edhem Efendizade Bahayayayddin> İmzasıyla Aldığımız Varakadır," *Ahenk,* 2439 (29 Jul. 1904/16 VII 1321), p. 3; "Neticesi Muvaffakiyetli Bir Ameliyat-ı Cerahhiye-i Mühimme," *Ahenk*, 2608 (14 Feb. 1905/1 II 1321), p. 3.

which the population was 10,000 individuals or more, but even that was prohibited in 1953.[57]

Hospitals as Places of Charitable Medical Care

Possible means of accessing inexpensive medical care for indigent patients in Izmir and its surrounding areas included visits to communal charity hospitals, municipal doctors, and free medical care provided by general practitioners on certain days and times. Although there were also other possibilities, such as seeing an informal doctor, trying self-treatment or various folk remedies, or relying on the "conscience of the doctor," this section will focus on the hospital, which was the center of charitable medical care in Izmir, along with the municipal doctor.

In Izmir, religious communities, including Muslim, Greek Orthodox, Armenian, Jewish, and Catholic individuals, each had their own charitable hospitals. Their operating expenses were covered by donations from philanthropists, real estate operations, and various charity events to treat the sick and provide medicines.[58] One of the oldest hospitals was the Greek Charity Hospital (*Rum Gureba Hastanesi* / *Agios Haralambos Hospital*), which had almost the same size population as the Muslim community. In the early 20th century, the Greek Hospital, which was established in the mid-18th century, added new departments, expanded its beds, and modernized its facilities, becoming a leading hospital in Izmir, along with the similarly expanded Muslim Charity Hospital.[59] Comparing statistics, for example, the Greek Charity Hospital treated approximately 2,400 patients in 1320 (1904),[60] whereas the Muslim Charity Hospital treated 5,577 patients that year.[61] The income of the Greek Charity Hospital amounted to more than 10,000 lira per year, while the Muslim Charity Hospital received only half that amount.[62] Assuming that most of that income was donated, this difference can be seen as a direct reflection of the discrepancy in the

[57] Yıldırım, "İstanbul Eczanelerinde Hasta Muayenesi," pp. 88–90.

[58] For each hospital, see Başak Ocak and Özlem Yıldırır Kocabaş, *İzmir Gureba-i Müslimin Hastanesi'nden İzmir Devlet Hastanesi'ne "Bir Hastane Öyküsü"*, İzmir: İzmir Büyükşehir Belediyesi, 2014; Başak Ocak, "Osmanlı Dönemi'nde Faaliyetlerini Sürdüren İzmir'deki Gayrimüslim Hastaneleri," *Belgi Dergisi,* 2/18, 2019, pp. 1607–1624.

[59] Ocak, "İzmir'deki Gayrimüslim Hastaneleri," p. 1610.

[60] Estimated from seven months' statistics (*Ahenk*, 2410 (24 Jun. 1904/12 VI 1320), p. 3; 2432 (21 Jul. 1904/8 VII 1320), p. 2; 2511 (20 Oct. 1904/7 X 1320), p. 3; 2535 (17 Nov. 1904/4 XI 1320), p. 3; 2557 (16 Dec. 1904/3 XII 1320), p. 3; 2609 (21 Feb. 1905/8 II 1320), p. 3; 2631 (18 Mar. 1905/5 III 1321), p. 3).

[61] *Ahenk*, 2633 (21 Mar. 1905/8 III 1321), p. 2.

[62] Mustafa Enver, "Yine Gureba Hastanesi," *Ahenk*, 5163 (1 Jul. 1913/18 VI 1329), pp. 2–3.

economic situation between Greek Orthodox and Muslim communities.

The Izmir Muslim Charity Hospital was founded in 1851 by Emin Muhlis Paşa and local philanthropists. Patients were not limited to Muslims. Before Mustafa Enver was appointed, the doctors were Greek Orthodoxies.[63] The operating budget came from donations from philanthropists, real estate income, and annual *sadaka* from the sultan. When additional funds were needed for expansion work that started in the 1890s, 30% of the proceeds from the Hamidiye Industrial School Promotion Lottery were used for construction.[64] The hospital also had a pharmacy where patients received free medical care and medicine.

Hospital statistics at the beginning of the 20th century show that hospitals treated approximately six to seven thousand inpatients and 20,000 outpatients per year (Table 4). For comparison, the charitable hospital in Kasaba (Turgutlu) treated 367 inpatients per year in 1900,[65] and the charitable hospital in Aydın treated 218 inpatients in seven months in 1900,[66] indicating that the Izmir Charity Hospital was exceptionally large for the region. In fact, many sick people from neighboring areas came to Izmir because of its better medical environment, as they did not see any improvement with treatment they received locally. For example, 18 of the 367 patients admitted to the Kasaba Charity Hospital were transferred to Izmir for further treatment.[67] The turn of the 20th century was a period of expansion for the Muslim Charity Hospital. As a result of the expansion work, the number of inpatients increased by nearly 2,000 between 1903 and 1908.[68]

However, meeting the increasing demand for medical care due to urban expansion and population growth was not without difficulties. In 1901, the management board of the Muslim Charity Hospital decided to limit outpatient care to four days a week: two days for men and two days for women. According to the board, the number of outpatients per day was considerable, ranging from 200 to 250, which interfered with the provision of hospital care for inpatients.[69] In 1907, as the number of patients increased, the decision was made to charge medical fees to improve the hospital's financial situation. The poor were to be treated free of charge, as before, ordinary people would pay half a *mecidiye* fee, and a full *mecidiye* fee would be

[63] Şeref, *Merhum Şeyhületibba*, p. 22.

[64] Ocak and Yıldırır Kocabaş, *İzmir Gureba-i Müslimin Hastanesi'nden İzmir Devlet Hastanesi'ne,* p. 111.

[65] *Ahenk*, 2663 (25 Apr. 1905/12 IV 1321), p. 3.

[66] *Ahenk*, 2596 (31 Jan. 1905/18 I 1321), p. 2.

[67] Ibid.

[68] For the expansion, see Ocak and Yıldırır Kocabaş, *İzmir Gureba-i Müslimin Hastanesi'nden İzmir Devlet Hastanesi'ne,* pp. 110–115.

[69] *Ahenk*, 1597 (14 Nov. 1901/1 XI 1317), p. 2

charged to those with financial resources.[70] However, it is not always obvious which individuals are "poor." Therefore, in 1908, documentation was required to prove the patient's financial situation. The hospital explained that patients were not eligible for free medical care unless they had documentation proving their poverty from the municipality or, in townships and villages where this was not available, from the elders' association (*heyet-i ihtiyariye*).[71] As we will discuss in the next section, a similar policy was adopted for free medical care by municipal doctors.

This section examined pharmacies and hospitals in Izmir at the turn of the 20th century. Pharmacies, as doctors' workplaces, effectively became centers of medical care in urban societies, and some emerged as general hospitals with a variety of departments and facilities. Hospitals functioned as places that provided charitable medical care and were renovated to meet growing demand. However, this led to limitations on the number of patients seen and charging medical fees. In this medical environment, what was the role of municipal doctors in the city? The next section, we discuss the role of municipal doctors.

Free Medical Care by Municipal Doctors

Over time, the role of municipal doctors diversified, becoming more focused on overall local public health and disease prevention. However, one of a doctor's primary roles was still to disseminate public medical care based on modern medicine, especially free medical care for the poor. In an article that described how to address childbirth fever at a time when Izmir had only one municipal doctor, Mustafa Enver stated:

> If the pregnant woman cannot be taken to the hospital and a doctor is called to the house, the husband is required to pay at least one to two *mecidiye* for the doctor's fees (*tabib ücreti*) and for the medicine (*ilaç para*). However, for a disease that is so delicate and requires so much attention, a single visit to the doctor and a single dose of medicine is not enough. At least one week to ten days, in most cases two doctor visits per day, and a lot of money is needed for each visit to the doctor and the medicine. None of the poor families can afford this excessive expense.[72]

He went on to say that while "by virtue of the doctor (*hasebi olarak*)" he is required

[70] *Ahenk*, 3184 (5 Jan. 1907/23 XII 1322), p. 1.
[71] "Gureba-i Müslimin Hastanesi'nden," *Ahenk*, 3725 (10 Oct. 1908/27 IX 1324), p. 3.
[72] "Humma-yı Nefası," *Hizmet*, 127 (7 Feb. 1888/26 I 1303), pp. 1–2.

to provide care as free of charge as possible, this cannot be enforced and currently depended on the doctor's "compassion and generosity (*hamiyet ve mürüvvet*)." Doctors could not be called upon not just once, but two or three times, and need to travel a distance without charging fees. Patients also had to buy medicines at a pharmacy. Therefore, Enver argued that employment of municipal doctors was the only way to help the poor and sick. The expansion of municipal medical care improved access to medical care for both the rich and the poor, thereby protecting the health of the local population. From a public health perspective, this would also lead to the early detection of infectious diseases.

