

Medical and Social Consumer Profile for Paid Medical Services in State-Owned Medical Organizations

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Abstract – As the purpose of the research is to give scientific grounds for the patient awareness principle while providing paid medical services for the population, the authors create medical and social image for consumers of paid ambulant and hospital medical help from the point of view of age and place of residence basing on the data analysis about patients in 2015–2016 in SBHI in MR MRRCI named after M. F. Vladimirovskii. Among the characteristics of the paid medical services consumers the following were taken into account: sex, age, place of residence, a social class, privileges, reasons for turning for help and being taken to hospital, service organization in ambulant and hospital conditions, treatment costs in the hospital and in-patient clinics, period of staying in an in-patient clinic, results of treatment in the in-patient clinic. These characteristics allowed creating a complete consumer profile in paid medical treatment, that allows a medical organization provide paid medical services in demand. To solve these issues we applied statistical, analytical methods, the comparative analysis method, mathematical statistics methods.

Keywords – *paid medical services, medical and social profile, patient analysis approach, state medical organisation.*

I. INTRODUCTION

Paid medical help in modern state medical organizations can be considered as additional possibilities for increasing the market of the medical help, creating competitive surrounding, increasing possibilities for patients to choose medical establishments and a doctor, guarantees for consumer rights to receive available, quality and safe medical help [1, 2, 6–8].

Despite existing problems paid medical help develop to meet the interests both of medical establishments and patients. For medical establishments they provide additional financial

sources, giving possibilities for the professional development and meaningful involvement in competition. For patients they increase possibilities to receive quota-controlled and additional medical services [3, 4].

It should be noted that peculiarities of the medical marketing are determined by the character of services and market. The experience has proved that only patient-oriented marketing can be profitable. It means that providing paid medical services should give financial independence to medical establishments and be patient-oriented and meet consumers' requirements and expectations. Only in this case it will be possible to answer questions: what problems they solve, who will be a consumer, where to find a patient. The answers to these questions can help determine channels for information distribution about services, determine contact points with patients and information placement for patients. [5, 8].

In connection with this it will be interesting to characterize consumers of paid medical services and help.

II. METHODS AND MATERIALS

Such methods as: statistical, analytical, comparative analysis methods, methods of mathematical statistics have been used. The data for medical and social consumer profile of paid medical services was information about the patients who turned for medical services from 2015 till 2016 to SBE for Health Care in Moscow region «Moscow regional scientific-research institute named after M.F. Vladimirovskiy». Here the main criterion was dividing the consumers of paid medical services by age: younger than 30 years, 30–59 years, and 60 years and older, which is important for management decision-

making aimed at needs and expectations actualization in every age group.

III. RESULTS

The results evidenced that people who turned for medical help in the outpatient setting, nearly a half (49.5 %) were people at the age of 30-59, a little more than a quarter (26.2 %), were people at the age of 60 and older, a little less than a quarter (24.3 %), correspondingly, at the age younger than 30 years inclusive. More than a half of patients were women – 59.9 %. The average age of women-patients who turned for medical help was 49.32, men were much younger – 44.02 years ($p < 0.05$). The percentage of women increased in groups with age.

Most of outpatient visits were patients from Moscow region – 80.4 %, every tenth was a patient from Moscow or other subjects of Russian Federation – 10.0 % and 9.6 % correspondingly. Such distribution remains across every age group.

Herewith half of the patients were from Moscow, Moscow Region and other subjects of the country. They were people at the age of 30-59 years (49.0, 52.6 and 56.2 % correspondingly), and the percentage of older age groups among patients from different subjects had significant differences ($p < 0.05$). The smallest percentage of people younger 30 and the greatest percentage was at the age of 60 years and mostly registered among patients from the Moscow region – 15.7 and 31.7 % correspondingly.

More than a third of the patients – 39.2 % were workers, office workers, and entrepreneurs, 31.2 % were pensioners, every fourth patient (26.3 %) was unemployed, 3.3 % were students.

