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Portable medicine chests and supply of medicines in Serbia from the 1830s to the mid-20th century: analysis of medicines list

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The first portable medicine chests appeared in Serbia immediately after liberation from Ottoman rule around 1830. The network of portable medicine chests grew very quickly and became the first effective public health method of supplying medicines and medical items to people living in cities without community pharmacies and to the rural population in villages. According to their purposes, three categories of portable medicine chests could be identified: Portable medicine chests owned by physicians or veterinarians in the cities, portable medicine chests established by the Department of Workers Health Insurance, and portable medicine chests of the Health Cooperatives that operated in the villages This paper analyzes all three types of portable medicine chests. We specifically examine the regulations concerning the management of portable medicine chests, their content, and supply chains of medicines from the third decade of the 19th century through the first half of the 20th century. We conclude that portable medicine chests represent a specific type of pharmacy in the territory of Serbia that provided very effective medical service. The medicines in these pharmacies were handled and dispensed to patients by physicians not by pharmacists. Patent medicines, compounded medicines, sanitary items and bandage materials were dispensed as well. Future research is needed to ascertain if physicians who owned or worked with the portable medicine chests actually prepared and compounded simple preparations as they were specified in the laws.

1. Introduction

1.1. Socio-economic and health conditions in Serbia from the 1830s to the end of the 19th century

Portable medicine chests appear in Serbia as early as in the 1830s. According to Parojčić and Stupar (2003) they could be considered as the oldest type of pharmacy in Serbia. The chests appeared after Serbia received full autonomy under Ottoman rule in 1830 and lasted through Serbian independence in 1877–1878 until the second half of the 20th century. Being under domination of the Ottoman Empire for centuries had affected Serbia's cultural and medical development. In the 1830s Hatisherif (Hatišerif) recognized Serbia's right to organize internal self-government, including management of health services. Medical care began to progress from 1839 as a result. One of the main goals in the field of medicine was to provide the population in urban and rural areas with quality, safe and effective remedies and therapies, according to the pharmacopoeias of that time, and at affordable prices. In order to provide these services, in the 1830s Serbia began to formulate laws and organize portable medicine chests. Because of the small number of pharmacies and trained pharmacists, portable medicine chests were the most effective way to dispense medicines. Data from the 1830s showed that health care in Serbia at that period was provided by two pharmacists (one working in a privately-owned pharmacy in Belgrade and the other in a state-owned pharmacy in Kragujevac) as well as by nine physicians with with four medical assistants. Between 1826 and 1830 some of these health-care providers came from Austria and Turkey. Additionally, several health care facilities were established: the two pharmacies, three civilian and three military hospitals and quarantine offices – the first of their kind – at border crossings to cope with cholera epidemics that flared up at that time (Stanojević 1955a). The Fund for Hospital and School Maintenance was established. Money for the Fund came from deductions from officials' salaries, with the stipulation that these were intended for treatment of the poor. In mid 1839, according to the provisions of the First Serbian Constitution, management of the healthcare services fell within the purview of the Health Department of the Ministry of the Interior Affairs. The responsibilities of this department were the following public health issues: establishing the first community pharmacies, appointing physicians and midwives, and combating the spread of infectious diseases (Stanojević 1955b). In 1838, the first head of the Health Department of the Ministry of the Interior Affairs, Dr. Carlo Pacek, drafted a manual for the work of district physicians entitled "Ordinance for District and Municipal Physicians" (Stanojevic 1955c). Doctors of medicine were called "physicus." This title was given to the highest level of doctors in charge of preventive and curative medicine in the district. These physicians were responsible for other doctors, pharmacists, and midwives in his district.

One of the tasks of district physicians was to keep portable medicine chests. By law, physicians and also veterinarians had the right to hold portable medicine chests in localities where there were no community pharmacies. The Ordinance for District and Municipal Physicians of 1839 stipulated the items that portable medicine chests should contain and how these items should be stored. Indeed, the medicine chests – sturdy boxes with many compartments – were truly portable pharmacies. In addition to packaged medicines, they contained utensils for the preparation and dispensing of medicines by the doctor during his travels around the district. The physicians carried the portable medicine chests with them in a car or other vehicle, so that upon arriving in a country village they could erect a temporary medical office and a pharmacy in a municipal building or even in a private home. The Ordinance for District and Munic-

ipal Physicians, periodically amended, remained in force until the end of the 19th century (Marjanović 1970).

This paper analyzes portable medicine chests in the territory of Serbia, taking into account different periods and administrative changes that affected Serbia's borders. The paper examines four main periods: The Principality of Serbia (1830–1882), The Kingdom of Serbia (1882–1918), The Kingdom of Serbs, Croats and Slovenes (1918–1929) and The Kingdom of Yugoslavia (1929–1945).

At the end of 1870, district physicians who worked in 17 districts and county physicians who worked in 21 county administrations were appointed. Municipal physicians were placed in 12 municipalities with two in Serbia's capital city, Belgrade. District hospitals were established in 13 towns. Fourteen community pharmacies were established (Stanojević 1955d). After the Turkish-Serbian wars of 1876 and 1877–1878, the borders of Serbia were changed and the newly liberated territory was annexed to the Serbian state, which led to a change in the operations of the public health service (Milićević 1884). The majority of the population in the newly liberated areas lived in villages with no pharmacies, and thus no medicines were available. In 1884 there were 1,547,255 inhabitants in Serbia (SOS 1953a).

1.2. Socio-historical conditions in Serbia from the first decade to the first half of the 20th century

In 1900, the number of Serbian citizens increased to 2,529,196 (SOS 1953b). Health care between the two World Wars in Yugoslavia was in line with the society as well as economic and social situation in the country. The number of health care staff in Serbian districts in 1900 is shown in Table 1. The basic demographic indicators in the Kingdom of Yugoslavia after the First World War were those of an underdeveloped country where the birth rate was high as was mortality. In 1921, the number of live births per 1,000 population was 36.70, while the number of stillbirths was 20.91 (Gerić et al. 1982a).

The most common diseases in 1930 were: tuberculosis, typhoid fever, dysentery, malaria, measles, polio and other viral infections. The aforementioned diseases were mostly present in rural children because there was no health service in the countryside and the number of physicians was very small (Gerić et al. 1982b).

1.3. Medicines supply at pharmacies

In the first decade of the 20th century 72 pharmacies operated in Serbia (Delini 1967a). A concession system, that was still in force at the end of the Second World War, governed the establishment of pharmacies. The number of pharmacies was limited by a regulation that linked new pharmacies to the number of inhabitants in a municipality (Delini 1967b). In October, 1929, some changes were made in the administration of the counties (OG 232/1929). The Law on Counties' Administration gave the Department for Social Policy and Public Health some new responsibilities: issuing a permission to individuals to manage a pharmacy, issuing permissions for apothecary concessions as well as permissions for operating drugstores, issuing permissions to import and sell poisons and issuing permissions for recharging the apothecary bills of state institutions.