Unlike hospitals, which were mainly funded by donations, the municipal budget financed medical care provided by municipal doctors. The "Regulation on Medical Administration" of 1871 stipulated that if patients with financial means called a municipal doctor for treatment at their home, the doctor's fee would need be paid, whereas the free medical care provided twice a week at a fixed location did not require a medical fee to be paid, regardless of the patient's financial ability.[73] In the "Duties of the Health Inspectors and Municipal Doctors" of 1909, it was clearly stated that free medical treatment for prominent figures and officials was not obligatory or compulsory, but it was a "humanitarian and legal obligation (*insaniyetten ve kanunen vazifedar*)" to treat the poor for free.[74]

From the patient's perspective, the advantage of free medical care by municipal doctors was that not only medical fees but also prescribed medicines were free of charge. As can be seen from the advertisements of doctors and pharmacies, it was common practice for private medical practitioners to provide free medical care to the poor on certain days and times, but the medicines the doctors prescribed were not free. For example, at the end of the 19th century, a certain friend of the *Ahenk* newspaper correspondent was examined at a pharmacy near Asmalı Mescid and asked how much he would be charged. The pharmacy replied that it did not charge for medical treatments because it was a public welfare service (*menfaat-i umumiyeye hizmet*). Pleased by this, he asked the price of the medicine and was told that it cost 28 *kuruş*. He was surprised by the exorbitant price and left the store. He ended up taking his prescription to another pharmacy and bought the same medicine for 5 *kuruş*. The newspaper *Ahenk*, upon hearing this story, denounced the practice, saying:

> The doctors in the pharmacies advertise by various means that they treat the poor for free, receive only the price of the medicines, and want for nothing else. But their actions contradict this. They certainly do not take medical fees (*vizite*

[73] "İdare-i Umumiye-i Tıbbiye Nizamnamesi," pp. 800–801.

[74] *Sıhhiye Müfettişlerine ve Etibba-yı Belediyeye Ait Vezaif,* p. 23.

ücreti), but they don't hesitate to sell a bottle of medicine of 5 *kuruş* for 30 *kuruş*.[75]

The rules for the provision of free drugs by municipalities were defined in a guideline (*talimat*) at the beginning of the 20th century as follows. In the guideline of 1323 (1907), the provision of free medicines by the municipalities was limited to the poor (Article 1), the doctor was to choose the less expensive medicine if it had the same medical efficacy (Article 3), and in non-emergency situations, the provision of free medicines required certificates of poverty (*ilmühaberler*) from the *imam* or *muhtar* of the town district or the caretaker (*odabaşılar*) of the inn or single-person residence (Article 4). At the end of each month, a register with drug prices and dispensing fees was submitted to the city authorities with a petition (*istidaname*), and the validity of prices were investigated by the municipal health committee (*devair heyat-ı sıhhiyesi*) (Article 6). Those investigated there were to be further submitted to the state by the municipal authorities, and after investigation by the Hygiene Committee (*Hıfzıssıhha Komisyonu*), payment would be authorized (Article 7).[76] In 1913, another guideline was issued that included more specific conditions, such as requiring the medication to cost no more than 3 *kuruş* and that ready-made medicines should not be given (Article 3).[77] In addition, there was no investigation or licensing arrangement by the state authorities for the validation of prescriptions and prices. This was simplified to payment after investigation and approval by the municipal chief doctor (Article 4).[78]

As for other examples, Duty Pharmacies (*Nöbet Mahalleri / Nöbet Eczaneleri*), which provided emergency medical care in Istanbul for 50 years starting in 1845, was the most important pioneering examples. Under this system, a doctor was appointed at public expense to one of the pharmacies in each district of Istanbul (Beyazıt, Eyüp, Üsküdar, Fındıklı, and Topkapı),[79] and the pharmacies were open 24 hours to support the medical needs of the community. The doctor's salary and the cost of medicines were paid by the state treasury and, in later years, by the municipality. Medicines were provided free of charge as *sadaka* of the sultan, and the cost of the medicines, recorded

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[75] *Ahenk*, 271 (30 Jun. 1897/18 V 1313), p. 2.

[76] "Devair-i Belediyeden Hastagan-ı Fukaraya Meccanen İta Kılınan Mualecatının Usul-i İtasını Muntazammın Talimat (1323)," in Ergin, *Mecelle,* Vol. 4, pp. 632–633.

[77] According to Ergin, the limit was raised to four *kuruş* in 1914 in response to rising drug prices (Ergin, *Mecelle*, Vol. 4, p. 634).

[78] "Fukara-yı Hastagana Ecza İtası Hakkında Talimatname (24 Apr. 1913/11 IV 1329)," Ergin, *Mecelle*, Vol. 4, p. 634.

[79] More precisely, what started in Beyazıt was gradually introduced to other areas, resulting in these five districts.

in the register of the duty pharmacy, was paid later within a predetermined amount. In 1870, the duty pharmacy in Beyazıt was allotted 1,200 *kuruş* per month, and the others 200 *kuruş* per month were allotted for medicines. In short, the duty pharmacies in Istanbul, which continued until 1895, were a system in which a pharmacy in each district of the city was designated in advance, a doctor was assigned there at public expense, and the cost of medicines was paid based on the register.[80]

Article 3 of the "Regulation on Medical Administration" envisaged the opening of municipal pharmacies and the provision of inexpensive or free medicines.[81] According to the Aydın provincial yearbook, municipalities in Denizli and Saruhan employed pharmacists, and a municipal pharmacy opened in Menemen in 1905.[82] However, municipal pharmacies existed in only a few areas, and no municipal pharmacy was opened in Izmir, although the need for one was recognized.

In Menteşe (Muğla), a pharmacist named Mehmet Salih, who had been practicing a private pharmacy, was hired by the municipality in 1905. Until the municipal pharmacy was opened, Mehmet Salih purchased drugs in the name of the Menteşe municipality.[83] Beginning in roughly 1880, the municipality of Beirut had a partnership with a pharmacy located in the city center. The pharmacy provided free medicine to poor patients and later billed the municipality. In 1892, the municipal doctor of Beirut requested that a municipal pharmacy be established, claiming that the current practice was too costly. As a result, a municipal pharmacy opened in *Sahat al-Sur*. In 1893, a municipal doctor reported in a Beirut newspaper that this pharmacy had dispensed 1,493 medicines free of charge.[84]

Certainly, some pharmacies in Izmir had close ties to the authorities. For example, when free medical treatment by municipal doctors was publicly announced in newspapers and the date, time, and location were specified, local pharmacies were often used as places to apply for and receive treatment. In 1891, the program of door-to-door visits by doctors and medical care at pharmacies was made known to the public because "some poor people are ill but cannot see a doctor because they cannot afford the cost of a doctor's visit, and their condition has worsened severely." According to the program, the home visits were provided to patients who were unable to go to the pharmacy themselves. For other patients, free medical care was provided at three pharmacies in Kemeraltı, Basmane, and Uçyolaz, with municipal doctors Fano, Isaac Toledano, and Nalbandoğlu Nikolaki. Free medical care was provided on

[80] Yıldırım, "İstanbul'da Nöbet Mahalleri-Nöbet Eczaneleri (1845–1895)," pp. 151–182.

[81] "İdare-i Umumiye-i Tıbbiye Nizamnamesi," p. 800.

[82] *Ahenk*, 2652 (12 Apr. 1905/30 III 1321), p. 3.