Patients allocation by social position in groups classified by the place of residence and age is different ($p < 0.05$). Nearly half of patients from Moscow was unemployed – 46.9 %, a quarter (25.2 %) were pensioners, only every fifth was employed – 22.4 %. Among the citizens of Moscow region the percentage of employed was 40.0 %, every third (32.6 %) was a pensioner, and every fourth (24.1 %) was unemployed. The greatest percentage of working patients was from other subjects of the country – 46.3 %.

Among people at the age of 60 and more than a third of patients (74.8 %) were unemployed pensioners, in the middle age group were mostly workers, office workers and entrepreneurs – 54.7 %. In the youngest group the percentage of students was 21.9 %, 35.8 % were unemployed and employed patients were 41.9 %.

The percentage of welfare beneficiaries was 2.9 %, including 81.4 % “disabled”, 10.0 % “labour veterans”, 2.3 % - “combat veterans”. Other categories made 6.3 %. Significant differences among beneficiaries with different places of residence were distributed among the categories “disabled”, “disabled after the Great Patriotic War” and “labour veterans” ($p < 0.05$), among beneficiaries of different age group – among the categories “disabled”, “people disabled from childhood” and “labour veterans” ($p < 0.05$). The third of the turns for medical help in the outpatient setting was caused by three

groups of illnesses: musculoskeletal system disorders – 14.9 %, certain infectious and invasive diseases – 11.0 % and diseases of the circulatory system – 10.5 %. A fourth was because of the diseases of the digestive system – 8.8 %, neoformations – 8.1 % and eye diseases – 7.5 %. Another fourth of the turns for medical help was caused by diseases of the respiratory system – 7.1 %, endocrine system diseases – 7.0 %, circulatory diseases – 5.6 % and diseases of the nervous system – 5.5 %. The percentage of other diseases was 14.0 %.

Distribution of turns for help due to other diseases among other age groups ($p < 0.05$) and patients with other place of residence ($p < 0.05$) differed significantly.

In older age group nearly half of the turns for help (48.4 %) were caused by such three cases of diseases as circulatory diseases – 19.5 %, musculoskeletal system disorders – 16.1 % and neoformations – 12.8 %. Patients at the age of 30-59 turned for help in musculoskeletal system disorders – 15.4 %, some infectious and invasive diseases – 15.2 % and diseases of the digestive system – 9.7 %. At the same time nearly a third of people younger than 30 years turned for medical help in the outpatient settings due to musculoskeletal system disorders – 12.2 %, respiratory system disorders – 10.2 % and some infectious and invasive diseases – 9.7 %.

The analysis of the turns for medical help showed that the patients from Moscow region mostly turned for help due to following diseases: musculoskeletal system disorders – 16/4 %, circulatory disorders – 12.1 %, some infectious and invasive diseases – 9.6 % and neoformations – 9.3 %; patients from Moscow – due to musculoskeletal system disorders – 14.5 %, diseases of the digestive system – 13.2 %, eye diseases – 10.0 % and some infectious and invasive diseases – 9.5 %. At the same time patients from other subjects of the country turned for medical help due to some infectious and invasive diseases – 16.9 %, diseases of the digestive system – 12.5 % and musculoskeletal system disorders – 12.3 %.

It should be noted that 82.4 % of all outpatient turns was to three departments: therapeutics – 45.2 %, surgical – 22.4 % and gerontological – 14.8 %.

A third of paid medical services (33.5 %) were outpatient consultation services, a little less than a third (28.0 %) – were laboratory diagnostics services. Diagnostic biopsy was done in every eighth turn for help (12.0 %), expensive diagnostics including instrumental one, was done for every tenth patient (10.3 %). The percentage of operations was 6.5 % of physiatrics, after treatment care, including hyperbaric oxygenation, - 4.4 %, functional diagnostics – 2.2 %.

There was no difference in paid medical services in MRRCI depending on age, but there was difference depending on the place of residence ($p > 0.05$). So, in the structure of medical services the patients from Moscow region received more outpatient consultations – 45.7 %, expensive diagnostic services, including instrumental, (10.1 %) and less services in laboratory diagnostics (19.8 %) comparing with patients from Moscow (25.8 %, 5.0 % and 30.2 % correspondingly) and other subjects (31.7 %, 5.8 % and 30.9 % correspondingly).

