

The Study on the Process and Impact of External-Care-Seeking Behavior in Shanghai

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Abstract

Objectives: To evaluate the impact of external-care-seeking, explore the framework to regulate patients' seeking doctor behavior and to promote better medical resources allocation. **Methods:** Obtaining data from regular reports from public medical institutions in Shanghai, comparing patients who seek doctors from out-of-Shanghai residence and local patients with insurance in terms of the quantity of service, types of diseases, medical expenses, etc. **Results:** External-care-seeking has a large quantity, especially in hospitalization. In 2012, the number of discharged population from out-of-Shanghai accounted for 22.74% of the total discharged number, the proportion even higher than 30% in tertiary hospitals. Tertiary hospitals have a significant attraction effect, concentrating 59.42% of the outpatient and emergency visits and 71.82% of the amount of hospitalization, with corresponding cost of 75.86% and 82.56%. The top three divisions in tertiary hospitals for external-care-seeking were surgical, obstetrics and gynecology, internal medicine. Based on the interview, admitting out-of-shanghai patients is conducive to the improvement of the technical level of hospitals, and to the enhancement of the utilization efficiency of health resource. However, the local residents may have less accessibility of high quality of medical service. The average expense of external-care-seeking is higher than that of local patients happened in the same level of hospitals. **Conclusions:** External-care-seeking will have a more far-reaching impact on the health care system in Shanghai; some interventions might be necessary, such as rationally allocating medical resources based on the estimates of external-care-seeking and establishing a medical service supervision mechanism.

Keywords

External-Care-Seeking, Medical Tourism, Medical Resources Allocation

1. Background and Rationale

According to the international literature review, the factors influencing healthcare mobility include cultural

background, distance, transportation and medical services accessibility, price and quality of services as well as ethics; namely, patients tend to choose places with similar culture (especially immigrants from foreign countries or provinces), high accessibility and short waiting time, and good service with low expenses [1]. The phenomena that individuals travel long distances to see doctors has gained momentum over the past years among other countries and regions [2] [3]. For example, in India, the number of patients from across the globe for medical treatment is expected to increase by 15% each year [4]. In other leading medical tourism destinations such as Thailand and Singapore, medical tourism has become one of the pillar industries [5].

The inherent driving factors of cross-provincial movement of patients are linked with social and economic development. With health needs of residents increasing, the demand of medical services gradually emerges with diverse forms. While in China medical resources of high quality are mainly concentrated in metropolitans, part of patients start to seek care in other cities to meet their health needs. Moreover, the basic medical insurance coverage has gradually expanded and improved [5], which increases the economic accessibility. Meanwhile, the development of transportation has accelerated migration, and urbanization has contributed to the opening and sharing of medical and health resources. Shanghai is the central city in Yangtze River Delta region and has a growth format with many highways and railways, which makes it fast and convenient for patients from other provinces to seek for medical care [6]. In addition, the gradual improvement of medical insurance reimbursement policies in different regions has further released residents' needs for quality healthcare services [7]. For the hospitals, with the intention of pursuing high technology and economic incentives, patients from other regions are very welcomed. As a regional medical center in Asia, Shanghai is confronted with an escalating number of patients from other provinces and cities [8].

External care seekers have brought positive effects for promoting the development of health care in Shanghai, increasing efficiency of medical services and improving the utilization of medical high technology. However, it was also an upsetting issue for some reasons: local residents may have less access to local medical services, especially to tertiary hospitals and special medical services; external patients may have unreasonable high costs due to the absence of effective supervision and management in cross-region health insurance systems, which poses an impact on local medical resource allocation, service supervision and health insurance management.

2. Methods

Quantitative investigation: Shanghai Health Resource and Medical Services Survey Regulation (hereinafter referred to as "the Regulation") divides patients into 2 categories, namely, local patients with health care insurance, and patients from out-of-Shanghai residence, which refers to patients from other cities and provinces to Shanghai for medical services. Medical institutions in Shanghai are responsible to make regular reports (monthly and annual) of services utilization and expenses for patients from out-of-Shanghai residence, and these data are derived from Shanghai Health and Family Planning Commission (which was known as Shanghai Health Bureau) Information Center. The officers from inpatient and outpatient department of sample hospitals mentioned that it is relatively accurate to identification patients' sources, since, in addition to their medical insurance card identification, they will also be asked for a payment of Shanghai medical insurance and their residences. Double check of information is carried out in hospitalization, which has guaranteed a relatively high accuracy of data. For outpatient, due to a massive number of patients, the identification basically relies on the presence of the Shanghai medical insurance card. As Shanghai's medical insurance system has basically covered all the permanent residents, which was 97% in 2012, and the coverage ratio of permanent residents population was 93% (Shanghai Medical Insurance Bureau, 2012). Therefore, the estimate of external-care-seeking was mainly in line with the actual situation in Shanghai, with possible overestimation though.

Qualitative interviews: According to the results of the quantitative data, interview were carried out in tertiary hospitals and maternal care hospitals (which have higher percentage of external-care-seeking patients), mainly with hospital administrators, medical staff and patients both from Shanghai and other provinces or cities. In particular, the interviews were carried out with health administration and social security management staff in some cities in Jiangsu Province with the largest proportion of non-local patients, so as to have a better understanding of external-care-seeking.