[83] *Ahenk*, 2590 (24 Jan. 1905/11 I 1321), p. 2.

[84] Sharif, *Imperial Norms and Local Realities*, p. 190.

Tuesdays, Thursdays, and Saturdays from noon to 2 : 00 p.m. Free medical care was also available in the morning at the Valeri Pharmacy in Karşıyaka, Fano's place of residence.[85] Thus, places for a free medical care were designated in four parts of the city: Kemeraltı in the center of the city, the Basmane station in the east, Uçyolaz in the south, and Karşıyaka on the opposite shore in the north.

Among these, the pharmacist Panayot of the Osmaniye Pharmacy (*Eczane-i Osmaniye*), the venue of Kemeraltı, was named to the Sanitary Assembly (*Meclis-i Sıhhiye*), which met at the municipal office in 1892 at the direction of the governor "to investigate the state of public health in the province and implement necessary improvements." [86] During the cholera epidemic of 1893, Panayot provided the municipality with 500 *okka*s worth of carbolic acid free of charge, as well as 250 cases of medicine free of charge to the poor who visited its pharmacies.[87] As with duty pharmacies in Istanbul, one of the functions required of a municipal pharmacy was to be open late at night. When the lack of late-night pharmacies became a problem in Izmir, the governor of the province ordered three pharmacies in the city to open late at night on a rotating monthly basis. Osmaniye Pharmacy was in charge of the first month of duty and operated with a sign "*geceleri açıktır*" (open at night) at the entrance of the pharmacy.[88] Thus, in Izmir, where there was no municipal pharmacy, free medical care by the municipal doctor was provided in partnership with private pharmacies with close ties to the authorities, such as the Osmaniye Pharmacy.

Medicines were also provided free of charge to poor patients; however, as far as we can tell from the state guidelines of the early 20th century and examples from other regions, this was later billed by the pharmacy and supposedly paid for by the municipal budget. However, as was the case with hospitals, the increasing demand for public healthcare meant that the municipality required proof of poverty to provide free medicines. It is unclear whether this was in accordance with the abovementioned guidelines of 1907, but the following public notice was issued by the local government in 1909 :

> Sick people treated by municipal doctors request their medications free of charge from the municipality based on their prescriptions, but some of them have sufficient financial resources that they do not need this kind of assistance from the municipality. However, since it is impossible for the authorities to

[85] "İzmir Daire-i Belediyesinden," *Hizmet*, 440 (5 Apr. 1891/23 III 1307), p. 4.

[86] *Hizmet*, 522 (27 Jan. 1892/15 I 1307), p. 1.

[87] *Hizmet*, 694 (11 Oct. 1893/29 IX 1309), p. 1.

[88] *Ahenk,* 1572 (16 Oct. 1901/7 X 1317), p. 2; "Daire-i Belediyeden," *Ahenk*, 1578 (23 Oct. 1901/10 X 1317), p. 2.

> distinguish between those without financial resources, it will henceforth be publicly announced that those who wish to receive free medicine from the municipality must present a one-leaf certificate (*bir kıta şahadetname ibraz etmeleri*) from the district indicating their poverty.[89]

The fact that the demand for medical care greatly exceeded the number of personnel and financial resources indicates that the free medical care provided by municipal doctors contributed not only to the early detection of infectious diseases, but also to raising people's health awareness and lowering the threshold for medical examinations. However, as people began to make use of municipal doctors and actively seek medical care, the limited financial resources of public healthcare also became apparent, as free drugs were provided only to the poor, as was the case in charitable hospitals.

Municipal Doctor as a Health Officer: Countermeasures against Food Adulteration

Public health measures taken by municipalities covered a wide range of urban activities, including street cleaning, garbage collection, water and sewage management, sanitation of food sold in markets and slaughterhouses, and maintaining cleanliness in public gathering places, such as merchant inns, apartment buildings, and public bathhouses. Advising municipalities on these measures as medical experts is an important role for municipal doctors. In this section I discuss the problem of food adulteration in the early 20th century as an example of these public health measures.

Food adulteration has a long history and can be universally observed.[90] In pre-modern Ottoman society, *muhtesib* (market inspector) under *qadi*s supervised transactions in the marketplace. *Muhtesib*s and their staff carried out their work in accordance with the commercial norms and regulations for *ihtisab*. Many provisions related to foodstuffs can be found in the collections of laws and regulations implemented by the sultans in the 15th and 16th centuries. During the reign of Sultan Süleyman I (r. 1520–1566), the content of these laws became more detailed and systematized. The regulations for cooks and grocery occupations were detailed, such as not cheating on the weight of bread, not watering yogurt with starch and water, not

[89] "Daire-i Belediyeden," *Ahenk*, 3838 (28 Feb. 1909/15 II 1324), p. 3.

[90] For a discussion of food control in the Ottoman Empire, see Nuran Yıldırım, "Osmanlı Devleti'nde Gıda Kontrolüne Bakış," in Nuran Yıldırım, *14. Yüzyıldan Cumhuriyet'e Hastalıklar-Hastaneler-Kurumlar Sağlık Tarihi Yazıları I*, İstanbul: Tarih Vakfı Yurt Yayınları, 2014, pp. 54–69.

mixing anything other than lamb in *börek* (Turkish pie) and using unmixed flour, and soaking *turşu* (pickles) in vinegar rather than bran. The freshness and hygiene of meat was also emphasized repeatedly.[91]

In the modern era, however, food safety has taken on a new dimension as a social issue because of the development of both deception and detection technologies in line with scientific advances, the spread of processed foods, the increase in imports, the intensification of price competition as a result of international free trade, and the growing health consciousness of consumers. Since food adulteration is a major concern for people's health, it was a problem that could not be ignored in the modern Ottoman state, which had been increasingly concerned with improving the health of its population, reducing the mortality rate, and boosting its population growth. In this context, the system of food surveillance and related laws and regulations were newly developed at the turn of the 20th century, and municipal doctors in various regions, together with professional chemists and bacteriologists, took on the role of protecting food safety.

Food adulteration was also a problem in modern Izmir. For example, an article in *Hıfzıssıhha*, a hygiene magazine for ordinary people published in Izmir in the early 20th century, explained food safety in Izmir using a short story. Four flies lived in a house. One of them drank milk to which lime had been added; it convulsed and died. A second one drank another drink, which was colored by aniline, and died from poisoning. The third one suffered the same fate when it ate flour to which an excess of alum had been added. The fourth fly, having witnessed the tragedy of the three, despaired of living and wished to die, so it began to suck the flypaper (*sinek öldüren kağıt*) on the plate. The body of the fly, waiting for death by sucking, became full of vitality and began to gain strength. Even the flypaper was adulterated.[92]

In these examples, the watering of milk with lime, the coloring of drinks with aniline, and the excessive addition of alum (a preservative) to flour were cited as examples of food adulteration. The author, Dr. Edhem, went on to say that if the oils, milk, soda, tea, wine, *rakı*, and other alcoholic beverages, sorbets, and jams consumed today were thoroughly examined, many deceptions would be found. He explained that scientists were fighting these deceptions day and night, but that the deceivers also had the scientific knowledge to do so. He concluded that the establishment of chemical laboratories by municipalities was required, and that hiring chemists was also

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[91] Kazuaki Sawai, "Market Mechanisms of the Ottoman Dynasty in the Fifteenth and Sixteenth Centuries: Focusing on the Analysis of İhtisab in the Kanunname," (in Japanese) in Masahiko Yamada (ed.), *A Social History of Market and Distribution I: A History of Market in Traditional Europe and Its Surroundings*, Osaka: Seibundo, 2000, pp. 123−147.