The average cost of turn for medical help in outpatient conditions was 3 188.6 rubles, there was no significant difference in this index among different age groups ($p>0.05$) and patients from different subjects of RF ($p>0.05$).

Most of MRRCI patients spent less than 5 thousand rubles for paid medical services – 83.3 %, every tenth (11.3 %) – 5.0–9.9 thousand rubles, 3.5 % spent from 10.0 to 14.9 thousand rubles, and larger sums were spent by 1.9 % of patients. Characteristic distribution of money spent on medical services in outpatient conditions remains the same among different age groups ($p>0.05$) and among patients from different subjects of RF ($p>0.05$).

The analysis of the turns for medical help showed that more than a half of patients (55.8 %) had improvements of health, the percentage of patients taken to hospital and sanatorium-resort therapy was 14.1 % correspondingly, recommended consultations – 12.5 %, transferring to other medical organizations – 1.1 %, home treatment – 2.9 %, follow-up examination and further treatment – 0.4 % correspondingly. It should be noted that there were no statistically important difference in the structure of turns for help depending on the place of residence of the patients ($p>0.05$).

43.5 % of the inpatients who received paid medical help were 30-59 years old, a third (34.0 %) were at the age of 60 and about a quarter (22.5 %) were younger than 30.

The percentage of women among all the patients was a little more than a half 51.7 %, and was different among the age groups ($p<0.05$). As the biggest number of women who turned for paid medical service in the in-patient department was in the oldest age-group (60 years and older) – 63.2 %, and the least was in the youngest age group (younger than 30 years) – 42.0 %. And the opposite situation was among men: 58.0 % at the age younger 30 years and 36.8 % at the age of 60 years and older.

Thus, the average age of men in the in-patient department was much lower than that of women: 44.17 and 51.80 years old correspondingly ($p<0.05$), herewith in the average the inpatients were not much older than the patients of the outpatient department.

The main part of the inpatients (42.2 %) were Moscow citizens, a little less than a third (31.1 %) were the citizens of Moscow region and a quarter of all taken to hospital for paid medical help (26.7 %) were people from other subjects of the country.

It should be noted that among Moscow citizens the percentage of older age group was nearly a half (49.7 %), while the patient from other subjects of RF – the youngest group was the biggest – 29.9 % in comparison with other groups by a place of residence.

At the same time, every second patient in the oldest age group (52.5 %) was a Moscow citizen, almost every third person (31.2 %) was from Moscow region; the patients in the middle age group were distributed uniformly by the place of residence; in the youngest age group there were people from other subjects of RF (39.4 %) ($p<0.05$).

Here two thirds of the patients (68.0 %), who turned for paid medical help to the in-patient department, were unemployed (32.2 %) or pensioners (35.8 %). Almost every fourth in-patient (23.5 %) was an office worker, a worker or an entrepreneur and 8.5 % were students and children of the pre-school age. Correspondingly the oldest age group were pensioners, 12.2 % were employed. The main part of the middle age group was unemployed 56.4 %. The group younger than 30 years 40.4 % were students and pre-school children ($p<0.05$).

It should be noted that the main part of patients from Moscow and Moscow region were pensioners – 46.7 % and 35.6 % correspondingly, and patients from other regions were 35.6 %. The percentage of employed patients among Moscow citizens, who turned for paid medical services, was the lowest – 20.7 %, from other subjects of RF – 27.8 % and almost a third from Moscow region – 30.3 %.

The percentage of beneficiaries who received paid medical services in the inpatient department was much greater – 28.7 % than in the outpatient department – 2.9 % ($p<0.05$). The main part of the beneficiaries constituted other beneficiaries categories – 26.9 %. The greatest percentage of beneficiaries was from Moscow region – 41.5 %. Fewer beneficiaries in general were among citizens of Moscow (24.5 %).

Three types of illnesses were the reason for more than a half of hospitalizing. Thus, eye diseases were 21.2 %, respiratory system diseases – 16.4 % and neoformations – 14.9 %. The fourth, fifth and sixth places were taken by the blood system diseases as reasons for hospitalization – 10.4 %, musculoskeletal system disorders – 6.4 % and diseases of the digestive system – 6.2 %. The fourth of all patients were in the in-patient department due to other classes of diseases of the International Classification of Diseases.