The first pharmacists in Serbia had received their degrees in Vienna, Graz, and Budapest. Later they studied pharmacy at the University of Zagreb. The Pharmaceutical Training Course established at the University of Zagreb in 1882 had a positive impact on the number of pharmacy students from Danube County. Although Danube County was the second largest in Serbia, it had the greatest number of pharmacies due to following reasons: 1. The high level of pharmacy training and dispensing in Austria-Hungary generated the establishment of the first pharmacies in the territory of Vojvodina (an area populated by Serbs fleeing the Ottoman Turks in the 17th and 18th centuries); 2. Compounding pharmacies were necessary because drug supply after the First World War was extremely poor due to lack of a domestic industry and lack of factories producing pharmaceutical and medical equipment. Additionally, Serbia had difficulty acquiring medicines from wholesale pharmacy suppliers at that time as connections had been interrupted due to unfavorable traffic relationships and the impossibility of new countries getting affordable credits from the companies in older states (such as Germany, Switzerland, Poland, and France). Import of medicines and medical equipment was, thus, very weak. Typhus was devastating in Serbia during the First World War (and remained a major threat for citizens in the Second World War) as did malaria and parasitic diseases which especially ravaged rural areas. However, improved public health network, health care structure and health education remedied these unfavorable health conditions.

Table 1: Number of Health care staff in Serbian districts in 1900

District*	Town population	Rural population	Pharmacists	District physician	County physicians	Municipality physicians	Private physicians	Military physicians
Belgrade without city of Belgrade	4,145	121,972	1	1	4	–	–	–
Belgrade City	69,769	–	16	12	7	8	23	10
Valjevo	12,359	121,140	4	1	4	–	1	3
Vranje	29,445	183,278	4	1	4	2	–	2
Kragujevac	30,194	130,510	5	2	4	2	–	6
Krajina	12,966	85,603	3	1	3	1	–	1
Kruševac	10,774	127,714	3	1	3	1	1	1
Morava	27,456	142,633	4	2	5	4	2	1
Niš	32,115	142,513	6	2	4	2	–	7
Pirot	12,384	84,224	2	1	2	1	–	1
Podrinje	17,448	187,031	4	2	3	2	2	–
Požarevac	33,228	197,334	5	1	7	3	1	–
Rudnik	12,517	182,974	5	2	4	1	–	1
Smederevo	13,390	109,554	3	1	3	1	1	–
Timok	14,924	120,142	1	1	2	–	–	–
Toplica	6,925	83,591	2	1	3	1	–	–
Užice	10,976	120,643	2	1	2	1	–	1

* The Principality of Serbia had 16 districts and Belgrade town. District was the level of administrative-territorially subdivision introduced earlier, in 1900 from to the Kingdom of Serbia.

3. Investigations, results and discussion

This paper now proceeds to analyze the network of portable medicine chests, including portable medicine chests owned by physicians, medicine chests owned by the Department of Workers Health Insurance, and those owned by Health Cooperatives. We specifically examine regulations concerning the management of portable medicine chests, their content, and supply chains of medicines from the third decade of the 19th century through the first half of the 20th century.

Firstly, we explore laws and regulations governing portable medicine chests. A number of laws, from the 1830s through the 1930s, determined who could own portable medicine chests, the contents of the chests, periodic inspection of the chests, and so on. The laws and regulations analyzed included the following: the Law for Pharmacies and Pharmacists on Keeping and Selling Medicines and Poisons (1865), Ordinance for Pharmacies Regarding Keeping Public Pharmacies (1865), The Law on Surveillance of Pharmacies and Medicine Sold at the Market (1930), the Regulation on pharmacies of Department for Workers Insurance Office (1930), the Regulations on Portable Medicine Chests for Physicians and Veterinarians with amendments (1931) (ZAADPLO 1866; NAPDA 1865; OG 85/1930; OG 128/1930; PPALV 1932). In order to analyze the content of the portable medicine chests, we first investigated official lists stating which medicines were obligatory between the 1870s and the 1940s. Three such lists for portable medicine chests were included. They were published between 1866 and 1931. Through qualitative analysis we determined that all medicines were appropriately classified in different pharmaceutical dosage forms under the name of the medicine. In checking the availability of the medicine, we referred both to the number and the variety of different pharmaceutical dosage forms in all the medicine lists we analyzed. Quantitative analysis of differences in the availability of various pharmaceutical dosage forms between three comparable medicines lists were conducted manually. All medicines on the market had to be introduced in the lists of portable medicine chests.

The data were collected by searching primary and secondary resources from: the State Archive of Serbia, the History of Pharmacy Museum at the Faculty of Pharmacy of the University of Belgrade, and the Library of Matica Srpska in Novi Sad. Results of the analyses were presented separately for each form of portable medicine chests.

3.1. Establishing regulatory requirements for portable pharmacies in Serbia from the 1830s until the end of the 19th century

The first official rule for keeping portable medicine chests was issued in 1839. It was the Ordinance for District and Municipal Physicians, a written ordinance of 23 points stating that district physicians and veterinarians were obliged to keep portable medicine chests in the municipalities where there were no community pharmacies: "In the municipalities where no community pharmacies are open, physicians will keep, on their own, portable medicine chests and community pharmacies pursuant to the regulations for apothecaries and the rules given by the Ministry of Internal Affairs. Also, they will provide medicines individually and dispense them according to patients' needs. Besides physicians, in the municipalities where there are no community pharmacies, medicines may also be kept and dispensed through domestic trade, according to the permission of policy administration and the Ministry of Interior decision on what medicines may be kept." (Parojčić and Stupar 2002; SAS 1839). The permissions were valid only for the municipalities where the permission had been previously issued, which expired when a community pharmacy was opened. These provisions for handling portable medicine chests had many amendments and remained in force until the end of the 19th century.

In order to increase the availability of medicines, in 1865 the first Law for Pharmacies and Pharmacists and Keeping Medicines and Poisons regulated physicians' duties to keep, preserve and supply portable pharmacies with the complementary list of necessary medicines (ZAADPLO 1866).

3.2. Establishing regulatory requirements for portable pharmacies in Serbia in the first half of the 20th century

The Law on Surveillance of Pharmacies and Medicines Sold at the Market in Serbia focused on three types of portable medicine chests (OG 85/1930):

1. Portable medicine chests of physicians and veterinarians,
2. Portable medicine chests of the Department for Workers Insurance Office,
3. Portable medicines chests of Health Cooperatives.