[92] Edhem, "Bir Muhavere-i Sıhhiye," *Hıfzıssıhha*, 5 (3 Jun. 1908/21 V 1324), p. 50.

necessary.[93]

One of the food adulteration problems in Izmir in the early 20th century was clarified butter (*sade yağ*) imported from the United States.[94] The local newspaper *Ahenk* wrote: "It is inevitable that scientific developments in the United States will also develop food adulteration applied in Izmir. Even the U.S. government is troubled by the adulteration methods used by some food industry, especially the canned meat plant in the city of Chicago."[95] The problem of food adulteration that shook the United States at the beginning of the 20th century also affected Izmir.[96] According to the same article, the U.S. clarified butter imported into Izmir was actually animal fat mixed with cottonseed oil and peanut oil, with vegetable additives added for color and flavor. The biggest problem was not merely that this was harmful to health, but that it would either wipe out domestically produced butter, or that domestic producers and sellers competing with the imported product would resort to adulterating their butter to compete on price.[97] Another article argues for the protection of domestic industry as follows:

> It is serious from a public health aspect that many locally produced oils are forced to degrade their quality by adulterating their products so that they can resist the low prices caused by imports from the United States. But equally serious is the fact that domestic industry is forced to abandon production due to lack of competitiveness. Therefore, in order to guarantee the development of industry in the empire renowned for the vastness of its pastures and the

[93] Ibid., pp. 51–52.

[94] Clarified butter was also a favorite oil used in Ottoman recipe books of the 19th century (Özge Samancı, "The Cuisine of Istanbul between East and West during the 19th Century," in Angela Jianu and Violeta Barbu (eds.), *Earthly Delights: Economies and Cultures of Food in Ottoman and Danubian Europe, c. 1500–1900*, Leiden; Boston: Brill, p. 84). For more information on oils utilized in pre-modern Ottoman society, see Suraiya Faroqhi, "Should it be Olives or Butter? Consuming Fatty Titbits in the Early Modern Ottoman Empire," in *Earthly Delights*, pp. 33–49.

[95] "Mağşuş Yağlar," *Ahenk*, 3038 (15 Jul. 1906/2 VII 1322), p. 2.

[96] In 1906, American author Upton Sinclair published *The Jungle,* which exposed the dark side of a Chicago food processing plant, and interest in the food deception problem grew rapidly in the U.S. society.

[97] "Mağşuş Yağlar," *Ahenk*, 3038, p. 2. Gözel-Durmaz, who studied the issue of adulterated olive oil in the modern Ottoman Empire, argues that the response to the mixing of cottonseed oil with olive oil was not only a public health issue, but was also decided in the balance of multiple factors: negotiations with other edible oil producing countries, especially France and the United States, to raise tariffs, and the protection of local producers (Oya Gözel-Durmaz, "Osmanlı'da Gıda Güvenliği: Halk Sağlığı ve Uluslararası Ticaret Kıskacında Mahlût Zeytinyağları Meselesi," *Osmanlı Araştırmaları,* LIV, 2019, pp. 277–305.

> abundance of its livestock, strict measures should be taken by the Customs Department regarding the prohibition of the importation of adulterated butter, so that the production of clarified butter, which has been repeatedly decreed by His Majesty the Sultan, is protected from damage.[98]

To control domestic and international food adulteration, regulations were implemented at the beginning of the 20th century. Regarding the clarified butter, the "Regulation on Maintaining the Purity of Domestic Clarified Butter" was enacted in 1903.[99] This regulation, which prohibited adulteration of domestic clarified butter processed from milk (Article 1), provided warnings to producers and sellers by local authorities (Article 2), continuous investigations of production by municipal doctors and officials (Article 3), penalties for producers and sellers who had committed adulteration (Articles 4 and 5), fines, procedures, and treatment of confiscated goods (Articles 6 and 7). A copy of the regulation was published in a local newspaper in Izmir;[100] since then, crackdowns on adulterated butter were reported repeatedly.

For example, according to a report in *Ahenk* in April 1905, clarified butter suspected of being adulterated by an investigation (*muayene*) by a municipal doctor was sent to the municipality, and samples were commissioned to a bacteriologist for chemical analysis (*tahlil*). Among them, the butter from Discoplu was suet mixed with margarine, the butter from Mehmet Ağa in Mecidiyehane was also suet, the Bohr Hakim from Mezarlıkbaşı was a mixture of flavoring and margarine, the Yorgi's was suet, the Mitrokov's from Başdurak was a mixture of suet and margarine, and Isaac Hakim's was found to be suet. Following this report, these butters were confiscated, and the municipal authorities decided to color them for industrial use.[101] This case demonstrates that mixing suet and margarine was observed as a method of adulteration, and that the confiscated butter was colored and reused for industrial purposes.

There were also several bans on imported food products.[102] The "Regulation on Sanitary Inspections Conducted at Customs" was enacted in 1905 to assist with customs inspections.[103] This regulation stipulated customs inspections of chemicals and pharmaceuticals (Articles 14–18), oils (Article 19), grains (Article 20), coffee

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[98] *Ahenk*, 3035 (12 Jul. 1906/29 VI 1322), p. 1.

[99] "Mamulat-ı Dahiliyeden Olan Sade Yağlarının Muhafaza-ı Safiyetine Dair Nizamname (1319/1903)," in Ergin, *Mecelle*, Vol. 4, pp. 613–614.

[100] *Ahenk*, 2274 (13 Jan. 1904/31 XII 1319), p. 2.

[101] *Ahenk*, 2644 (2 Apr. 1905/20 III 1321), p. 3.

[102] Gözel-Durmaz, "Osmanlı'da Gıda Güvenliği"; *Ahenk*, 3035, p. 1.

[103] "Gümrüklerce İcra Edilecek Muayene-i Sıhhiye Nizamnamesi (2 Jun. 1905/20 V 1321)," in *Düstur: Birinci Tertib,* Vol. 8, Ankara: Başvekalet Devlet Matbaası, 1943, pp. 245–250.

(Article 21), meat and processed meat (Article 22), and alcoholic beverages (Article 23) and provided inspectors at the main ports in the country. In addition to Istanbul, customs offices at the ports of Izmir, Salonica, Trabzon, Işkodora, Beirut, Iskenderun, Basra, and Tripoli employed a full-time chemist, and where there was no chemist, a sanitary examination was performed by the municipal doctor; if further chemical analysis was deemed necessary, the product was sent to the nearest customs office (Article 2), and the employed chemists were to be licensed and of Ottoman nationality (Article 3).

As demonstrated by the case of adulterated clarified butter, the role of the chemical analysis laboratory was critical to the food control process. Although the municipal doctor conducted inspections (*muayene*) of the food sold in the market, more detailed chemical analysis (*tahlil*) was delegated to specialized analysts. In other words, the chemical analysis laboratory was the final decision-making authority for food control.[104] In Izmir, the Customs Department and Muslim Charity Hospital each had chemical analysis laboratories for conducting official chemical analyses.[105] Two full-time chemists were employed at the customs office in 1897 at a salary of 400 *kuruş* each.[106]

However, as far as the Aydın Province was concerned, there did not seem to be a facility capable of conducting a chemical analysis of food products outside Izmir, and overall, the effort was only just starting. In 1879, when the chemist Bonkovski Paşa was entrusted with the inspection of food products in the 6th Municipal District of Istanbul and conducted chemical analysis of seized food products, he reportedly advised the Minister of the Interior Mahmut Paşa to train chemical inspectors and expand the food inspection facility to other major cities in the Empire.[107] Despite this recognition, except for a limited number of cases in which a few studied abroad and majored in chemistry, the chemical analysts who conducted food inspections in the Ottoman Empire were doctors and pharmacists. Only a few outstanding students who attended the chemical laboratory of the Imperial Medical School, received practical training in chemical analysis, and were given a certificate of proficiency (*ehliyet tasdiknamesi*) were assigned to the task under the title of chemist (*kimyager*). It was not until the late 1920s that the growing number of licensed chemists (*diplomalı kimyagerler*) who specialized in chemistry began to threaten the position of certified

[104] Gözel-Durmaz, "Osmanlı'da Gıda Güvenliği," p. 281.

[105] "Zamanımızda Terakkiyat-ı Tıbbiye!," *Ahenk*, 2400 (12 Jun. 1904/30 V 1321), p. 3. As mentioned above, this is not the case if private pharmacies with chemical analysis rooms are included.

[106] *Ahenk*, 423 (12 Dec. 1897/13 XII 1312), p. 3.

