

# Surgical clinics in the USA in the 1920s through the eyes of S.S. Yudin

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## Abstract

S.S. Yudin used part of his prize won in 1926 for his monograph on spinal anaesthesia, which was named the best medical book in the Soviet Union, to fund a six-month trip to the United States. During his stay, he visited the best surgical clinics, where he studied the organisation of medical care. He shared his impressions with colleagues in notes titled “A guest of American surgeons”, which were published in the journal *New Surgical Archives*. Yudin considered the general organisation of the work of doctors, and the scope and speed of work the most critical. And he saw as the most interesting the operating principles of various departments in major multi-speciality hospitals (outpatient, surgical, operating unit), the setup of medical education and the training of doctors, which remains relevant to modern-day healthcare in Russia. According to Yudin, the American “Fordization” of surgical assistance enables, on hand, to standardise techniques, enhance the work of medical equipment, treatment and diagnostic equipment, as well as medical personnel, and on the other hand, it enables to achieve consistently excellent treatment results while constantly increasing the number of patients in outpatient and in-patient departments. Yudin acquainted himself with the principles of organisation of the American department of coordinators of the work of doctors in both surgical and outpatient departments. These principles optimise the load on each professional and minimise the time spent on consultation, which enables to maintain a conducive emotional background for patients and to extract maximum output from professionals at the workplace.

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## Keywords

S.S. Yudin, organization of healthcare, surgical care, history lessons

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In 1926, thirty-seven-year-old S.S. Yudin, a future member of the Academy of Medical Sciences (1944), winner of the USSR State Prize (1942 and 1948), Lenin Prize (1962), honorary fellow of the Royal College of Surgeons of England (1943), the American College of Surgeons (1943), the surgical society of the University of Paris (1947), the Prague and Catalan surgical societies, honorary doctor of Sorbonne University (1946), went on a study tour of leading surgical clinics in the United States. He had already been awarded the Cross of St. George for bravery during World War I when he served as a regimental doctor and was injured. In 1918-1919, he was conscripted into the Red Army. After demobilisation, he worked at a hospital in Tula for one year, and in 1919-1922 he worked in the surgical department of the Zakharino sanatori-

um for the after-treatment of the wounded (Thorek 1944, Watson-Jones 1954, Gordon-Taylor 1954, Alexi-Meskishvili and Konstantinov 2006).

There, he gained his first significant experience in not only surgical but administrative work as well. Here, his exceptional talent as an organiser was displayed, which facilitated the development of work unique in its diversity and intensity. During this period, he got acquainted with the people’s commissar of healthcare, thanks to which he was able to provide his institution with an X-ray machine, surgical instruments, and orthopaedic tools for immobilisation and treatment of tuberculosis of bones and joints. At first, N.A. Semashko took him for an administrator and rather than a doctor. Yudin simultaneously worked as a radiologist, X-ray equipment technician, carpen-

ter, mechanic, fitter, smith, inventor and constructor of medical equipment, which he made with his own hands (Yudin 1991).

His exceptional ability to organise himself, which enabled him to showcase various talents and skills, gradually shaped him as a capable leader of a large team. It was probably during these years that he was able to put to test N.I. Pirogov's assertion that when providing medical care "the success of treatment... depends not only on surgery, but also on sound and able management", proper administration (Yudin 1944).

While in Serpukhov in 1925, Yudin published a monograph on spinal anaesthesia (Yudin 1925), which was named the best medical book in the Soviet Union. He was awarded the F.A. Rein prize and used some of the prize money to fund a six-month trip to the United States, where he toured the best surgical clinics and had the "opportunity to study the organisation in the best clinics of the American continent" (Petrovskiy 1991). He shared his impressions in notes about this trip ("A guest of American surgeons"), which were published in the journal *New Surgical Archives* (published in 1921–1941).

Undoubtedly, Yudin took note of the wealth of practical capabilities of precision surgical instruments, and the array of new efficient medical equipment, the second nature-like mastery of clinic administrators, and the craftsmanship of carefully selected staff in surgical and other departments of the clinics. The "abundance of all kinds of equipment and manpower" was typical for many of the departments. He emphasised that "any case in a surgical hospital is provided with maximum resources" (Yudin 1927a, p. 251). Many "small curiosities" (Yudin 1927a, p. 253) – like the dotted brushstrokes of a divisionist – made up the colourful painting of the events that he described. Some of the information has probably lost its relevance today. However, the factual knowledge of the organisation of medical care and medical education that he described remains relevant.

