

A FEW ASPECTS OF PLASTIC SURGEONS' PERFORMANCE

Manturova NE¹, Kochubey VV²✉, Kochubey AV³¹ Department of Plastic and Reconstructive Surgery, Cosmetology and Cell Technologies, Faculty of Continuous Professional Education, Pirogov Russian National Research Medical University, Moscow, Russia² Department of Surgery No.1, Faculty of General Medicine, Yevdokimov Moscow State University of Medicine and Dentistry, Moscow, Russia³ Department of Public Health and Healthcare, Institute of Continuous Professional Education of the Federal Medical and Biological Agency, Moscow, Russia

In spite of accreditation programs, levels of professional skills vary among plastic surgeons: there are no requirements for the diversity and number of performed surgical interventions that a surgeon can specify in his/her portfolio. Rationale for elaborating such requirements can be explored by studying service reports of private medical practices certified to provide plastic surgery services to their in- and outpatients. In the course of our study we analyzed such reports using different statistical tools, including the variation coefficient, the Kolmogorov–Smirnov, Mann–Whitney U and Kruskal–Wallis tests, and Spearman's correlation coefficient. Differences were considered statistically significant at $p < 0.05$. Surgical interventions were divided into 9 categories: skin/soft tissue plasty, rhinoplasty, breast plasty, blepharoplasty, otoplasty, lip and palate repair, craniofacial plasty, repair of urogenital defects, and hand surgery. On average, each surgeon performed a total of 112.3 ± 326.4 surgeries ($M_o = 1$). About 30.4 % of surgeons performed 1 to 10 interventions a year. None of the surgeons performed all types of interventions and hand surgery. We found that the diversity and number of interventions performed by a surgeon does not depend on the qualification or academic title ($r_s = -0.8$, $p = 0.2$ and $r_s = -0.2$, $p = 0.8$, respectively). Skin/soft tissue repair accounted for 51.1 % of all services provided by private medical practices. The number of post-operative treatment services was 0.017 per surgery.

Keywords: plastic surgery, plastic surgeon portfolio, plastic surgeon accreditation, continuous medical education

✉ **Correspondence should be addressed:** Valentin Kochubey
ul. Delegatskaya, d. 20/1, Moscow, Russia, 127473; kochoubey@gmail.com

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ХАРАКТЕРИСТИКИ ДЕЯТЕЛЬНОСТИ ПЛАСТИЧЕСКИХ ХИРУРГОВ

Н. Е. Мантурова¹, В. В. Кочубей²✉, А. В. Кочубей³¹ Кафедра пластической, реконструктивной хирургии, косметологии и клеточных технологий, факультет дополнительного профессионального образования, Российский национальный исследовательский медицинский университет имени Н. И. Пирогова, Москва² Кафедра факультетской хирургии № 1, лечебный факультет, Московский государственный медико-стоматологический университет имени А. И. Евдокимова, Москва³ Кафедра общественного здоровья и здравоохранения, Институт повышения квалификации Федерального медико-биологического агентства, Москва

Вводимая периодическая аккредитация не гарантирует поддержание одинаково высокого уровня квалификации врачей-хирургов, так как утвержденный формат портфолио не содержит требований к спектру и объему оперативных вмешательств. Целесообразность введения подобных требований можно обосновать, изучая деятельность пластических хирургов по сведениям отчетов о медицинских услугах по пластической хирургии, оказанных в медицинской организации частной системы здравоохранения, имеющей лицензию на выполнение работ и услуг по пластической хирургии в амбулаторных и стационарных условиях. В ходе анализа отчетов был проведен расчет коэффициента вариации, критериев Колмогорова–Смирнова, Манна–Уитни, Краскела–Уоллиса, коэффициента Спирмена. Статистически значимыми считали значения при $p < 0,05$. Оперативные вмешательства были разделены по 9 трудовым функциям: пластика покровных тканей; пластика носа; молочных желез (грудь); веко; наружного уха; губ и неба; краниофациальная пластика, урогенитальная пластика, хирургия кисти. Средний объем оперативных вмешательств по профилю составил $112,3 \pm 326,4$ на одного врача при $M_o = 1$. Причем 30,4 % хирургов выполнили за год 1–10 оперативных вмешательств. Ни один хирург не выполнял оперативные вмешательства по всем 9 трудовым функциям, а также по хирургии кисти. Спектр и объем оперативных вмешательств не зависит от категории или ученой степени ($r_s = -0,8$, $p = 0,2$ и $r_s = -0,2$, $p = 0,8$). Пластика покровных тканей составляет 51,1 % всех оказанных услуг. На одно оперативное вмешательство приходится 0,017 услуг по послеоперационному ведению.