[107] Feza Günergun, "XIX. Yüzyılın İkinci Yarısında Osmanlı Kimyager-Eczacı Bonkowski Paşa (1841–1905)," in *I. Türk Tıp Tarihi Kongresi (İstanbul 1988)*, Ankara: Türk Tarih Kurumu, 1992, p. 246.

chemists (*tasdiknameli kimyagerler*) who had studied chemistry alongside medicine and pharmacy.[108] Analysts employed by the Izmir customs office as chemists also called themselves bacteriologists and doctors and actually served as bacteriologists, testing urban drinking water for bacteria.[109]

In the Ottoman Empire, various food control laws and regulations, as well as the necessary equipment and human resources, were prepared, and a modern food control system was established. Although the development of the system was just beginning in terms of laws, equipment, and human resources, it is noteworthy that the analysis and detection of adulterated food products was conducted in modern Izmir with limited resources.

Promotion of Vaccination: Establishment of System to Prevent Smallpox

A famous episode of variolation is said to have been introduced from the Ottoman Empire to Europe through Lady Mary Wortley Montagu, who stayed in the Ottoman Empire in the 18th century. However, what was used in modern times was, of course, cowpox. According to the work of Şanizade Ataullah, the first cowpox vaccination in Istanbul was performed in 1800.[110] Since Edward Jenner developed the vaccination method in 1796, the technique itself was known in the Ottoman Empire at an early stage. In the 1840s, public vaccination campaigns were conducted, and 1,705 children were vaccinated in 1841.[111] Abdülmecid I (r. 1839–1861), who was said to have had typical pockmarks himself, conducted his own vaccination campaign in the suburbs of Istanbul with a retinue of 500 people.[112] The aforementioned Istanbul duty pharmacy also served as a vaccination center, and vaccinators were employed in addition to doctors.[113] In the early 1860s, the Beirut municipality conducted a vaccination campaign.[114] These examples, however, were only temporary efforts that were motivated by the smallpox epidemic. Over time, as generations changed and immigrants from other regions and rural areas moved in, the number of unimmunized

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[108] Emre Dölen, "İstanbul'da Kimya Eğitimi," in M. Âkif Aydın and Coşkun Yılmaz (eds.), *Antik Çağ'dan XXI. Yüzyıla Büyük İstanbul Tarihi,* Vol. 9, İstanbul: İstanbul. İBB Kültür A.Ş., 2015, p. 143. Customs doctor Şehab Sadık also introduced himself as having obtained a certificate (*sertifika*) in the field of analysis ("Doktor Kimyager Şehab Sadkı," *Ahenk,* 3483 (29 Dec. 1907/11 XII 1323), p. 4).

[109] "Vezir ve Osman Ağa Suları Hakkında Sıhhiye Müfettişliği Tarafından Makam-ı Vilayetine Verilen Rapor," *Ahenk*, 4615 (17 Sep. 1911/4 IX 1327), p. 3.

[110] A. Süheyl Ünver, *Türkiye'de Çiçek Aşısı ve Tarihi*, İstanbul: İsmail Akgün Matbaası, 1948, p. 55.

[111] Ibid., p. 143.

[112] Sharif, *Imperial Norms and Local Realities*, pp. 199–200.

[113] Yıldırım, "İstanbul'da Nöbet Mahalleri-Nöbet Eczaneleri (1845–1895)."

[114] Sharif, *Imperial Norms and Local Realities*, pp. 196–204.

people increased; even among those who had been vaccinated, the protection from the vaccine weakened. Although the vaccination campaign might have temporarily reduced the number of victims, smallpox outbreaks were expected to recur every few years.

To consider when full-scale spread of vaccination as a state project in the Ottoman Empire began there are several factors to review. First, the preparation of sufficient human resources and amount of vaccine for widespread vaccination, or at least an effort to have them in place and deployed throughout the country, is necessary, and it must occur within the context of a law that establishes the obligation to carry out vaccinations. It is therefore true that vaccination was introduced to the Ottoman Empire at an early date, and that the vaccination campaigns conducted in Istanbul and elsewhere may be considered forerunners of state medicine. However, nationwide expansion of vaccination as a national project should be seen as occurring only after the 1880s and 1890s, when a series of developments, such as laws related to smallpox, the production of vaccines in the country, and the beginning of training vaccinators, were observed. Considering that municipal doctors were the main providers of vaccination in the countryside, this coincides with the increase in the number of municipal doctors during the same period.

To spread vaccination throughout the country, a sufficient number of personnel were needed to perform vaccinations in each region. As previously noted, the number of municipal doctors gradually increased from the 1880s onward. Even then, however, not all areas always had municipal doctors, and when these doctors were present, they were often busy with other duties and were not able to visit neighboring villages to perform vaccinations. It is said that, in Ottoman society, the old variolation was not the work of a professional doctor, but of a woman with skills.[115] Hence, unqualified individuals also performed vaccinations and were sometimes employed by the municipality for a small salary.[116] In other words, it was considered unnecessary to devote the valuable human resources of those who had spent many years in medical school learning modern medicine to vaccination itself. For this reason, in 1898, a vaccination school (*Aşı Dershanesi* / *Aşı Mektebi*) was established in Istanbul to train vaccinators in a short period of time and to reduce the amount of labor required of the municipal doctors. By 1903, 319 vaccinators had graduated.[117] In 1912, the training of vaccinators began to take place at the Small Health Officer School (*Sıhhiye Küçük Zabitanı Mektebi* / *Küçük Sıhhiye Memurları Mektebi*), which combined circumcision

[115] Yıldırım, *History of Healthcare in İstanbul*, p. 73.
[116] *Ahenk*, 1024 (26 Dec. 1899/14 XII 1315), p. 2.
[117] Yıldırım, *History of Healthcare in İstanbul*, p. 75.

and nursing.[118] Graduates educated in the two-year course were sent to the countryside to share the duties of municipal doctors in each area.

In Izmir, the provincial yearbooks from 1315 A.H. (1897–1898) onward confirm the employment of vaccinators (*aşı memuru*) by the municipality. In other words, in some areas, officials specializing in vaccination were employed even before the schools were opened. An officer, Süleyman, was continuously recorded in the yearbooks after that, and frequently appeared in local newspapers regarding the implementation of vaccination in various areas. He was responsible for vaccination in the center of Izmir and in lower townships (*nahiye*), such as Bornova and Sediköy. The statistics on vaccination in the Aydın Province (Table 5) show that, as a general trend, municipal doctors were in charge of vaccination in the city center and prisons, while vaccinators were in charge of vaccination outside the city center as itinerant vaccinators.

In addition to providing the human resources for vaccination, a stable vaccine supply was essential. The Ottoman Empire originally used vaccines imported from Europe, but in July 1892, an imperial decree was issued ordering the production of vaccines at the Imperial Vaccination Center (*Telkihhane-i Şahane*), and the domestic production of vaccines began.[119] Vaccines produced at the Imperial Vaccination Center were sent to various parts of the Empire. For example, in the same year as Table 5, 18,550 vaccines arrived in Izmir from Istanbul, of which 7,567 were used in the city of Izmir and were administered to 64,333 people, while the remaining 10,938 were sent to various places in the Aydın Province, where they were administered to 74,916 people.[120]

If the supply from Istanbul was insufficient, municipalities would sometimes procure vaccines. For example, when smallpox broke out in 1909, a large-scale vaccination campaign was conducted in the Aydın Province. In addition to vaccines from Istanbul, 10,000 vaccines were procured from Lausanne through Morayeti, a pharmacist in Izmir; 20,000 from Bern through Kalikaki, another pharmacist; 20,000 from Chemillé through the Ikar brothers and merchants; and 70,000 from a pharmaceutical factory in Chambon, France. More than 60,000 people were vaccinated.[121] In this campaign, the city was divided into 10 areas, where 10 doctors were temporarily employed to carry out vaccinations.[122]

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[118] Osman Ergin, *İstanbul Tıb Mektepleri, Enstitüleri ve Cemiyetleri*, İstanbul: Osmanbey Matbaası, 1940, pp. 54–55.

[119] Yıldırım, *History of Healthcare in İstanbul*, p. 75.

[120] *Ahenk*, 2332 (25 Mar. 1904/12 III 1320), p. 3.