Before 1931, when the Unitary Pharmacy Law was enacted, some of the pharmacy laws and regulations in the counties comprising the Kingdom of Serbs, Croats and Slovenes, in force since 1918, were unequal. The Law on Surveillance of Pharmacies and Medicines Sold at the Market, issued April 14, 1930, regulated the responsibilities of physicians managing portable medicine chests, such as the supply, dispensation and storage of medicines in the portable medicine chests. In fact, we suggest that the laws in force only weakly regulated the portable medicine chests. We suggest that the regulatory requirements have been exaggerated by the authors Arsić and Krajnović (Arsić et al. 2017a, b).

3.3. Organization and supervision of portable medicine chests

Supervision over the use of the portable medicine chests by their owners was carried out by the Ministry of Internal Affairs through district physicians (SAS 1839). The district physicians were appointed by the Royal Ordinance from candidates proposed by the Ministry of Internal Affairs. In addition to the stipulation that the district physicians had to be Serbian citizens, those appointed to the post were required to have at least five years of work experience as Serbian physicians in the state service, and to have passed the exam for physicians given by a commission that included representatives of the General Medical Council.

The Law on Health Care and Public Health Protection, issued March 31, 1881, modified over the years with amendments, remained in force until 1912. The Law stipulated that the opening of new community pharmacies depended on the number of citizens in a municipality where a request or initiative to open a new pharmacy had occurred. "In the places where a community pharmacy exists a new one may be opened if the number of citizens has reached 6,000 people. The third community pharmacy can be opened if there are an additional 4,000 people, and any other new pharmacy will require 5,000 people…." (SJ 79/1881). Article 24 of the Law stated that only physicians were allowed to keep and dispense medicines in the municipalities where no community pharmacy existed. Conversely, traders were forbidden to do this, as established by the law of 1865.

3.3.1. Portable medicine chests of physicians and veterinarians

According to the Law on Surveillance of Pharmacies and Medicines Sold at the Market, issued April 7, 1930, physicians and veterinarians could receive permission for keeping portable medicine chests only if there was no portable medicine chest in the municipality where they were engaged. This permission was issued only to those physicians and veterinarians who had practiced at least one month in community and hospital pharmacies. More precise conditions on prescriptions, dispensing, and payment were defined by the Regulations on Portable Medicine Chests of Physicians and Veterinarians, the Regulations on Professional Supervision of Pharmacies, and also by the *Taxa medicamentorum* – Government regulations on the prices charged by all pharmacists, physicians and veterinarians when prescribing and selling medicines. Granting permissions for keeping portable medicine chests merely addressed the real needs of people. They did not impair

the existence of community pharmacies (OG 85/1930). Permission for keeping portable medicine chests was issued by the Minister of Social Policy and Public Health on the territory of Belgrade, while the other permissions were issued by the governor in the counties following approval of the counties' Sanitary Council (OG 85/1930). These permissions were valid only for the municipality in which they were approved. The medicines, sanitary and bandage material in the portable medicine chests were to be supplied from the Central Sanitary Assortment at the Workers Insurance Department as well as from the pharmacies at the Workers Insurance Department if maintained by physicians and pharmacists with a Masters' Degree.

3.3.2. Portable medicine chests of the Workers Insurance Office

The Law on Workers' Insurance was adopted May 14, 1922 to provide a unified workers' health insurance system in the Kingdom of Yugoslavia (OG 117/1922). The law established the Central Department of Workers' Insurance. This body played a crucial role in managing the network of district insurance departments and coordinating them on the territory of the entire country. According to the Regulations for Pharmacies in the Department for Workers Insurance of the Kingdom of Yugoslavia from June 10, 1930, portable pharmacies of the Department for Workers Insurance were to be maintained by physicians subordinate to the department who met the requirements prescribed by the Law on Surveillance of Pharmacies and Medicines Sold at the Market. The Central Department for Workers Insurance began to operate in 1932 in Belgrade. Permission for keeping the portable medicine chests of the Workers Insurance Department in Belgrade was approved by the Ministry of Social Politics and Public Health. Implementation was carried out in the counties by the county governor after consultation with the County Sanitary Council. The permission for opening a portable medicine chest for the Workers Insurance Office expired when a pharmacy had been opened in the same municipality. Permissions were valid only for the place that had been approved and the right to maintain a portable medicine chest was given only to district physicians. The Regulations for Managing Central Apothecary and Sanitary Assortment of the Office for Workers Insurance in Zagreb, stipulated how the apothecary and sanitary assortment must be preserved and distributed in the county. The county was to supply all the institutions with medicines, bandage and sanitary material from the county's Office for Workers Insurance. New medicines and medicines in special coatings for workers' insurance were to be prepared and launched on the market in conformity with the rules of the State Pharmacopoeia and the Regulations of the Law on Surveillance of Pharmacies and Medicines Sold on the Market. The Assortment was supervised by the Ministry of Social Politics and Public Health.

3.3.3. Portable medicine chests of Health Cooperatives

The third category of portable medicine chests was under the jurisdiction of Health Cooperatives. They were founded according to the Law on Health Cooperatives enacted December 30, 1930 (ZZZ 1930). Pursuant to these laws, portable medicine chests belonging to health cooperatives were managed by physicians. Maintaining the chests and dispensing were conducted according to the same conditions stipulated for the other two types of pharmacies with the exception that drugs within this type of pharmacy might be dispensed only to members of the cooperatives, even in the municipalities where a community pharmacy existed. The establishment of the Health Cooperatives resulted from a situation that emerged after the Second World War, when farmers took measures to manipulate the health insurance system. Low availability and high prices for medicines gave farmers the idea to band together to obtain cheaper medicines, as only a few citizens had the right to obtain drugs based on their insurance (as shown in Table 2) (KYU 1932; KYU 1933). Owners of pharmacies opposed the farmers' attempt to join together to obtain medicines from the portable medicine chests of Health Cooperatives. However, the farmers had no organized system of health insurance. The state took no responsibility for the insurance of available health care and medicines. Nevertheless, the "working classes" had succeeded in obtaining rights to "social insurance" and clerks – or white-collar workers invested in voluntary health insurance within the system of hospital healthcare expenditures, so called „krankenkasa" (Gerić et al. 1982c). The post-war crisis induced farmers to form cooperatives in order to protect their own health should they become impaired the well-being of their families. The low availability of medicines and their high prices also prompted workers to band together

Table 2: Trend of Health Cooperatives, members and medicine trade

Year	Number of Health Cooperatives	Number of Health Cooperative members	Number of treated members	Sold medicines (in dinars*)
1923	13	5,040	14,568	119,940
1924	17	5,671	14,179	227,205
1925	21	8,386	16,777	370,553
1926	28	10,810	19,307	525,798
1927	30	11,650	29,257	739,883
1928	43	14,403	33,242	968,511
1929	53	13,372	34,445	1,232,676
1930	59	16,647	36,180	1,241,984
1931	67	17,598	34,445	1,208,419
1932	70	30,462	38,262	1,161,221
1933	90	43,874	58,577	1,200,000
1934	100	51,339	61,467	1,569,435
1935	108	56,506	64,226	1,473,835
1936	110	55,442	76,975	1,624,764
1937	127	61,249	101,182	2,089,177
1938	134	65,436	105,875	2,801,923
1939	144	68,745	150,084	2,717,367

Resource: KYU 1932, KYU 1933
* 1 U.S. dollar is about 56,4 dinars at that time in Kingdom of Yugoslavia

in order to obtain lower prices of medicines. In addition, new regulations allowed physicians to dispense medicines from their portable medicine chest to a patient even if it had been prescribed by another physician. Further, the stipulation that a physician, as an owner of a portable medicine chest, could not dispense a medicine to an individuals who lived in a municipalities where a community pharmacy operated-even if that person was a patient of the physician-was negated.