Ключевые слова: пластическая хирургия, портфолио пластического хирурга, аккредитация пластического хирурга, непрерывное медицинское образование

✉ **Для корреспонденции:** Кочубей Валентин Владимирович
ул. Делегатская, д. 20/1, г. Москва, 127473; kochoubey@gmail.com

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Although plastic surgery is a relatively young field, there is already a lot of rigorous criticism regarding professional skills of plastic surgeons [1]. Plastic surgery as a strictly medical activity,

should be provided in medical organizations [2]. Regardless of the form of business, those licensed centers must comply with the requirements for the quality and safety of provided services,

keep records of their activities, ensure effective internal control and undergo regular inspections and personnel performance evaluations carried out by authorized agencies [3]. Because the majority of plastic surgery clinics are private (not sponsored by the state), control over quality and safety of provided medical services should be stricter [4]. Ironically, quality assurance becomes a matter of discussion only when patient's health has been compromised and their life has been put at risk [5]. Such cases brought to the public eye by the media undermine reputation of the whole field.

The basis for ensuring the quality of medical care for plastic surgery is the order of delivery of medical care by types, profiles, individual diseases and conditions, as well as standards of medical care [6]. The orders of delivery of medical care have been approved by the Ministry of Health of the Russian Federation and are the same for all healthcare facilities registered in the country [7]. They are also a basis for the functional departmentalization of medical institutions. In turn, plastic surgeon's qualification, as well as doctors of other specialties, should be confirmed by certificates. The current system of certification, though, is a subject of criticism in the medical community [8]. A new accreditation system is hoped to encourage continuing medical education and help doctors attain an equally high level of professional skills [9] by training them in all subspecialties plastic surgeon receives full access to the activities of the specialty, and not to its part. An important part in accreditation is played by the specialist's portfolio, which should reflect the doctor's success in expanding the skills and improving professional skills. However, it is not obligatory to specify in the current model of portfolio the range or extent of performed surgeries and training programs that the surgeon has completed [10]. The lack of unified requirements for the portfolio diminishes the value of accreditation as a tool to ensure the same high level of qualification of plastic surgeons. Our study aimed to investigate a few aspects of plastic surgeons' performance, including the range and extent of surgical interventions, in order to provide rationale for unified requirements for the plastic surgeon's portfolio.

METHODS

Data were collected from official reports of private healthcare providers authorized to perform plastic surgeries at in- and outpatient facilities. The reports contained information about the number and diversity of medical services delivered to patients per year. We shortlisted data relevant for our study (pertaining to the delivery of plastic surgery). Because the computed coefficient of variance V was 257.2 %, which is above 33 % and suggests heterogeneity of the range, and the Kolmogorov–Smirnov test proved that distribution was non-uniform ($p < 0.001$), we estimated significance of differences between the samples using the Mann–Whitney U . Differences were considered significant at $p < 0.05$. Correlation between the rankings was considered significant if empirical Spearman's r_s was above the critical threshold at $p = 0.05$ and $p < 0.05$. The Kruskal–Wallis (K) test was used to determine differences in distributions; sample diversity was considered significant at $p < 0.05$. Data were analyzed using Microsoft Excel 2016 Analysis ToolPack and IBM SPSS Statistics 23.