Yudin reiterated that the organisation of work, which he learnt from the outset, was critically important in medicine. He said: "The most remarkable of what I saw in American hospitals was general organisation and the scope and speed of work unheard of in Europe" (Yudin 1927a, p. 251). "The most interesting in America", Yudin noted, "is the general coordination and organisation, which is composed of details and minutia. Many of the parts of the organisation are replicated in all of the hospitals that I saw" (Yudin 1927a, p. 253).

Recalling a visit to Dr. Robert E. Farr's hospital in Minneapolis (Minnesota), Yudin emphasised the "affability and hospitality that is typical of all Americans" (Yudin 1927a, p. 260). What struck him was the surprising disparity between the interests and loyalties

of his famous colleague to local anaesthesia (Farr performed up to 90% of all operations in the abdominal cavity using this type of anaesthesia) and the actions of his subordinates. The overwhelming majority of surgeons at the hospital preferred to operate only using general anaesthesia ("even for tonsillectomy"). Farr explained this with the fact that other surgeons lacked minimal skills and preferred to shift responsibility for anaesthesia to the anaesthetist (Yudin 1927a, p. 250–268). This suggested that the preferences of the head of the clinic were not always the guideline for his subordinates.

The outpatient department at Henry Ford Hospital struck S.S. Yudin by its size and efficient use of space and time by both doctors and patients. This was achieved thanks to a large number of rooms for special examinations, which meant the flow of patients did not disrupt the work of doctors. And what was critically important was the principle of self-sufficiency, which is based on the hiring of the best professionals, the acceptance of all patients, moderate cost of treatment, giving work (assembly and installation of small car parts) to patients that would have already recovered, but were unable to fully work at their primary workplace. The surgical unit impressed Yudin because ergonomics became its principles, which prevented excess labour costs (Yudin 1927a, p. 250–268). As a good administrator, he stressed that the concentration of heating, water supply, telephone communication, and elevators in one building of the hospital instead of several pavilions was cheaper to manage overall and more convenient for patients (Yudin 1927a, p. 250–268).

Yudin noted that among all educational institutions recognised by the international commission, the University of Michigan Hospital offered the best practical training for students. However, he did not go into detail due to his apparent lack of interest in problems facing higher medical education.

For Yudin, among all "interesting the people, model universities, big hospitals, world-renowned surgeons, the most exceptional and most remarkable" was G.W. Crile (Yudin 1927b, p. 348), from whom he had witnessed the "Fordization" of surgical treatment of goitre (Yudin 1927b, p. 349): Crile performed 25 to 40 thyroid operations a day! This was enabled by the second nature-like comprehensive assistance from those who worked for him. As a result, Crile spent 10–15 minutes on each operation. Three pairs of assistants prepared everything necessary to begin work, performed local anaesthesia with 0.75% novocaine solution, made a necklace incision on the neck and sutured the operating wound after completion of the operation. After completing the main stage, Crile moved to the next patient, spending no more than 2–3 minutes on changing the surgical coat and scrubbing (Yudin 1927b, p. 348–363).

With vehement enthusiasm, Yudin remarks: "...And geniuses need inspiration, and, apparently, nothing inspires a surgeon as vigorous surgical work itself" (Yudin 1927b, p. 352). Clearly, this is a description of a kindred person: Yudin notes common traits and, probably, ascribes to his American colleague the same feelings that he has felt many times.

When speaking about the atheistic undercurrent in Crile's monograph, Yudin notes that American doctors are required to live a life of Christian piety (prayers before meals and Sunday service were compulsory for everyone), otherwise, they risked losing practice (Yudin 1927b, p. 348–363).

At the Mayo brothers' clinic, Yudin was struck by the impressive organisation of not only the work of surgical departments, but the entire system of multi-speciality assistance in both outpatient and in-patient departments. The Mayo brothers were virtually the first to provide comprehensive examination of each patient by all specialists in one day, not only in the hospital but also in the outpatient clinic, where the daily flow of patients ran up to thousands (Yudin 1940, p. 34–43).

Because of his ailment (herpetic keratitis), Yudin learnt at first hand that the availability of a large number of "desk girls" in the outpatient department ensures better organisation of service. In practice, they were capable coordinators of the diagnostic process (they handle outpatient medical records, fill in medical history and other necessary information about the patient, direct patients to various examination rooms in the outpatient department, and gather the results of instrument and laboratory tests, which saves time for doctors and patients alike). Yudin noted that "they try not to worry patients with looking for what is needed and waiting in queues", "and all specialists examine each patient without hustle and waste of time" (Yudin 1927a, p. 250, 252). From the perspective of the patient, Yudin writes: "...Not for a moment will you feel forgotten or annoyed at waiting pointlessly and wasting time" (Yudin 1927c, p. 508).