All physicians who managed a cooperative's pharmacy on their own had the right to operate the cooperatives' portable medicine chests individually which had been the case before the Law on Surveillance of Pharmacies and Medicines Sold at the Market was enacted. The members of cooperatives had the right to supply their needs for medicine from cooperatives' portable medicine chests even when there was a community pharmacy in the vicinity. Cooperatives' portable medicine chests and veterinary pharmacies were supplied from the apothecary and sanitary assortment of the Association of Health Cooperatives in Belgrade. The Association was authorized to establish a pharmaceutical laboratory for making medicines for the needs of the cooperatives' pharmacies. However, according to present data, we were not able to determine that such a laboratory actually was established.

The first Health Cooperative was founded in November 11, 1921 in Bajina Bašta and the number of cooperatives increased up to 145 until 1939 (Gerić et al 1982d).

3.4. Portable medicine chests network in Serbia in the first half of the 20th century

In 1900, 331,015 people in Serbia lived in cities and 2,141,867 in villages (EG 1909). With the new administrative division, the territory of Serbia was divided into five sections, and the territories inhabited by Serbs into eight counties. The western parts of Serbia were part of the Drina Banovina, and the Moravian Banovina comprised the central and eastern parts of Serbia.

In the 1940s pharmacies operated only in Danube, Drava and Sava counties as well as in bigger villages, while in other counties existing pharmacies were located only in the cities (shown in Table 3). The ratio between the number of available pharmacies and the existing population indicates that one pharmacy served about 68,000 of people in the villages and that the recommended proportion for population was 1 pharmacy to 4,000 people. If we consider the health condition of the population in relation to administrative units, i.e. counties of that time, we can observe unfavorable demographic trends, where Vardar, Drina and Vrbas counties were in the most unfavorable position (high mortality level), indicating a that health conditions of the population and social and demographic conditions were backward.

In extremely unfavorable health conditions in the first decades of 20th century physicians were still obliged to keep portable medicine chests wherever there were no community pharmacies. Physicians and veterinarians who sought the permission were obliged to submit their application with evidence of having completed one-month practical engagement in a community or hospital pharmacy. The certificate on completed practical work was issued by the head of the pharmacy or the director of the hospital.

3.5. Specificity of affordability of medicines from portable medicine chests of Health Cooperatives

Portable medicine chests supplied medicines exclusively for the cooperative members, even in the places where community pharmacies were operating. Medicine discounts were approved at 30% of the fixed price on average (ZZZ 1930). All the physicians involved in cooperatives who conducted pharmacies individually for at least three months had the right to manage portable medicine chests owned by cooperatives on their own before the Law on Surveillance of Pharmacies and Medicines Sold at the Market was enacted (OG 85/1930). Only the members of cooperatives had the right to supply their needs for medicines from cooperatives' portable medicine chests where community pharmacies existed. The budgets of Health Cooperatives were supported from various sources: patients' funds, American mission sources, money from cooperative members, and from the services of cooperatives' physicians. Physicians operating within cooperatives could treat farmers who were not cooperative members. After a medical checkup was completed, cooperative physicians dispensed medicines from portable medicine chests. The founders of the Health Cooperatives defended their rules by pointing out the need to establish portable medicine chests managed by physicians. They emphasized that the chests would make medicines more available. With the portable chest at hand a patient could take his prescribed medicine immediately after his checkup in the cooperative's polyclinic, thus sparing the patient the need to make a separate trip to a community pharmacy or to a private pharmacy. Another significant point in favor of the cooperatives having their own portable pharmacy chests was that the prices for medicines dispensed from these chests were much more affordable. As mentioned above, on average prices were 30% lower than for medicines dispensed from privately owned pharmacies (Gerić et al. 1982e).

3.6. Analysis of medicines supply

The owners of portable medicine chests had to supply all necessary medicines from the nearest community pharmacies, such as: drugs, chemicals, proprietary healing products, galenical preparations,

Table 3: Number of Community pharmacies in 1937/1938

County of Yugoslavia	N Community pharmacies	N Community pharmacies in town	N Community pharmacies in village	One Community pharmacy per		Number or Pharmacy staff: pharmacists and pharmacy assistants
				Population	Km^2	
Danube	259	130	129	9,816	116	466
Sava	179	139	40	16,238	207	181
Vardar	78	78	_	22,705	498	121
Drava	74	62	12	16,228	215	158
Belgrade	63	63	_	6,276	4	271
Drina	57	56	1	31,548	519	121
Morava	54	54	_	29,963	486	131
Primorje	46	46	_	21,136	421	91
Zeta	39	39	_	26,447	788	55
Vrbas	29	29	_	40,788	705	31
Total:	878	696	182	510	283	1,626

Resource: Gerić et al. 1982

bandage material, sera and healing waters. The community pharmacies were obliged to give a discount of 30% for each order of officially approved medicines delivered to the owners of portable medicine chests. However, the discount did not apply to bandages or other sanitary material, dietary preparations, the proprietary products, mineral waters and leeches.

Portable medicine chests of the Department for Workers Insurance were supplied with medicines as well as sanitary and bandage material from the Central Assortment of the Department for Workers Insurance. Doctors and pharmacists with a Master of Pharmacy degree who worked in the pharmacies of the Workers' Insurance Department actually did the ordering.

Those in charge of the portable medicine chests were obligated to comply with the rules for portable medicine chests of doctors and veterinarians, issued by the Sanitary Department of the Ministry of Social Policy and Public Health as well as with the rules of the Central Department for Workers Insurance. These rules not only addressed the prescribing and dispensing but stipulated that payment for medicines, bandage materials, and vessels was to be made on the account of the General Department for Workers Insurance in Belgrade supplemented by the patient's own funds. The latter were maintained for the personnel of the State traffic, and miners (insured by the Central Social Insurance for Miners), and the Association of Health Cooperatives.