The reasons of hospitalization among the patients of different age groups and with different places of residence varied significantly ($p<0.05$).

In older groups the following 4 classes prevailed: eye diseases – 44.4 %; neoformations – 18.8 %; blood system diseases – 14.4 % musculoskeletal system disorders – 5.6 %. The first place among the people at the age of 30-59 was taken by respiratory system disorders – 15.9 %, next are neoformations – 15.7 %, blood system diseases – 11.3 % and eye diseases – 10.9 %. Among younger patients the main reasons for hospitalization were respiratory system diseases – 40.7 %, congenital anomalies – 13.3 %, digestive system diseases and musculoskeletal system disorders – 7.4 % correspondingly, as well as neoformations – 6.4 %.

About a third of registered in Moscow (31.3 %) were taken to hospital due to eye diseases, 19.3 % - due to respiratory system diseases, 16.2 % due to neoformations and 10.2 % due to blood system diseases. Main reasons for hospitalization of patients from Moscow region were eye diseases – 25.4 %, neoformations – 12.8 %, respiratory system diseases – 12.3 % musculoskeletal system disorders – 10.7 %, and patients of other subjects of the country – respiratory system diseases – 18.9 %, neoformations – 14.8 %, blood system diseases –

12.3 %, as well as congenital anomalies and digestive system diseases –9.5 % correspondingly ($p<0.05$).

Most of the patients of the paid department in MRRCI were taken into the ophthalmology department – 21.2 %, into therapeutics departments, including therapeutical endocrinology – 15.2 %, surgical thoracic department – 10.1 %, otorhinolaryngologic department – 8.4 %.

More than a half of patients (56.6 %) were in hospital for 1-2 days, every fifth hospitalized (20.8 %) – from 3 to 5 days, every seventh (14.8 %) – from 6 to 10 days. 5.7 % of patients were in hospital from 11 to 20 days, and more than 20 days – only 2.0 %. This tendency of staying in hospital is seen in all age groups irrespective of place of residence of a patient.

Thus, an average length of being in hospital was 4.18 days, the older the age group, the bigger this index: 3.81 days for people younger 30 years, 4.26 days for patients 30–59 years, 4.32 days for people of 60 years and older; both men (from 3.99 till 4.43 days), and women (from 3.57 to 4.26 days).

The hospitalized patients more often received such paid medical services as laboratory diagnostics – 41.1 %, the percentage of bed-days of staying in a hospital for patients who wanted to receive medical help in more comfortable conditions made a third of all paid medical services – 25.7 %, including every tenth service – staying in the intensive therapy department/resuscitation unit – 10.0 % .

Across different age groups there were certain differences in the structure of paid medical services. Also, every group received mostly laboratory diagnostics services, but with the age their percentage increased: from 34.7 % to patients younger 30 years to 43.1 % at the age of 60 years and older. The percentage of bed-days for the youngest age group on the whole was nearly a third – 33.8 %, in the middle age group – 37.8 %, and the oldest group – 33.9 %. At the same time, resuscitation/intensive therapy help in paid medical services was different: 1.8 % of service were patients younger than 30 years, 14.6 % - among people 30-59 years and 7.6 % - among people older 60 years ($p<0.05$).

Herewith, distribution of paid medical services depending on the place of residence had no statistical difference ($p>0.05$).

The average cost of treatment at the in-patient department in 2015–2016 was 32.021 thousands rubles. The least of all was spent on average the citizens of Moscow region – 25.609 thousands rubles, a little bit more – 29.003 thousands rubles were spent by Moscow citizens and almost 1.5 times more by citizens of other subjects of the country – 40.159 thousand rubles ($p<0.05$). Among different age groups the biggest average cost of in-patient treatment was 34.505 thousand rubles among patients from 30 till 59 years.

The range of inpatient costs was from 10.0 till 14.9 thousand rubles and more than 40.0 thousand rubles almost half patients – 24.3 and 23.4 % correspondingly. Every tenth spent 5.0-9.9 (12.5 %) or 30.0-39.9 thousand rubles (11.9 %).