Yudin describes the work of the surgical unit in detail. He emphasises that all types of anaesthesia (not just general inhalation, but also regional, epidural and parasacral anaesthesia) are handled by anaesthetists, as a result of which no time is lost between the beginning of anaesthesia and the beginning of the operation. Each operating theatre has three nurses: the most experienced ("instrument") directly monitors the junior nurse at the operating table next to the surgical team, and the third nurse with unsterilised hands who constantly cleans the operating theatre, handles electrical devices and the display of information on a display board, which, if necessary, calls a radiologist, pathologist or stenographer to the theatre (Yudin 1927c, p. 502–548).

The lead surgeon operates successively in two operating theatres with two assistants in each. The assistants place the patient on the operating table, and begin and complete the operation. The lead surgeon performs only the main operating stage and moves from one operating theatre to another. When changing the surgical coat and scrubbing before the next operation, the lead surgeon dictates the report on the just-completed operation to the stenographer. The pathologist takes 4–5 minutes to complete urgent histologic examination. The radiologist presented and explained the X-ray picture to the surgeon directly in the operating theatre. At the end of the operation, the pathologist showed the team of surgeons the removed gross specimen and the necessary histologic examination results. All reports and conclusions were entered into the case record. A special team of transfusionists managed blood transfusion in place of the anaesthetist (Yudin 1927c, p. 502–548).

Yudin was pleasantly surprised by the fact that the Mayo clinic had a large experimental laboratory and by the regular (twice a week) reports prepared by clinic staff on the results of their research studies, as well as trips across the country, and international conventions and conferences. At the Mayo clinic, smoking was prohibited, even in single-bed patient rooms. Special rooms were provided, where patients were accompanied or, if extremely necessary, taken on their beds (Yudin 1927c, p. 502–548).

After returning to Russia, Yudin used to quote Charles Mayo: "A specialist is a doctor who knows more and more about less and less". He welcomed the diversity of professional interests of the brothers and admired their competence and abilities (Yudin 1940, p. 34–43). He had probably already seen an emerging professional clanship which, according to him, is ultimately a detriment to general surgery.

The memorable words of the Mayo brothers from the founding charter of the medical refresher institute remain relevant to this day: "...Means that have grown far beyond our assumptions come from patients, and we think they must be returned to our patients in the form of improvement of medical education, which will produce better-trained doctors, and used in scientific research to reduce the number of diseases... Public funds, moral custodians of which we were, must unconditionally be returned to the people from whom they came" (Yudin 1940, p. 43).

A negative assessment of the organisation of the American healthcare system emerges in articles on Chicago. Yudin notes that the hospital for the poor took in everyone, irrespective of religious persuasion and skin colour. The wards had up to 30–40 beds, and the fatality rate was high (25% after mastectomy, 30% after hysterectomy and 40% after prostatectomy). According to Yudin, this is explained by the fact that in such, institutions young surgeons had the rare oppor-

tunity to learn, using “lowly, non-paying aliens, those techniques and operations that could not be learnt on paying patients in private hospitals” (Yudin 1927d, p. 82). In the administration of the 2500-bed hospital, the only notary, who handled various documents for many patients, was overworked. All foreigners looking to obtain a medical degree in the state of Illinois went through practical training at the hospital. The private clinic for the elite was best remembered only for its glaring self-promotion, and an affluent ambience in all facilities – from the reception to the operating room (Yudin 1927d, p. 79–96).

Speaking about his visit to the Harvey Cushing clinic in Boston, for the first time, Yudin discusses the training of medical students in great detail. In the description of events that took place more than 90 years ago, we hear echoes of the present-day reality in Russia. Citing Cushing, Yudin argues against third-year students attending to patients (it is a waste of time since they do not yet have the required minimum knowledge). However, during the fourth year, when it becomes possible and important, two circumstances arise: crowded conditions which impede access to patients and analysis of case history in a small ward to a large group of students, and the reluctance of patients to be the subject of study (Yudin 1927e, p. 229–242). According to him, the way out is to move the training process from the in-patient department to the out-patient department, where the primary preoperative examination is carried out.

However, such an organisation of training does not allow young doctors to gain patient communication skills, which are acquired from multiple individual and not group examinations. Furthermore, in this case, the student does not have the opportunity to observe the patient during the postoperative period. In other words, one of the main stages of patient follow-up and acquisition of skills for handling clinical records is eliminated. The fact that Yudin says nothing about it points to his lack of personal experience in teaching the fundamentals of surgery. In 1925–1927, Yudin very briefly worked as a privatdozent in the department of departmental surgery of the faculty of medicine at Moscow State University (department head N.N. Burdenko). However, it appears this work did not fascinate him and did not leave a deep imprint in his memoirs.