The list of areas of expertise was proposed in another our ongoing study and included 9 categories: skin/soft tissue plasty, rhinoplasty, breast plasty (mammaplasty), blepharoplasty, otoplasty, lip and palate repair, craniofacial plasty, repair of urogenital defects, and hand surgery.

RESULTS

In total, 46 plastic surgeons conducted 5,184 medical procedures during the year, with a mean of 112.7 ± 289.9 procedures per surgeon. The minimal number of delivered services per surgeon was 1, the maximum — 1,760 ($Mo = 2$, $Me = 10$), with 36 (78.3 %) doctors performing below the average and 10 (21.7 %) doctors carrying out more than 112 procedures a year. On the whole, 4,329 (83.5 %) of all services provided to the customers during the year were done by 7 (15.2 %) surgeons.

All services were divided into 9 categories depending on the areas of surgeons' expertise. Skin/soft tissue plasty accounted for 51.1 % of all services provided. Blepharoplasty ranked second (5.7 %), and rhinoplasty ranked third (2.8 %). No hand surgeries were performed during the year (Table 1).

Among "other procedures" were initial consultations, application of aseptic dressings, management of clean wounds, follow-up examinations of postoperative patients, and removal of sutures (for patients who had received treatment at other healthcare facilities). These procedures made 36.5 % of the total services provided. It should be noted that 1,820 services (35.1 % of their total number) falling into this category were initial consultations, meaning that per one initial consultation of a plastic surgeon there were 1.8 invasive (including surgical) interventions. The total number of such procedures as clean wound management, application of aseptic dressings and postoperative follow-ups accounted for 55 (1.1 %), i. e. per one surgery there were only 0.017 follow-up care services.

Of 5,184 medical services delivered in total, 3,145 were surgical interventions, with a mean of 112.3 ± 326.4 procedures per plastic surgeon a year ($Mo = 1$, $Me = 8$). The smallest number of interventions per doctor was 1, the largest — 1,758. Of 46 surgeons, 14 (30.4 %) performed 1 to 10 surgeries a year, 4 (8.7 %) — between 14 and 50 surgeries, 6 (13.0 %) — between 64 and 134, 2 (4.3 %) — over 200, 1 (2.2 %) — 1,758 surgeries. Eighteen doctors conducted no surgical interventions at all in the studied period.

The majority of plastic surgeons (19 out of 46 people) dealt with skin/soft tissue plasty, 14 — rhinoplasty, 14 — blepharoplasty, 9 — mammaplasty, another 9 — otoplasty, 3 — craniofacial plasty, 3 — urogenital plasty, and 2 — lip plasty. None of the doctors covered the whole range of 9 types of operations. One doctor was able to perform 7 types of surgeries, another one — 6 types; 3 doctors were qualified in 5 types of surgical interventions, 3 doctors — in 3 types and another 3 — in 2 types; 4 surgeons were able to carry out

Table 1. Surgical interventions categorized depending on the area of surgeons' expertise

Area of expertise	Abs.	%
Skin/soft tissue plasty	2 649	51.1
Blepharoplasty	294	5.7
Rhinoplasty	147	2.8
Mammaplasty	131	2.5
Otoplasty	41	0.8
Urogenital defect repair	14	0.3
Craniofacial plasty	9	0.2
Lip and palate repair	8	0.2
Hand surgery	0	0
Other procedures	1 891	36.5
Total	5 184	100

Table 2. Distribution of surgical interventions among surgeons of different grades and academic titles

Parameter	Plastic surgeons				Other specialties
	No grade or academic title	Senior surgeons	Cand.Sc.	D.Sc.	
Average number of operation types	3.2	3.5	2.4	1.8	0.4
	2.7 ± 1.9				
Total number of operations	442	301	2222	148	32
Average number of operations	88.4 ± 88.0	100.3 ± 4.6	246.9 ± 543.7	37 ± 57.2	4.6 ± 4.2
	129.7 ± 370.0				

4 types of operations, and 13 surgeons — only 1 type. Table 2 presents data on the number of different types of operations performed by the surgeons with different academic titles and grades.