The portable medicine chests of Health Cooperatives were supplied with medicines, sanitary materials, and other items from the Apothecary and Sanitary Assortment of the Association of Health Cooperatives in Belgrade. Medicines were prepared according to existing Pharmacopoeia with the stipulation that the contents carried in the portable medicine chests had to be simple (*expeditio simplex*).

3.7. Analysis of the equipment

The equipment in the doctors' and veterinarians' portable medicine chests in the 1930s included: a cupboard with medicines, a cupboard with poisons, a desk for dispensing medicines, a balance scale with weights (from 0.005 g to 200 g), three calibrated gauge glasses, a little metal mortar, taring cups, a glass funnel, a device for making pills, three putty knives, teaspoons made from bones and yellow metal, devices for infusing and decocting preparations, and several boxes for drug storage. The Regulations on Portable Medicine Chests for Physicians and Veterinarians allowed that other medicines from the Pharmacopoeia could also be kept.

The portable medicine chests of Health Cooperatives were obliged to contain utensils such as a desk, an apothecary balance scale and two hand balances – one of which of 50 g and the other one of 5 g; two mortars with pestles, two to three patens, three putty knives, two to three measuring cylinders, one to two pots for filtration; three glass funnels; a primus stove (a small cocker that burns paraffin); two tablespoons for powders and a pair of scissors. The initial equipment and the simple infrastructure of Health Cooperatives expanded as the polyclinics became more complex so that in addition to a dispensary the cooperatives also had portable medicine chests.

3.8. Analysis of the portable medicine chests' location and literature

Portable medicine chests were to be stored in dry and light facilities under appropriate hygienic conditions. All medicines were stored in vessels marked as prescribed. All the provisions in force for medicine quality in community pharmacies were also applied for portable medicine chests. Narcotic drugs and poisons were stored according to the Law on the Trade and Control of Narcotics and Poisons issued in 1929 (OG 281/1929) as well as to the Provisions regarding the Trade and Control of Narcotics and Poisons promulgated a year later in 1930 (OG 150/1930). According to the rules from 1931, each portable medicine chest had to include the official State Pharmacopoeia, a medicine book, a registry of dispensed medicines, and the medical tax or proprietary medicines price-list. Portable medicine chests were under the management of a veterinarian who had appropriate qualifications and who had been given permission to carry out professional activities with a portable medicine chest according to the Law on the Surveillance of Pharmacies and Medicines Sold in the Market. The doctors and veterinarians in charge of portable medicine chests were required to document all business transactions in books that included medicine's name, the day of supply and the signature of the pharmacist who dispensed the medicine. The doctors and pharmacists in charge of the portable chests were further required to keep records of the prices of the medicines dispensed, according to the *Taxa medicamentorum* and the Price-List of Proprietary Medicines. As the medicine lists also contained narcotic drugs, the registers defined that drug control and traffic had to conform to the Registers on Trade and Control of Narcotics and Poisons.

3.9. Content analysis of the medicine list of portable medicine chests

In defining the list of medicines required, The Registers on the Portable Medicine Chests of Physicians and Veterinarians provide information on the diseases which needed to be treated. According to the first report of the head of the Council on sanitary conditions in the country

Table 4: Compound medicines, drugs, raw materials and chemical ingredients listed in all observed portablee medicine chests

Portable medicine chest list according to			
The Ordinance for physicians who were obliged to keep portable medicine chests (1866)		**The Regulations on Portable Medicine Chests for Physicians and Veterinarians (1931) and The Regulation on Portable medicine chests of the Department for Workers Insurance Office (1930)**	**The Law on Health Cooperatives (1931)**
1.	Acetas morphii	Acetphenetidinum	Phenacetin
2.	Acetas plumbi depuratus	Acididum aceticum concentratum	Acidum aceticum
3.	Acidum aceticum crudum	Acidum acetylo-salicilycum	Acidum acethylo-salicylicum
4.	Acidum arsenicosum	Acidum sulfuricum dilutum	Acidum arsenicosum
5.	Acidum citricum crystallisatum	Acidum boricum	Acidum boricum
6.	Acidum muriaticum concentratum purum	Acidum tannicum	Acidum carbolicum liquefactum
7.	Acidum nitricum concentratum purum	Acidum carbolicum	Acidum citricum
8.	Acidum phosphoricum concentratum purum	Acidum tartaricum	Acidum salicylicum
9.	Acidum sulfuricum concentratum purum	Adeps lanae	Acidum tannicum

Portable medicine chest list according to			
The Ordinance for physicians who were obliged to keep portable medicine chests (1866)		**The Regulations on Portable Medicine Chests for Physicians and Veterinarians (1931) and The Regulation on Portable medicine chests of the Department for Workers Insurance Office (1930)**	**The Law on Health Cooperatives (1931)**
10.	Acidum tartaricum	Aether depuratus	Adeps lanae
11.	Aether sulfuricus	Althae radix	Aether sulfuricus
12.	Agaricus chirurgorum	Alumen crudum	Aether aceticus
13.	Aloe soccotrina	Ammonia	Aether pro narcosi
14.	Alumen crudum	Antidotum arsenici mixtura	Alcohol
15.	Ammonia pura liquida	Antipiryn	Aloe
16.	Aqua Laurocerasa	Agrentum-proteinicum	Althea
17.	Balsamum Copaive	Argentum nitricum fucum	Alumen
18.	Bicarbonas sodae	Aqua calcis	Ammonia
19.	Bismuthum subnitricum	Aqua destilata	Amylum tritici
20.	Borax depurata	Aqua amygdalae amarae	Antipyrinum
21.	Camphora	Bismuthum subgallicum	Antipyrinum coffein citricum
22.	Cantharides in pulvere	Bismuthum subnitricum	Aqua Amygdalae amararum
23.	Carbonas ammoniae	Camphora	Aqua calcis
24.	Carbonas magnesiae	Calcium sulfuricum	Aqua destillata
25.	Cera flava	Chloralum hydratum	Aqua Rosarum
26.	Charta exprorativia**	Chloroformium purum	Aqua Menthae piperitae
27.	Chloras calcis	Chloroformium pro narcosi	Argentum nitricum
28.	Chloroformium	Chininum hydrochloricum	Argentum proteinicum
29.	Collodium	Cuprum sulfuricum	Atropinum sulfuricum
30.	Cortex Chinae fuscus	Codeinum hydrochloricum	Balsamum Copaivae
31.	Cortex Garnatorum radicis	Cofeinum-natrium-benzoat	Balsamum Peruvianum
32.	Cremor tartari	Collyrium adstringent luteum	Bismuthum subgallicum
33.	Cubebae in pulvere	Emplastrum adheasivum elasticum extensum	Bismuthum subnitricum
34.	Emplastrum anglicanum	Emplastrum Diachylon compositum	Camphora
35.	Emplastrum Cantharidum	Emplastrum Hydrargyri	Carbo medicinalis
36.	Emplastrum Diachylon compositum	Extractum Secale cornutum	Cera
37.	Emplastrum Euphorbii	Extractum liquiritae	Cetaceum
38.	Extractum Belladonnae	Extractum Filicis maris	Chamomillae vulgaris
39.	Extractum Gentianae	Extractum hydrastidis fluidum	Charta sinapisata
40.	Extractum Hyosciami foliorum	Farina sinapis	China
41.	Extractum nucis vomica	Ferrum sesquichloratum	Chininum hydrocloricum
42.	Extractum Opii aquosum	Flores Chamomillae vulgaris	Chininum sulfuricum
43.	Extractum Ratanhiae	Folia Digitalis purpurea	Chininum tannicum
44.	Farina Lini	Folia Sennae Alexandrinae	Chloroformium
45.	Farina Sinapis	Glycerinum	Chloroformium pro narcosi
46.	Ferrum limatum alcoholisatum	Hydrargyrum chloratum mite	Cocainum hydrocloridum
47.	Ferrum oxydatum dyhidricum in aqua	Hydrargyrum bichlolratum corrosivum	Codeinum phosphatum
48.	Ferrum sesquichloratum crystallisatu	Hydrargyri oxydatum flavum	Coffeinum natrii benzoicum
49.	Flores Chamomillae	Hydrogenium hyperoxydatum solutum	Collodium
50.	Flores Sambuci	Jodoformium	Digitalis
51.	Flores sulfuri loti	Jodum	Emplastrum adhaesivum
52.	Flores Tiliae	Kalium chloricum	Extractum Belladonnae
53.	Folia Digitalis	Kalium hypermanganicum	Extractum Condurango fliud
54.	Folia Digitalis in pulvere	Kali tartaricum stibiatus	Extractum Filicis maris