Assessing prospects as the bed capacity in large hospitals of the future increase, Yudin recognises the optimum balance of sizes of the Cushing clinic (220 beds) with research and teaching work conducted at the clinic. Unlike administrators of other clinics, neurosurgeon Cushing personally performed not only the main operating stage, but the entire preparation (laying down the patient, treatment of the surgical area and its demarcation, local anaesthesia), surgical approach, as well as wound sutur-

ing and post-surgery dressing. Yudin was profuse in his praise of Cushing’s mastery: “...I am yet to see anything similar in prudence, finesse, and beauty” (Yudin 1927e, p. 239).

Yudin remembered the University Clinic of Philadelphia (Yudin 1927f, p. 415–434) for its demonstration of the operation for inguinal hernia and commentary to said operation by Eliason, who argued that in case of hernia, four contraindications rather than surgical indications should be sought: “These are four ‘toos’: too young, too old, too sick and too fat” (Yudin 1927f, p. 422). These contraindications are no longer on the pages of modern-day surgery textbooks, but they are always implied in some form or other.

Describing his visit to the Babcock clinic, Yudin stresses that this particular clinic conducted the vast majority of spinal anaesthesia. He cites his American colleague who argues that the dangers and complications of this anaesthesia technique arise solely from technical errors and a lack of the necessary skills (Yudin 1927f, p. 415–434).

His story about his visit to Baltimore carries an emotional overtone arising from his impressions from personal meetings with J.M.T. Finney and H.A. Kelly. Here, he offers no rigorous analysis of the characteristics of the work at Johns Hopkins Hospital (Yudin 1928a). Yudin noted that surgeons had abandoned open mutilating surgery in favour of the increasingly efficient beam therapy in some cases of tumours of the uterus. Clearly, over-saturation with previous experiences and “lack of specifics” in the newly discovered had its impact on the inquisitive foreigner. This is confirmed by his story about his visit to New York (Yudin 1928b, p. 272–283).

Therefore, what was important for Yudin during his trip to the United States was the strict expert analysis of his observations, and, if possible, the borrowing of the best with no envy. He wrote: “I went to America to see and learn good things and it is those good things that I saw more than enough” (Yudin 1928b, p. 283). Therefore, “A guest of American Surgeons” is not a strict scientific report about a mission trip, but rather a collection of a traveller’s essays. On one hand, this work is characterised by thoughtfulness, abstractness and a philosophical aspect. It demonstrates the enormous breadth of views and the impressive erudition of the future author of the book “Reflections of a Surgeon” (Yudin 1968a), who constantly contrasted the newly discovered with the previously read, and with his results obtained in the operating room. On the other hand, the hastiness, sensibilities, and reversion to the previously written are clear for the discerning reader. The author has a habit of recording thoughts immediately, without corrections. Also, no corrections are made in the journal *New Surgical Archives* (sometimes necessary) in which these notes were published in

1927.<sup>1</sup> All this is typical of Yudin: mobile, artistic, impulsive, enthusiastic, easily capable of arguing about complex things, a habit of using the thesaurus, capable of giving photographic descriptions, quick to grasp the essence of any professional problem, as an artist, capable of writing an essay in the open air, instantly reflecting the whole variety of the light and shade of the existing. This part of his character would probably give a clue as to the title of his unfinished work “Essays on Gastric Surgery” (Yudin 1968b).

What did Yudin bring back to Russia? Which things of values and/or ideas borrowed from the United States would prove useful to him? Before returning to the Soviet Union, Yudin used all of the money he had made from operations that he had performed at the Mayo clinic to buy equipment for his small hospital in Serpukhov. The equipment included X-ray machines and surgical instruments. However, upon crossing the

Soviet border, all of the equipment was confiscated at customs in Sebezh (Yudin 1927a, p. 250–268).

Everything Yudin wrote about – surgical techniques and equipment of operating rooms, as well as portraits of those who worked in said operating rooms in 1926 – would soon become exhibits in the museum of the history of medicine. None of Yudin’s subsequently published scholarly works feature either partial borrowing or blind transfer into his work or his clinic of the things he portrayed and what he enthused in his notes!

However, Yudin’s historical insight deserves credit – some of the characteristics of administration and organisation of surgical assistance at major multi-speciality hospitals in the United States that he described nearly 100 years ago are relevant for the revamped healthcare in Russia. Yudin’s stories today are very similar to anecdotes and legends, which completely matches the views expressed by American anthropologist F. Boas, who said that truths are short-lived in medicine, and over time immortal legends become dogma in the medical community.

<sup>1</sup> For instance, the words “aurist”, “brain surgery”, “lordosis”, “dental institute”, “strumose”, and others, catch the eye.

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