The calculated value of Spearman's coefficient was indicative of the absence of a statistically significant correlation between the average number of surgery types a surgeon was able to perform and the level of his/her professional skills ($r_s = -0.8$, $p = 0.2$); no correlation was also observed between the average number of operations per surgeon and the level of professional skills ($r_s = -0.2$, $p = 0.8$). Comparison of the average ranges of surgery types in different groups of surgeons and the average numbers of surgical interventions did not reveal any significant differences ($K = 1.27$, $p = 0.2$ and $K = 1.9$, $p = 0.5$, respectively). At the same time, differences between the average number of total surgeries ($U_{emp} = 46.5$, $p = 0.014$) and the number of surgery types ($U_{emp} = 72.5$, $p = 0.017$) performed by plastic surgeons in comparison with other surgeons were statistically significant, with plastic surgeons being more versatile in their areas of expertise and performing more surgeries per year.

DISCUSSION

The reports on medical care services analyzed in the course of our study have revealed that plastic surgeries are performed not only by plastic surgeons, but also by the doctors of other specialties, such as maxillofacial surgeons, otolaryngologists, ophthalmologists, trauma surgeons, gynecologists, etc. Their narrower areas of expertise restrict the scope of surgical interventions they can perform; the average number of interventions they conduct is lower ($U_{emp} = 46.5$, $p = 0.014$) than that performed by plastic surgeons. The intrusion of other specialties into plastic surgery can be explained by the specifics of plastic surgery legislation [5]. Order 555n of the Ministry of Health of the Russian Federation dated October 30, 2012 allows delivery of plastic surgery services by surgeons who have been additionally trained in a chosen subspecialty of plastic surgery. However, we believe that this legal norm must be revised considering the received data, that surgeons of other specialties perform the extremely low average number of few surgical interventions per year and literary data that surgeons with plastic surgery residency training make fewer proven cases of medical errors [11–13].

We have discovered that soft tissue/skin plasty prevails in the range of all plastic surgery services offered to customers, indicating a demand for cosmetic surgery. It means that many

plastic surgeons that have been practicing only cosmetic surgery for years lose the skills necessary to perform reconstructive surgery. Considering that a certified surgeon is allowed to conduct all types of plastic surgeries, his/her portfolio should include information about the number of reconstructive surgeries performed or he/she should only be allowed to provide a limited range of reconstructive surgery services based on the training he/she has received [14].

Restricting the range of interventions in the specialty of plastic surgery could be possible under a new accreditation system. The data obtained in the course of this study demonstrate that plastic surgeons perform 2.7 of 9 surgery types on average, which indicates the lack of versatility and proves the necessity of such restrictions [15].

Of particular interest are the data on the frequency of initial consultations and follow-up postoperative examinations with respect to the total number of surgical interventions. Considering that not every primary appointment ends with a surgical intervention, such a significant excess of the number of surgeries on the number of primary appointment can be explained either by holding consultations in previous years, indicating a long period of decision-making by the patient, or the determination of indications for several operations during one primary consultation.

It's troubling that the number of follow-up care procedures is ridiculously low: 0.017 per one operation. Inadequate postoperative management and underestimated health risks or patient's condition are considered medical errors in cosmetic surgery that affect the quality of medical care [16–18].

Interestingly, the range of operation types a plastic surgeon is qualified to perform and the number of operations conducted per year do not depend on the academic title or grade. But the lack of versatility and fewer surgeries performed by D.Sc. in comparison with other surgeons indirectly indicate a transition from clinical practice to research and teaching. Here, accreditation could stimulate professionals to keep their practical skills sharp [19].

CONCLUSIONS

The obtained data demonstrate a need for amendments to healthcare legislation regarding cosmetic surgery and professional training of surgeons. Considering that this study was based at only one medical facility, further research is necessary involving other private and state-funded medical institutions in order to obtain more accurate data and propose rational ideas concerning the evolution of plastic surgery in Russia.

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