[121] Hüsnü, "Çiçekten Kırılıyoruz ve İkrar-ı Hakikat," *Ahenk,* 4032 (19 Oct. 1909/6 X 1925), pp. 1–2.

[122] "Daire-i Belediyeden: Çiçek İllet-i Meşumesine Dair," *Ahenk,* 4014 (23 Sep. 1909/10 IX 1325), p. 1.

However, the procurement of vaccines from medical merchants was not without difficulties. Reports from the municipal doctor and the vaccinator revealed that the vaccines from Lausanne were somehow extremely inefficient (*pek zayıf ve kuvvetsiz*) and did not even affect children who had been vaccinated for the first time, necessitating revaccination and procurement of the vaccines for it.[123] The freshness of the vaccines was discussed by the local press. According to *Ahenk*, the majority of the vaccines used in Izmir were produced at the Imperial Vaccination Center in Istanbul and were fresh and effective because of their short transport distances. However, it has been argued that when vaccines are imported from abroad, a long time has passed since the production of the vaccines and the power of the virus (*kuvve-i virüsiyye*) has weakened, rendering them ineffective.[124]

Furthermore, merchants and pharmacists, who acted as intermediaries, refused to hand over the vaccines ordered from France and sold them at exorbitant prices to wealthy individuals who wanted to be vaccinated again. The Health Inspector, who wanted to prioritize the vaccination of poor, unvaccinated children, proposed direct purchases by the local government; however, this did not materialize. Despite the shortage of vaccines, temporary vaccinators wasted vaccines by repeatedly vaccinating their clients who had already been vaccinated to make money.[125]

In this example, while some wealthy residents were willing to lay down money for repeated vaccination, others sought to avoid vaccination. How to promote vaccination of the population (i.e., how to address those who avoided vaccinations) was a universal problem in the promotion of vaccinations. Legal arrangements for mandatory vaccinations had progressed since the 1880s. The 1885 "Regulation on Vaccination" made vaccination a requirement for school enrollment, and unvaccinated children were not allowed to enter school.[126] The 1894 amendment made the vaccination of newborns within six months mandatory and simultaneously introduced provisions for revaccination every five years and fines for those who refused.[127] In 1904, penalties were introduced for those who should perform vaccinations, such as doctors and vaccinators.[128]

Nevertheless, there were many cases in which a vaccinator was sent to the house,

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[123] Hüsnü, "Çiçekten Kırılıyoruz," p. 1.

[124] *Ahenk*, 3429 (26 Feb. 1908/13 II 1323), p. 2.

[125] Hüsnü, "Çiçekten Kırılıyoruz," p. 1.

[126] "Aşı Hakkında Nizamname (30 May 1885/18 V 1301)," in *Düstur: Birinci Tertib*, Vol. 5, Ankara: Başvekalet Matbaası, 1937, pp. 273–274.

[127] "Aşı Nizamnamesi (21 Jul. 1894/8 VII 1310)," in *Düstur: Birinci Tertib*, Vol. 6. Ankara: Devlet Matbaası, 1939, pp. 1486–1489.

[128] "Aşı Talimatı (3 Mar. 1904/19 II 1319)," in *Düstur: Birinci Tertib*, Vol. 7. Ankara: Başvekalet Devlet Matbaası, 1941, pp. 1171–1175; *Ahenk*, 2270 (8 Jan. 1904/26 XII 1319), p. 2.

but the residents refused to be vaccinated. In such cases, more coercive measures were taken. A common practice was to use local communities to promote vaccination. When smallpox broke out in the Dolapkuyu district of Izmir in 1907, "the municipal doctor and the vaccinator went from house to house, guided by the district *imam* and *mukhtar*, to encourage people to have vaccination," but some residents continued to avoid vaccination. The municipal report therefore concluded that "it is necessary that the houses be investigated by the policemen, the municipal police, and the district *imam*s and *muhtar*s, and that those in scientific need of vaccination be forcibly (*cebren*) given the vaccine."[129] In a public announcement from the municipality in 1910, *imam*s and *muhtar*s were told "to record in a register those who have not been vaccinated in the area and to force them to have the vaccinations, and if any of them have not been vaccinated, this responsibility is attributed to the aforementioned *muhtar*," and it was requested that a register with the names, common name, occupation and addresses of the unvaccinated be compiled within a few days.[130]

In this way, a system for the nationwide implementation of smallpox vaccination was established beginning in the 1880s, with municipal doctors and vaccinators appointed in each region to carry out smallpox vaccination, and smallpox vaccines produced at the Imperial Vaccination Center were distributed to each region. At the same time, laws were also being developed to promote vaccination. As we have seen in this section, there were certainly some difficulties in the implementation of vaccination in Izmir and its surroundings, but at the same time, vaccination as a state project entered a new phase and spread to the provinces as well.

Conclusion

The idea of establishing a local public healthcare system by training "civilian doctors" and appointing them in various regions gradually materialized as the number of doctors who graduated from the civilian medical school steadily increased and municipalities in various regions began to employ doctors. In Izmir, only one municipal doctor was employed in the 1880s, but the number gradually increased in the 1890s and then in the 1900s until four municipal doctors and other medical officials were employed in 1908. The same trend can be observed for the entire province of Aydın, and it can be said that the turn of the 20th century was a critical period for the spread of municipal doctors.

In addition, significant efforts related to the local hygiene project were

[129] *Ahenk*, 3345 (17 Jul. 1907/4 VII 1323), p. 1.

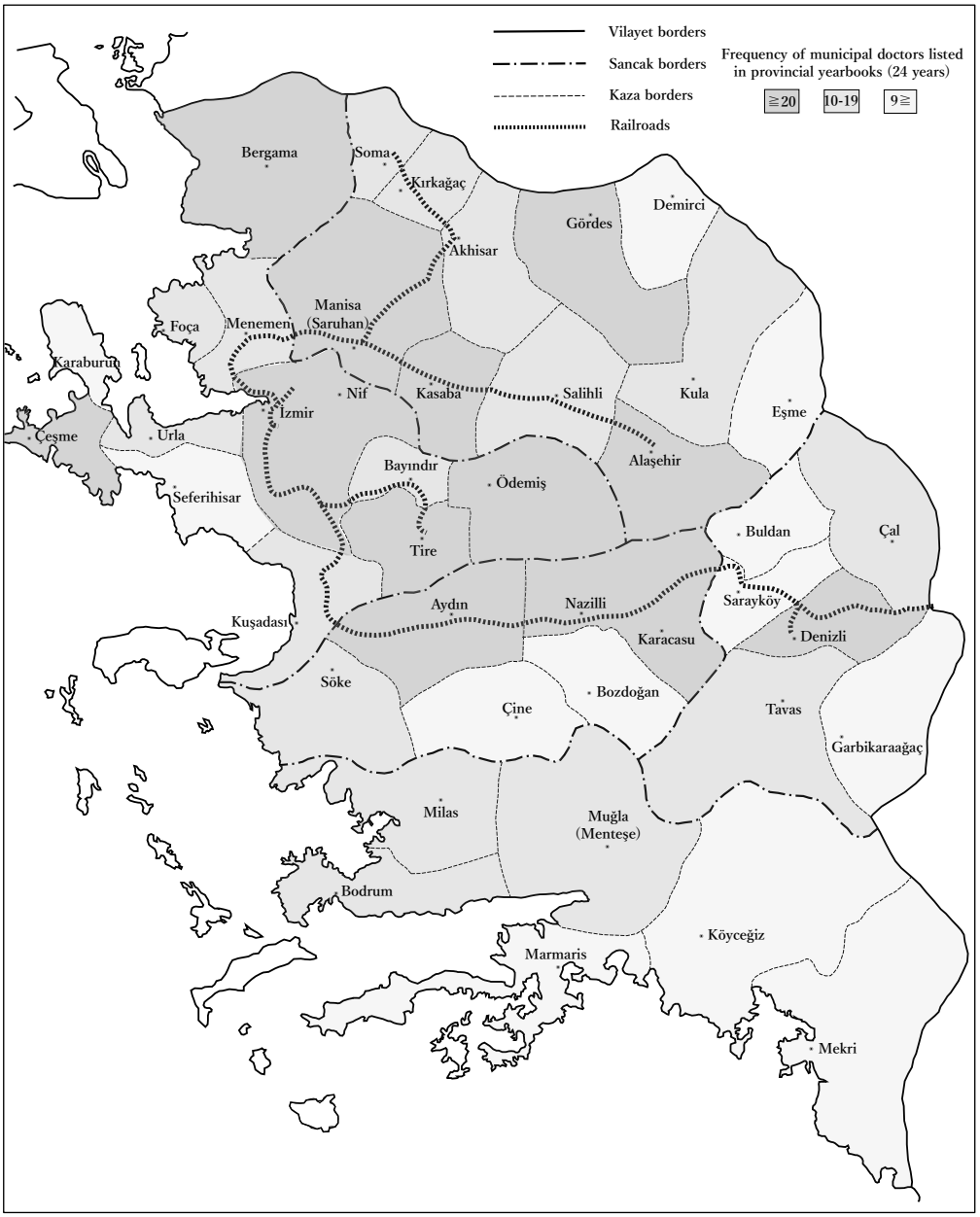
[130] "Daire-i Belediyeden: Umum Mahallat Heyet-i İhtiyariyelerine," *Ahenk*, 4109 (20 Jan. 1910/7 I 1325), p. 3.