Portable medicine chest list according to			
The Ordinance for physicians who were obliged to keep portable medicine chests (1866)		**The Regulations on Portable Medicine Chests for Physicians and Veterinarians (1931) and The Regulation on Portable medicine chests of the Department for Workers Insurance Office (1930)**	**The Law on Health Cooperatives (1931)**
55.	Folia Sennae	Kalium arsenicosum solutum	Extractum Hydrastis canadensis fluid
56.	Gummi arabicum in pulvere	Kalium natrio-tartaricum	Extractum Liquiritae
57.	Herba Menthae piperitae	Kalium sulfoguajacolicum	Extractum Opii
58.	Hirudines	Kresolum saponatum	Extractum Secalis cornuti
59.	Hydrargyrum bichloratum corrosivum	Linum semen	Extractum Stryhni
60.	Hydrargyrum chloratum mite	Liquritae pulvis	Extractum Viburni fluid
61.	Hydrargyrum oxydatum rubrum	Liquor amonniae anisati aq.arom	Ferrum carbonicum saccharatum
62.	Jodum	Magnesium sulfuricum	Formaldehydum
63.	Kali nitricum depuratum	Magnesium carbonate	Glycerinum
64.	Kalium jodatum	Magnesium oxydatum	Gossipium**
65.	Kreosolatum	Morphinum hydrochloricum	Gutapercha**
66.	Lapis causticus	Menthol	Guajacolum purum carbonicum
67.	Lapis infernalis	Natrium hydrocarbonicum	Herba Herniaria
68.	Lichen islandicus	Natrium salicylicum	Hydrargirum bichloratum amoniatum
69.	Manna	Natrium sulfuricum	Hydrargirum bichloratum corrosivum
70.	Mel depuratum	Natrium bromatum	Hydrargirum chloratum mite
71.	Oleum crotonis Tiglii	Oleum Camphoratum	Hydrargirum oxydatum flavum
72.	Oleum Jecoris aselii	Oleum Olivarum	Hydrogenium hyperoxydatum
73.	Oleum Menthae piperitae	Oleum Ricini	Ipecacuanha
74.	Oleum Olivarum	Oleum Cacao	Jodoformium
75.	Oleum Ricini	Oleum Jecoris aselli	Jodum
76.	Pilulae drasticae	Oleum Terebinthinae rectificatum	Kalium arsenicosum solutum
77.	Radix Jalappae in pulvere	Opium	Kalium bromatum
78.	Radix Ipecacuanhae in pulvere	Pulvis radix Ipecacuanhae	Kalium chloricum
79.	Radix Rhei in pulvere	Pulvis Rhei chinensis	Kalium hypermanganicum
80.	Radix Salep in pulvere	Pastilli hydrargyri bichlorati corrosivi	Kalium jodatum
81.	Radix Valerianae	Phenylium salicylicum	Kalium sulphoguajacolicum
82.	Saccharum album	Plumbum aceticum basicum solutum	Kreosotum
83.	Sal Amoniacum depuratum	Pulvis liquiritiae compositum pulv	Kalium carbonicum
84.	Scilla marina in pulvere	Radix Ipecacuanhae	Kresolum saponatum
85.	Secale cornutum	Saccharum	Liquor ammoniae anisati
86.	Semen Lini	Santoninium	Magnesium oxydatum
87.	Semen Santonici	Salep	Magnesium sulfuricum
88.	Semen Sinapis	Sal carlsbadense	Mentholum
89.	Species Altheae	Sapo medicinalis	Morphium hydrochloricum
90.	Species Amaricantes isto	Sapo viridis	Natrium benzoicum
91.	Spiritus Vini rectificatu	Senegae radix	Natrium boracicum
92.	Spongia pressa	Secale cornutum	Natrium bromatum
93.	Sulfas Chininae	Sera	Natrium chloratum
94.	Sulfas cupri crystallisatus	Spiritus vini concentratum	Natrium bicarbonicum
95.	Sulfas ferri	Spiritus aetheris	Natrium jodatum
96.	Sulfas magnesii	Sulfur praecipitatum	Natrium salicilycum
97.	Sulfas zinci	Syrupus simplex	Natrium sulfuricum
98.	Sulfas auratum antimonii	Sulfas ferri	Oleum Amygdalarum
99.	Syrupus Cichorei cum rheo	Sulfas zinci	Oleum cochal*
100.	Syrupus Diacodii	Tinctura Opii simplex	Oleum Camphoratum
101.	Tanniunum	Tannalbinum	Oleum Hyosciami