3. Status of External-Care-Seeking

External-care-seeking mainly involves health administrative departments, medical insurance sector and medical

institutions of both source and destination regions, which has a reciprocal influence on regional medical and health services development plannings, medical insurance management, and medical services supervision and regulation. Stakeholders are shown in **Figure 1**.

3.1. The Proportion of External-Care-Seeking

3.1.1. Quantity of Service and Its Proportion

External-care-seeking has a large quantity, especially in hospitalization. In 2012, the amount of outpatient and emergency visits of external-care-seeking was 9.48 million, accounting for 4.5% of the total outpatient and emergency visits. The number of discharged population was 661,400, accounting for 22.74% of the total number of discharged patients. From the perspective of the proportion of external-care-seeking to the total services amount, the largest number is found in tertiary hospitals and maternal care hospitals, and the outpatient and emergency visits and discharged population of tertiary hospitals accounted for 8.41% and 30.93%, respectively, while that of maternal care hospitals was 8.13% and 28.38% (**Table 1**). It is worth noting that there is a big difference among different tertiary hospitals. For example, in some well-known large tertiary hospitals with high technology, the discharged population of external-care-seeking accounted for 70% or more of the total, while some other has a proportion of less than 10%.

Also, there is a very obvious difference among different departments. In 2012, the data showed that sections with a 50% or more hospitalization proportion of external-care-seeking included pediatrics, tuberculosis, congerge medicine and stomatology (**Table 2**). There were 11 divisions whose hospitalization proportion of external-care-seeking exceeded 30%, and the proportion in the features sections with specialties of some tertiary hospitals is even higher, some may hitting 70% or more.

3.1.2. Medical Expenses and Proportion

In 2012, the total expenses of external-care-seeking were 13.49 billion Yuan (2.24 billion US Dollar), accounting for 15.57% of the city's total medical expenses, including 3.13 billion Yuan (0.52 billion US Dollar) of outpatient and emergency expenses, which was 6.6% of the total outpatient and emergency expenses, and 10.36 billion Yuan (1.72 billion US Dollar) of hospitalization expenses, which was 26.24% of total hospitalization expenses. And for the proportion to total medical cost, tertiary hospitals ranked the top, which was 23.94%, especially the hospitalization costs, accounted for up to 34.79% (**Table 3**).

3.2. The Flow of External-Care-Seeking

The majority of external-care-seeking occurred in hospitals, whose outpatient and emergency visits accounted for 82.17% of total external-care-seeking outpatient and emergency visits in Shanghai, with the expenses proportion of 93.57% of total. The discharged population from hospital accounted for 94.78% of the total external-

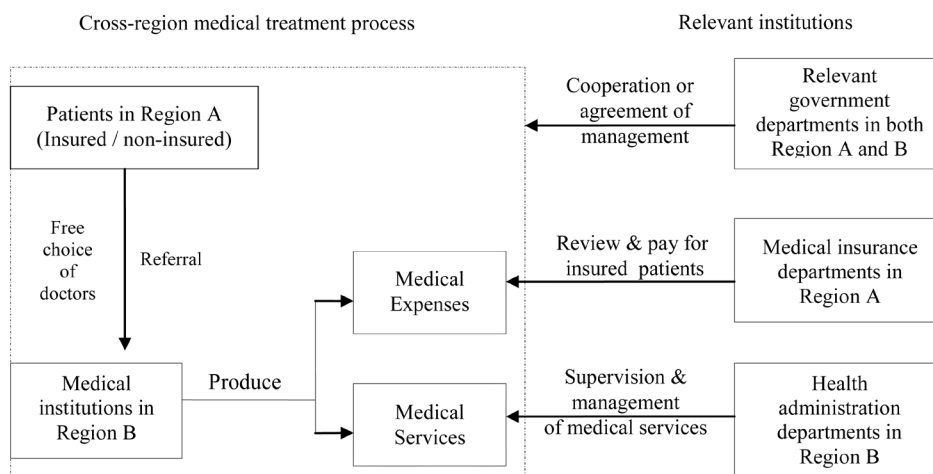


Figure 1. The process of external-care-seeking and related departments and their responsibilities.

Table 1. Service quantity and proportion of external-care-seeking in Shanghai, 2012.

Medical institutions	Outpatient and emergency person time			Discharged patients number		
	External-care-seeking (10,000 person time)	Total (10,000 person time)	Proportion of external-care-seeking (%)	External-care-seeking (10,000 person time)	Total (10,000 person time)	Proportion of external-care-seeking (%)
Hospitals	778.72	12882.47	6.04	62.69	272.15	23.04
Tertiary	563.12	6696.93	8.41	47.50	153.57	30.93
Secondary	200.46	5394.05	3.72	13.70	107.06	12.80
Community health centers	142.95	7331.92	1.95	1.08	10.20	10.59
Clinics	1.36	457.77	0.30	-	-	-
Maternal care hospitals	19.74	242.68	8.13	2.37	8.35	28.38
Specialized disease prevention clinics	4.97	153.44	3.24	0.00	0.15	0.00
Total	947.7	21068.3	4.5	66.14	290.85	22.74

Note: The classification is in line with the Health Statistics report of Shanghai, and municipal tertiary hospitals, such as Shanghai Oral hospital and International Peace MCH are included in tertiary hospitals.