accelerated during the same period, including the development of laws related to their specific duties, the hiring and training of auxiliary personnel, such as vaccinators and inspectors, the start of laboratory facilities, and the production of domestically produced vaccines. This period marked a turning point in the emergence of state medicine in the modern Ottoman Empire. Considering that the cholera epidemic triggered modern sanitary reforms in many countries, we may add here that the first cholera epidemic during the reign of Abdülhamid II (r. 1876–1909) occurred during this period.

As this new local hygiene system was gradually established, resources that already existed in society, such as pharmacies in cities, traditional regional communities, and their leaders, were effectively used in its implementation. The role of municipal doctors was not limited to treating the sick, but was expanded into a variety of areas ranging from those related to public health, such as the management of food safety, to those related to the immunization of society against disease, such as the spread of vaccination. Their duties were shared with new personnel, such as chemical analysts and vaccinators, to maintain the health of the community. In the changing relationship between the state and the people, municipal doctors were expected to play a role in linking the health of the inhabitants of the countryside with national interests.

However, in this paper, we have not mentioned the slight discrepancy between the state's blueprint for local sanitary reform through municipal doctors and the situation of the doctors themselves. For example, one of the important roles of municipal doctors was to crackdown on "irregular doctors" who practiced medicine without a license. From a state perspective, the purpose of this crackdown was to protect people's health by guaranteeing the quality of medical care, but from the perspective of poorly paid municipal doctors, it also meant eliminating competitors to attract patients or customers and capturing a share in the medical market. If we look at the obvious fact that these officials, who worked to improve the health of entire communities for the "national interest," were also individuals living in society, a number of important issues emerge, ranging from the social status of doctors to medical fees, the professionalization of the medical profession, and the formation of professional associations. These points will be discussed in a separate article.

Figure 1 : Employment Status of Municipal Doctors in the Aydın Province



Source: *Aydın Vilayet Salnamesi*

Note: Administrative divisions are based on the map attached to the 1891 provincial yearbook

Table 1 : Duties of Civil Doctors

	Provincial Health Inspector	*Municipal Doctor*
Duties	Memberships in sanitary councils and commissions Advisor to government officials Management and supervision of civilian doctors Supervision of the scientific adequacy of medical practice of medical practitioners Regular patrols in the province Various reports to the center Infectious disease outbreak reports Investigation of syphilis cases in the privince Survey of swamps in the province (location, number, size, distance to neighborhoods, toxicity) Investigation of mineral water and spring water (composition, efficacy) Sanitation at each school Supervision of the implementation of vaccinations Inspection of workers' health environment	Free medical care and vaccinations for the poor Medical treatment of military personnel (in the absence of a military doctor) Forensic examination Prisoner medical care Cooperation for critical surgeries Food sanitation management Attention to objects that can be a source of syphilis (shaving, dishes, bathing utensils, etc.) Attention to maternal and child hygiene Reporting outbreaks of infectious diseases to municipal authority Preparation of emergency transport equipment
Common Duties	Crackdown on unlicensed medical practice Response to infectious disease outbreak Drinking water sanitation Medical geographic survey and map preparation and submission Publication of scientific articles in an official newpaper and private newspapers, and lectures on health and hygiene	
Local Sanitation Committee	Waste disposal, checking disinfection stations and sprayers, inspecting hospitals, checking sanitary conditions in newly constructed facilities, dealing with animal infections, managing burial methods for human remains, and compiling statistics.	

Source: Meclis-i Umur-ı Tıbbiye-i Mülkiye ve Sıhhiye-i Umumiye, *Sıhhiye Müfettişlerine ve Etibba-yı Belediyeye Ait Vezaif*, İstanbul: Arşak Garoyan Matbaası, 1326.

Table 3: Employment of Municipal Doctors and Medical Officials in Izmir

Year	*1st District*	*2nd District*	
1879	Çapan		1
1880	Nalbandoğlu Nikolaki	Savriyo	2
1881	Nalbandoğlu Nikolaki	Savra	2
1882	Mustafa	Savra	2
1883	Mustafa	Savrapon	2
1884	—	Savraki	1
1885	—	Savraki	1
1886	—	Savraki	1
1887	—	Savraki	1
1888	—	Savraki	1
1889	—	Savraki	1
1891	—	Savra	1
1893	Fano, Edhem, Hüsnü, İsak Toledano		4
1894	Fano, Edhem, Hüsnü, İsak Toledano		4
1895	Fano, Edhem, Hüsnü		3
1896	Edhem, Hüsnü		2
1897	Edhem, Hüsnü Aşı Memuru Süleyman		2 (1)
1898	Abrulrahman, Edhem Etüv Makine Memuru Arif Aşı Memuru Süleyman Aşı Memuru Erdaş Kabile Olympia Papatoplu		2 (4)
1899	Abrurrahman, Edhem Frengi Tabibi Enstaş Vasiliyadi Etüv Makine Memuru Arif Aşı Memuru Süleyman Kabile Olympia Papatoplu		2 (4)
1901	Abrurrahman, Hüsnü Frengi Tabibi Enstaş Vasiliyadi Etüv Makine Memuru Arif Aşı Memuru Süleyman Kabile Olympia Papatoplu		2 (4)
1902	Abrurrahman, Hüsnü, Dikran Etüv Makine Memuru Arif Aşı Memuru Süleyman Kabile Olympia Papatoplu		3 (3)
1903	Abrurrahman, Hüsnü, Moskos Dikran Etüv Makine Memuru Arif Aşı Memuru Süleyman Kabile Olympia Papatoplu		4 (3)
1905	Abrurrahman, Hüsnü, Nikolaki Danon, Yani Moskos, Dikran Etüv Makine Memuru Ömer Aşı Memuru Süleyman Kabile Olympia Papatoplu		6 (3)
1908	Hüsnü, Abrurrahman, Danon Nikolaki Kabile Olympia Etüv Makine Memuru Ömer Aşı Memuru Süleyman Aşı Memuru Celal		4 (4)

Source: Provincial Yearbook of Aydın for each year; years were converted to the Gregorian calendar for convenience.

* Shaded area indicates medical officials other than municipal doctors.

Table 4: Number of Patients at Izmir Muslim Charity Hospital (1319–1324)

Year	*Patient*	*Recovery*	*Death*	*To the Following Year*	*Outpatient*	*Source*
1319 (1903)	5,551	4,649	686	—	20,099	*Ahenk,* 2327 (19 Mar. 1904/6 III 1320), p. 3.
1320 (1904)	5,577	4,587	645	348	17,799	*Ahenk*, 2633 (21 Mar. 1905/8 III 1321), p. 2.
1321 (1905)	6,452	5,563	744	267	20,738 (Other) 14,375 (Injury) 5,040 (Eye Disease) 3,579 (ENT)	*Ahenk*, 2936 (18 Mar. 1906/5 III 1322), p. 2.
1324 (1908)	7,375 5,915 (Male) 1,460 (Female)	6,211	763	274	—	*Ahenk*, 3862 (28 Mar. 1909/15 III 1325), p. 3.