Portable medicine chest list according to			
The Ordinance for physicians who were obliged to keep portable medicine chests (1866)		**The Regulations on Portable Medicine Chests for Physicians and Veterinarians (1931) and The Regulation on Portable medicine chests of the Department for Workers Insurance Office (1930)**	**The Law on Health Cooperatives (1931)**
102.	Tartarus emeticus	Theobrominum natrii salicylicum	Oleum Jecoris
103.	Tinctura Opii simplex	Tinctura amara	Oleum Lini
104.	Unguentum Altheae	Tinctura Chinae compositum	Oleum Olivae
105.	Unguentum digestivum	Tinctura ferri pomati	Oleum phosphoratum
106.	Unguentum hydraryiri fotius	Tinctura Valerianae	Oleum Ricini
107.	Unguentum sulfuratum	Unguentum Hydrargyri cinereum	Oleum Santali
108.	Zincum oxydatum	Unguentum simplex	Oleum Sezami
109.		Unguentum sulfurat ad scabiem	Oleum Sinapis aethereum
110.		Vaselinum album	Oleum Terebinthini
111.		Vaselinum flavum	Opium
112.		Zincum oxydatum	Paraffinum liquidum
113.			Pastilli santonini
114.			Pepsinum
115.			Phenylium salicylicum
116.			Pilulae laxantes
117.			Plumbum aceticum basicum solutum
118.			Resorcinum
119.			Saccharinum
120.			Saccharum
121.			Sacharum lactis
122.			Salep
123.			Santoninum
124.			Sapo kalinus
125.			Senega
126.			Senna
127.			Semen Sinapis
128.			Spiritus camphoratus
129.			Spiritus Menthae
130.			Sulfur
131.			Suppositoria glycerini
132.			Syrupus Aurantiorum
133.			Syrupus ferri jodati
134.			Syrupus Guajacoli compositus
135.			Syrupus Papaveris
136.			Syrupus simplex
137.			Talcum venetum
138.			Tannalbinum
139.			Tela hydrophila* *
140.			Theobrominum natrium salicylicum
141.			Tinctura amara
142.			Tinctura Belladonae
143.			Tinctura Chinae composita
144.			Tinctura Digitalis
145.			Tinctura jodi
146.			Tinctura Ipecacuanhae
147.			Tinctura Opii simplex
148.			Tinctura Strophanthi

Portable medicine chest list according to			
The Ordinance for physicians who were obliged to keep portable medicine chests (1866)		**The Regulations on Portable Medicine Chests for Physicians and Veterinarians (1931) and The Regulation on Portable medicine chests of the Department for Workers Insurance Office (1930)**	**The Law on Health Cooperatives (1931)**
149.			Tinctura Strychni
150.			Tinctura Valeriana
151.			Tinctura Valeriana aetherea
152.			Unguentum acidi borici
153.			Unguentum emoliens
154.			Unguentum hydrargiri
155.			Unguentum simplex
156.			Unguentum sulfuratum
157.			Unguentum zinci oxydati
158.			Folia Uvae ursi
159.			Vaselinum
160.			Valeriana
161.			Vinum xerensae
162.			Zincum oxydatum
163.			Zincum sulfuricum

* Presumable, it is a printed mistake and we think it is Oleum Cacao, which is mentioned in list from 1931.
** Portable medicine chest lists includes powder papers for expeditions and bandage materials.

in 1879 (Djordjevic 1880), sent to the Ministry of the Interior, the most common diseases in the summer were diseases of the digestive organs and upper respiratory tract, while the most common diseases in the winter were the inflammations of the upper respiratory tract. The most common infectious diseases were onset fever (malaria), tuberculosis, pneumonia, scarlet fever, whooping cough, dysentery, typhoid fever, measles, typhus, syphilis, gonorrhea, and others. Other common medical problems were heart diseases, rheumatic diseases, sore throat, skin diseases, and eye and ear diseases.

In the period from 1895 to 1904, 230,281 inhabitants died of infectious diseases in Serbia. Of those, 202,696 inhabitants died in villages, and 27,735 inhabitants in towns. The report on mortality of infectious diseases emphasized that there were almost 10 times more deaths in the villages than in the cities. This emphasized, in turn, that there was a great need for portable medicine chests as they were the most efficient way to supply drugs and treatment to the population in rural areas (SJ 162/1913). However, this could be challenged because there were no mortality rates or indexes, but absolute numbers of deaths, which was expected to be more in the country side with more population living in the country. In the 1930s, the main infectious diseases were scarlet fever, diphtheria, and dysentery (MJ 24/1932).

The content of *materia medica* on the lists of portable medicine chests illustrate the pharmacotherapy principles of the time. The most prominent drugs, chemical ingredients and raw materials for compounding of medicines addressed diseases of the digestive system (eg. *Folia Sennae*, *Radix Jalappae*), lung diseases (*Radix Salep, Scilla marina in pulvere, Ipecacuanhae, Guajacolum carbonicum purum),* heart diseases (*Folia Digitalis*), skin diseases (*Sulfur praecipitatum, Bismuthum subgallicum*), syphilis (*Hydrargyrum chloratum mite, Kalium jodatum, Acidum arsenicosum)* in addition to constipation (*Folia Sennae*), malaria (*Cortex Chinae fucus*) and others.

Bandage materials and devices for keeping, measuring, and making pills, infusions and decoctions, and packaging medicines also had to be stored in portable medicine chests (PPALV 1932). These items were dictated by several regulations and laws. The Ordinance for Items Physicians were obliged to Keep in Portable Medicine Chests, issued in 1866, stipulated 108 preparations. The medicine list from the Registry on Portable Medicine Chests of Physicians and Veterinarians from 1931 as well as in the List of Insurance Institute stipulated 112 medicines. The medicine list for the portable chests of the health cooperatives, issued in the Law on Health Cooperatives of 1931 included 163 items (Table 4).

In all medicine lists herbal drugs and simple pharmaceutical preparations were most prevalent. The most common herbal drugs were flowers, roots, seeds, and barks, of which were commonly made oils, tinctures, infusions and decoctions. The medicine list of 1866 contained the greatest number of herbal drugs. A smaller number of herbal drugs were included in the regulations of 1931 for the Department of Employees Insurance and for pharmacies within the Health Cooperatives because at that time there were more factory-produced or packaged extracts and tinctures. The common drugs of the three lists were: *Flores Chamomillae, Folia Digitalis, Folia Sennae, Radix Ipecacuanhae, Semen Lini* and *Radix Salep*.