More than half patients from other subjects of RF spent on inpatient treatment from 30.0–39.9 thousand and 40.0 thousand rubles and more – 19.9 % and 30.9 % correspondingly. More than 30 % of Moscow and Moscow

region citizens spent from 10.0 to 14.9 thousand rubles – 37.9 and 30.5 % correspondingly, and only every fifth patient from these subjects paid more than 40.0 thousand rubles – 21.2 and 22.4 % correspondingly.

The most expensive inpatient treatment was for younger age groups. From 30.0 to 39.9 thousand, 40.0 thousand rubles and more were spent on inpatient treatment 40.2 % by people younger than 30 years (17.4 and 22.8 % correspondingly), 38.0 % – patients at the age 30–59 years (12.7 and 25.3 % correspondingly). 45.2 % of patients at the age 60 years and older paid to the organization from 10.0-14.9 thousand rubles and only 28.6 % 30.0 thousand rubles and more ($p<0.05$).

Studying the results of paid inpatient treatment it was determined that more than 2/3 of patients were discharged with improvement – 69.6 %, with recuperation 7.7 %, unchanged – 9.1 %, every tenth was transferred to other departments/medical organizations – 13.1 %, discharged with retrogression – 0.1 % and fatal case had 0.4 % patients.

It should be noted that different age groups had different results of inpatient treatment ($p<0.05$) (table. 1).

TABLE I. DISTRIBUTION OF PATIENTS WHO TURNED FOR PAID INPATIENT HELP AT MRRCI DEPENDING ON THE AGE AND RESULTS OF TREATMENT, 2015-2016 (IN %).

	Results of treatment						total
	without changes	recuperation	fatal case	improvement	retrogression	transferred	
younger than 30	5.7	13.2	0	66.4	0.5	14.2	100
30-59 years	14.4	6.8	0.6	68.1	0	10.1	100
60 and older	5.3	5.6	0.4	72.9	0	15.8	100
Total	9.1	7.7	0.4	69.6	0.1	13.1	100

Thus, the percentage of patients discharged with recuperation in the youngest group (younger than 30 years) was 2.4 times higher (13.2 %), than in the oldest age group (60 years and older, 5.6 %); the percentage of discharged with improvement increased with the age increase – from 66.4 (younger than 30 years) till 72.9 % (60 years and older); discharged without changes among patients from 30 to 59 years was 2.5 times greater (14.4 %) than in other two groups; a fatal case was registered only in middle and older age groups – 0.6 and 0.4 % correspondingly.

At the same time distribution of patients according to the results of inpatient treatment and the place of residence was statistically different significantly ($p<0.05$) in groups “without changes” and “transferred to other departments/medical organizations”. Thus, percentage of patients from Moscow region, discharged “without changes” was almost 5 times higher (15.9 %) than of patients from Moscow (3.2 %) and more than 1.5 times higher than patients from other subjects of the country (9.6 %). At the same time the percentage of transferred to other departments/medical organizations patients from Moscow region was 3 times less (6.0 %) in

comparison with patients from Moscow (18.7 %) and almost 2 times less than people from other subjects of RF (11.8 %).

We can assume that patients from Moscow region have greater possibility to receive diagnostic and treatment services at the place of residence due to greater succession in delivery of health care between health organizations of Moscow region in comparison with two other groups. Further study of patients' distribution is necessary according to the results of inpatient treatment at MRRCI depending on disease peculiarities, its intensity, and progress and so on.

IV. CONCLUSION

Thus, analysis of a patient profile in MRRCI determined peculiarities among people who received paid medical treatment in out-patient and in-patient departments.

An outpatient can be described as a woman at the age of 30–59 years, living in Moscow region, employed, non-privileged category, who turned for medical help due to musculoskeletal disorders or some infection and will spend for help less than 5 thousand rubles, on average 3.2 thousand rubles mostly for an outpatient consultation, laboratory diagnostics and diagnostic biopsy. As the result there will be an improvement in health.