Table 5: Statistics on Vaccination in the Aydın Province (1903)

	Person in charge	*Location*	*Number of People*
Izmir	Health Inspector, Municipal doctor, Asst.	Districts of Izmir	64,333
	Health Inspector	Izmir prison	44
	Vaccinator of Izmir	Izmir city center, Bornova, Sediköy	25,480
	Menemen municipal doctor	Menemen city center	683
	Vaccinator of Bergama and Menemen	Villages of Menemen and Bergama	1,088
	Odemiş municipal doctor	Prison	55
	Bayındır municipal doctor	Bayındır city center	800
	Vaccinator of Bayındır	Some locations in Bayındır and Odemiş	2,012
	Seferihisar municipal doctor	Seferihisar city center	599
	Karaburun municipal doctor	Karaburun city center	246
	Nif municipal doctor	Nif city center	700
	Çeşme municipal doctor	—	1,640
	Kuşadası municipal doctor	—	1,196
	Urla municipal doctor	Urla city center and villages	6,075
Manisa (Saruhan)	Manisa municipal doctor	Manisa city center	1,184
	Manisa first municipal doctor	Manisa prison	404
	Vaccinator of Manisa	Villages	1,503
	Vaccinator of Akhisar	Akhisar, Kırkağaç, Soma	1,196
	Akhisar municipal doctor	Akhisar prison	11
	Doctor	Kırkağaç	83
	Kırkağaç municipal doctor	Prison, city center	205
	Salihli municipal doctor	Prison, city center	67
	Vaccinator of Salihli	Salihli, Gördes, Demirci	1,589
	Alaşehir municipal doctor	Alaşehir prison	48
	Vaccinator of Alaşehir	—	801
	Kula municipal doctor	Kula, villages	204
Aydın	Vaccinator of Aydın	Aydın, Çine, Söke, Bozdoğan, Karacasu	5,630
	Vaccinator of Nazilli	Aydın, Çine, Söke and Karacasu	11,148
Denizli	Denizli municipal doctor	Denizli prison, Denizli city center	342
	Vaccinator of Denizli	Çal, Buldan and Sarayköy	4,558
	Çal municipal doctor	Çal, prison	105
	Garbikaraağaç municipal doctor	Garbikaraağaç prison	20
Muğla	Vaccinator of Muğla (Menteşe)	Muğla, Milas, Köyceğiz	3,522
	Mekri municipal doctor	Mekri, villages	1,680
	Bodrum municipal doctor	Bodrum	998
	Total Amount		139,249

Source: *Ahenk*, 2389 (31 May 1904/18 V 1320), p. 3.

Table 2 : Employment of Municipal Doctors in the Aydın Province (1879-1908)

Sancak	*Kaza*	*1879*	*1880*	*1881*	*1882*	*1883*	*1884*	*1885*	*1886*	*1887*	*1888*	*1889*	*1891*	*1893*	*1894*	*1895*	*1896*	*1897*	*1898*	*1899*	*1901*	*1902*	*1903*	*1905*	*1908*
İzmir	İzmir	○	②	②	②	②	○	○	○	○	○	○	○	④	④	③	②	③	②,a,k	②,a,k,f	②,a,k,f	②,a,k,f	③,a,k	⑥,a,k	④,a,a,k
	Ödemiş	—	○	○	○	○	○	○	○	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Urla	—	—	○	○	○	○	○	○	○	—	—	○	—	—	—	—	○	○	○	○	○	○	○	○
	Bayındır	—	○	○	○	—	—	○	○	○	—	—		○	○	○	○	○	○	○	○	○	○	○	○
	Bergama	○	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—	—	②
	Tire	—	○	○	○	a	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Çeşme	—	○	—	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Seferihisar				○	—	—	—	—	—	—	—	○	○	○	—	—	—	○	—	○	○	○	○	○
	Foça	—	—	—	—	—	—	—	—	—	○	○	○	○	—	○	○	—	○	○	○	○	○	○	○
	Karaburun																				○	○	○	○	○
	Kuşadası	○		—	○	○	—	○	—	—	—	—	○	—	—	—	—	○	○	○	○	○	○	—	—
	Menemen	—	—	○	—	○	—	○	○	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Nif																				○	○	○	○	○
	Subtotal	3	5	6	9	8	5	8	8	6	7	7	10	9	8	8	8	9	11	10	13	13	12	11	12
Aydın	Aydın	○	○	○	○	○	○	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○
	Bozdoğan	—	—	—	○	—	○	○	○	○	○	○	○	—	—	—	—	○	—	—	—	—	—	—	—
	Çine				—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○
	Söke	—	—	—	—	—	○	○	○	○	○	—	○	○	○	○	○	—	○	○	○	○	○	○	○
	Karacasu																	—	—	—	○	○	○	○	○
	Nazilli	—	○	○	—	—	○	○	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Subtotal	1	2	2	2	1	4	4	3	4	3	2	4	3	3	3	3	3	3	3	5	5	5	5	5
Denizli	Denizli	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○,a,a,e
	Buldan	—	—	—	—	—	—	—	—	—	—	—	—	—	○	—	—	—	—	—	—	—	—	○	○
	Çal							○	○	—	○	○	○	○	○	—	○	○	—	○,a	○,a	○,a	○,a	○,a	○
	Sarayköy						—	○	○	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	—
	Tavas	—	○	○	○	—	—	—	—	—	—	—	—	—	○	○	○	○	○	—	○	○	○	—	○
	Garbikaraağaç										—	—	—	—	—	—	—	○	—	—	—	—	○	○	—
	Subtotal	1	2	2	2	1	1	3	3	1	2	2	2	2	4	2	3	5	3	3	4	4	5	5	4
Saruhan	Manisa (Saruhan)	—	○	○	○	②	②	②	②	②	②	②	②	②	②	②	②	②	②,a,k	②	②	②	②	②	②,e
	Eşme	—	—	—	—	—	—	○	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Akhisar	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Alaşehir	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Table 2 : Employment of Municipal Doctors in the Aydın Province (1879-1908) (*Cont.*)

Sancak	*Kaza*	*1879*	*1880*	*1881*	*1882*	*1883*	*1884*	*1885*	*1886*	*1887*	*1888*	*1889*	*1891*	*1893*	*1894*	*1895*	*1896*	*1897*	*1898*	*1899*	*1901*	*1902*	*1903*	*1905*	*1908*
Saruhan	Demirci	—	—	—	—	—	—	○	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○,k
	Salihli	—	—	—	—	○	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○
	Soma						○	○	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○
	Kırkağaç		○	○	○	○	○	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○,a,k
	Kasaba	—	—	—	○	○	○	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Kula	—	○	—	—	—	○	○	—	○	○	○	○	○	○	○	○	○	—	—	—	—,k	○,k	—	—
	Gördes	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○,a,k	○,a,k	○,a
	Subtotal	1	4	3	4	6	7	7	7	6	6	7	7	7	7	7	7	9	8	8	8	8	9	8	9
Menteşe	Muğla (Menteşe)	○	—	—	—	○	○	○	○	—	—	—	○	○	○	○	○	○	○	○	○,a	○,a	○,a	○,a	○,a
	Bodrum	—	—	—	○	○	○	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○
	Köyceğiz	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	—
	Marmaris	—	—	—	—	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Mekri	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○
	Milas	—	—	—	○	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	○
	Subtotal	1	0	0	2	3	2	2	2	1	1	1	2	3	3	3	3	4	4	4	3	3	4	4	4
	Total Number	7	13	13	19	18	19	24	23	18	19	19	25	24	25	23	24	30	29	28	33	33	35	33	34
	Number of Municipality	29	31	32	33	34	36	37	37	37	37	37	36	38	38	38	38	40	40	40	42	42	42	42	42
	Doctors' Employment (%)	24	42	40	58	53	53	65	59	49	51	51	69	63	66	61	63	75	72	70	79	79	83	79	81

Source : *Aydın Vilayeti Salnamesi*

Note Blank : No data ○: One Municipal doctor ② ③… : More than 2 two Municipal doctors —: No Employment a: aşı memuru k: kabile e: eczacı f: frengi tabibi