Along with the analysis of pharmaceutical dosage forms in all portable medicine chests, we counted the number of pharmaceutical dosage forms such as extracts, tinctures, ointments, syrups and plaster. In the portable medicine chests of the 19th century six herbal extracts, four plasters and ointments were included. The greatest number of medicines and the widest range of healing forms were on the medicine list of the portable pharmacies belonging to pharmacy cooperatives from 1931. This register also included the following active substances (*Acidum citricum crystallisatum, Hydrargyrum bichloratum corrosivum, Kalium jodatum,* etc.) and auxiliary substances such as: *Cera flava, Mel depuratum, Sacharum album*, but of all there are healing preparations (eg. *Emplastrum Diachylon compositum, Extractum Belladonnae, Syrupus Diacodii, Unguentum sulfuratum*, etc.). The names of healing preparations tell us which active substances were used as well as which official ones, stipulated in the current Pharmacopoeia were used. Our analysis showed that the majority of medicines in the chests in 1866 were official according to the Short Edition of Serbian Pharmacopoeia and the First Edition of the Serbian Civil Pharmacopoeia which entered into force on January 1, 1866. Some preparations also were official according to Austrian pharmacopoeias which were in force at that time.

Distribution of dosage forms of different compound medicines presented in the Medicine lists of all portable medicine chests in the

observed time points were shown in Table 5. There were exact number (24) of compound medicines (standard or official pharmacopoeial formulations) in various liquid, solid or semisolid dosage forms in lists from 1866 and 1931. Other components of the lists were either drugs of natural origins (vegetable and mineral) or chemical substances and chemical preparations known, admitted and approved of in the prevention, cure or relief of different human ailments. As shown in Table 5, the List of Portable medicine chests of Health Cooperatives from 1931 contained almost double number of official pharmacopoeial formulations (46) in 16 different dosage forms.

The lists of portable medicine chests included the following preparations: *Extractum Opii* and *Extractum Gentianae* (as watery extracts), *Extractum Secalis cornuti* and *Extractum Belladonnae* (watery and alcoholic extract/hydro-alcoholic extract), *Extractum Filicis maris* (etheric).

The most diverse plasters were found in the medicines list of portable medicine chests pursuant to the rules from 1866, while only one plaster was present in the obligatory medicine list of the Health Cooperatives. The way of manufacturing pastilles was ordained by the existing Pharmacopeia.

Medicine lists for all types of portable chests included preparations intended for internal and external administration. Healing herbs were used for tea preparation for internal and local use, powders for external and internal use and for medical vines. Preparations for internal use were mostly made as powders, solutions, tinctures, extracts, pills and syrups, while for external use, besides powders and solutions, there were also on the list preparations such as plasters, ointments and sticks (*Lapis caustic* and *Lapis infernalis*), as well as *Collodium*.

According to the law from 1931 the medicine lists of portable medicine chests of the Department for Workers Insurance and the pharmacies of Health Cooperatives could contain newer pharmaceutical dosage forms, such as medical soaps, pastilles and pills. In addition to the list of medicines there also was a list of bandage materials such as Bronson medical wadding, Billroth's cambric, hydrophilic gauze, impregnated gauze with iodoformium, impregnated gauze with Dermatol, antiseptic surgical sutures (*Filum sericeum antisepticum*), bandages, and a medical roster for bandage manufacturing.

Besides the medicines included in the Serbian Pharmacopoeia, the owners of portable medicine chests had the right to own other medicines from other European pharmacopoeias. The content analysis of the lists of all three portable medicine chests documented that each type of portable medicine chest was quite different, both in qualitative and quantitative aspects. The availability of various pharmaceutical dosage forms was different in various time periods, and there were differences in the contents of various types of portable medicine chests within the same time period. The results of the analysis show that the Serbian government was concerned about the availability and quality of medicines sold in the markets. Accordingly, the laws established basic requirements for the contents of all three portable medicine chests. The medicines lists included both patent medicines and apothecary specialties made in the laboratories of community pharmacies. The laws and rules defined in detail how the portable medicine chests were to be supplied and managed in order to provide safe medicines of the highest quality for the patients. The advantage of the availability of new pharmaceutical dosage forms meant safer and more efficient treatment and enabled physicians to provide health care of better quality.

Table 5: Distribution of dosage forms of different compound medicines presented in the medicine lists of all portable medicine chests in the observed time points

Pharmaceutical dosage forms	Medicine lists		
	Portable medicine chests of physicians (1866) N (number of preparations)	Portable medicine chests of physicians and veterinarians (1931) and of the Department for Workers Insurance Office (1930) N (number of preparations)	Portable medicine chests of Health Cooperatives (1931) N (number of preparations)
Aromatic waters (Aquae aromaticae)	1	2	3
Extracts (Extracta)	6	4	9
Tinctures (Tincturae)	1	5	11
Oinments (Unguentum)	4	3	6
Plasters (Emplastrum)	4	3	1
Lotions (Lotiones)	/	/	1
Syrups (Syrupus)	2	/	5
Acetas (Aceta)	1	/	/
Collodion (Collodium)	/	/	1
Medical wines (Vina medicata)	/	/	1
Pills (Pilulae)	1	/	1
Sticks (Lapis)	2	/	/
Medical soaps (Sapo medicinalis)	/	2	1
Pastilles (Pastilli)	/	1	1
Collyria (Collyrium)	/	1	/
Effervescent artificial salt (Sal)	/	1	/
Powders (Pulveres)	/	1	1
Mixture of hearbal drugs and Poultice (Species and cataplasmae)	2	/	1
Suppositories (Suppositoria)	/	/	1
Ethanol solution (Solutio aethanolica)	/	/	2
Mixtures (Mixtura)	/	1	/

4. Conclusion

Portable medicine chests represent a specific type of pharmacies operating in Serbia and the Kingdom of Yugoslavia until the first half of the 20th century. They provided fairly high-level apothecary service. Their specificity is primarily reflected in the fact that the medicines in these portable pharmacies were handled and dispensed to patients by physicians rather than by pharmacists. The analysis of the rules for management and supervision of the portable medicine chests owned by physicians, and established by the Department of Workers Health Insurance and Health Cooperatives, illustrate the *materia medica* available to physicians for treating their patients. Although there were many pharmaceutical dosage forms official in the pharmacopoeias, the most prevalent were medicines in the form of tinctures and extracts. The most heterogeneous assortment of pharmaceutical dosage forms was in the List of the Health Cooperatives. This indicates that in rural areas where Health Cooperatives were prevalent physicians compounded infrequently and mostly used patent drugs that were purchased from community pharmacies. Portable medicine chests also contained a certain number of raw materials with healing properties and utensils for compounding mainly simple and pharmaceutical preparations such as tablets and solutions of one component. The availability of "new" pharmaceutical dosage forms of that time (pills) was more convenient and insured more accurate dosage, thus resulting in more efficient and safer therapy.

From the information on the raw materials and utensils stated as being obligatory for the portable medicine chests, it can be concluded that physicians also were allowed to prepare and dispense very simple pharmaceutical dosage forms. Future research should investigate how physicians would know what medicines they could prepare and dispense on their own. Finally, whether the portable medicine chests actually made more medicines available to patients can only be proven by analyzing primary sources and medical documents on the activity of these pharmacies located in national and local archives.

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