An inpatient can be described as a woman at the age of 30–59 years (average age 51.8 years), with the place of residence in Moscow, unemployed or a pensioner, a non-beneficiary, taken to hospital due to some eye diseases, respiratory system diseases or neof ormations, duration of her treatment at the inpatient department is 1–2 days. A sum of money spent by such a patient on the treatment will be more than 30 thousand rubles, on average 34.5 thousand rubles, most part of which will be spent on laboratory diagnostics, a bed-day inpatient/ resuscitation department (an intensive therapy department), discharged with improvement.

In every group of people who turned for medical help at inpatient or outpatient department we can name three age groups of patients: younger than 30 years, 30-59 years and 60 years and older, who have certain characteristics.

Among outpatients the percentage of people younger than 30 years was less than a quarter, more than half of them – 51.8 % – are women, mostly from Moscow region, employed, non-beneficiaries category, who turned for help due to musculoskeletal system disorders, respiratory system diseases and some infection diseases, who spent as a result of treatment at the paid medical service department at MRRCI less than 5 thousand rubles, among three age-groups on average less of all – 2.8 thousand rubles, mainly for in-patient diagnostics, laboratory diagnostics and diagnostic biopsy, as a result of more than a half were sent for help to other medical organization or a doctor.

Outpatients at the age of 30–59 years are mostly women (58.5 %), employed (54.3 %), mostly from Moscow region (80.4 %), non-beneficiaries, who mostly turned for help due to musculoskeletal system disorders, some infection diseases, digestive system diseases and circulatory diseases. Most of the outpatient services were an outpatient consultation, laboratory diagnostics and diagnostic biopsy. 83.0 % of patients at the

age of 30–59 spent not less than 5 thousand rubles, 3.3 thousand rubles on average, and percentage of consultations was 43.9 %, observation and further treatment had 40.5 %.

More than two thirds of outpatients at the age of 60 years and older were women pensioners (74.8 %), residents of Moscow region, mostly non-beneficiaries, mostly turned for help due to circulatory system disorders, musculoskeletal system disorders and neof ormations. More than two thirds of patients received such services as outpatient consultation, laboratory diagnostics and diagnostic biopsy, and spent mostly less than 5 thousand rubles, on average 3.5 thousand rubles. As a result 46.9 % of patients were sent for a consultation, 34.5 % were recommended to observe dynamics and continue treatment.

The youngest group of inpatients (younger than 30 years) were 22.5 %, mostly men, main part are students and preschool children from other regions of the country taken to hospital due to respiratory system diseases and congenital anomalies, in half cases with length of treatment 1–2 days, non-beneficiaries. The average cost of treatment is comparable with the average amount at in-patient department – 32.1 thousand rubles, and more than 40 % of them – 30 thousand and more, three fourth of sums spent on laboratory diagnostics, a bed-day in the in-patient department/ resuscitation department (an intensive therapy department) and operative therapy, two thirds are discharged with improvement.

The inpatient middle age group (30-59 years) was the main part of patients, a little greater than a half were men (52.3 %), from Moscow or Moscow region, three fourth of them were non-privileged, more than a half were unemployed, a third were workers and office workers. They turned for help to in-patient department due to respiratory system diseases, neof ormations, blood system diseases and eye diseases. 38 % of patients aged 30-59 years spent 30 thousand rubles and more, in average it was 34.5 thousand rubles, 80 % of costs were for laboratory diagnostics and bed-day stay at in-patient department/ resuscitation department (an intensive therapy department). The length of treatment was 1-2 days for more than a half patients; as a result two thirds of patients were discharged with improvement.

The oldest age group (60 years and older) included a third of inpatients, two thirds of whom were women, mostly from Moscow, pensioners, taken to hospital due to eye diseases (44.4 %), neof ormations (18.8 %) and circulatory diseases (14.4 %), who spent on treatment in 45 % cases from 10 to 14.9 thousand rubles, on average – 28.8 thousand rubles. Most part of the costs was for laboratory diagnostics (43.1 %), a bed-day at in-patient department/ resuscitation department (an intensive therapy department) (33.9 %). Nearly two thirds of the patients were at the in-patient department for 1–2 days, three fourth of the patients of the oldest age group were discharged with improvement, every sixth patient was transferred to other department/medical organization.

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