Table 2. Divisions for hospitalization in external-care-seeking in Shanghai, 2012.

No.	Departments	External-care-seeking discharge (person time)	Total discharge (person time)	Percentage (%)
1	Pediatrics	62,967	97,188	64.79
2	Tuberculosis	4326	8103	53.39
3	Concierge medicine	18,929	36,233	52.24
4	Stomatology	5885	11,372	51.75
5	Sports medicine	692	1390	49.78
6	Pain medicine	316	665	47.52
7	Other	51,511	114,898	44.83
8	Oncology	70,014	168,247	41.61
9	Obstetrics and gynecology	113,156	342,869	33.00
10	Dermatology	2756	8838	31.18
11	General medicine	8213	26,353	31.17

care-seeking discharged population, with the expenses proportion of 98.92% of total, and within the total external-care-seeking medical expenses, 97.68% was occurred in hospitals. Tertiary hospitals have a significant attraction effect, concentrating 59.42% of the outpatient and emergency visits and 71.82% of the amount of hospitalization, with corresponding cost of 75.86% and 82.56%, respectively. 81.01% of the total medical expenses for patients from out-of-Shanghai residence were incurred in tertiary hospitals (Table 4).

From the perspective of patient distribution in divisions, the top three divisions in tertiary hospitals for external-care-seeking were surgical, obstetrics and gynecology, internal medicine, totaling 56.51% of the total external-care-seeking inpatient (Table 5). The top ten divisions accepted 94.02% external-care-seeking inpatient population.

Table 3. Expenses and proportion of external-care-seeking in Shanghai, 2012.

Medical institutions	Outpatient and emergency expenses			Hospitalization expenses			Total expenses		
	External-care-seeking (100 million Yuan)	Total (100 million Yuan)	Proportion of external-care-seeking (%)	External-care-seeking (100 million Yuan)	Total (100 million Yuan)	Proportion of external-care-seeking (%)	External-care-seeking (100 million Yuan)	Total (100 million Yuan)	Proportion of external-care-seeking (%)
Hospitals	29.26	358.36	8.16	102.51	385.00	26.63	131.77	743.37	17.73
Tertiary	23.72	210.47	11.27	85.56	245.92	34.79	109.28	456.39	23.94
Secondary	4.70	119.93	3.92	13.53	119.29	11.35	18.23	239.22	7.62
Community health centers	1.46	84.76	1.72	0.28	6.25	4.40	1.74	91.01	1.91
Clinics	0.05	18.91	0.26	-	-	-	0.05	18.91	0.26
Maternal care hospitals	0.39	5.78	6.75	0.85	3.69	23.00	1.24	9.47	13.08
Specialized disease prevention clinics	0.12	3.43	3.50	0.00	0.03	0.00	0.12	3.46	3.47
Total	31.3	471.2	6.6	103.63	394.97	26.24	134.90	866.22	15.57

Table 4. Medical institutions visits and expenses flow in external-care-seeking in Shanghai, 2012.

Medical institutions	Medical visit flow		Expenses flow		
	Outpatient and emergency (%)	Inpatient (%)	Outpatient and emergency cost (%)	Inpatient cost (%)	Total medical expenses (%)
Hospitals	82.17	94.78	93.57	98.92	97.68
Tertiary	59.42	71.82	75.86	82.56	81.01
Secondary	21.15	20.71	15.03	13.06	13.52
Community health centers	15.08	1.63	4.67	0.27	1.29
Clinics	0.14	-	0.16	-	0.04
Maternal care hospitals	2.08	3.58	1.25	0.82	0.92
Specialized disease prevention clinics	0.52	0.00	0.38	0.00	0.09
Total	100.00	100.00	100.00	100.00	100.00

Table 5. Division flow of hospitalization in external-care-seeking in Shanghai, 2012.

Division	External-care-seeking discharge (person time)	Division percentage (%)	Accumulating percentage (%)
Surgical	196,221	27.41	27.41
Obstetrics and gynecology	113,156	15.81	43.21
Internal medicine	95,177	13.29	56.51
Oncology	70,014	9.78	66.29
Pediatrics	62,967	8.80	75.08
Other	51,511	7.20	82.28
Traditional Chinese medicine	27,158	3.79	86.07
Ophthalmology	22,688	3.17	89.24
Concierge medicine	18,929	2.64	91.89
Otolaryngology	15,256	2.13	94.02

3.3. Average Expenses for External-Care-Seeking

The overall average cost for external-care-seeking was higher than the average in Shanghai. The average cost of outpatient and emergency visits for external-care-seeking was 329.94 Yuan (54.51 US Dollar), which was 47.51% higher than the average in Shanghai, and that of hospitalizations was 15666.62 Yuan (2588.13 US Dollar), which was 15.37% higher than the average (Table 6). Most expenses of patients from out-of-Shanghai residence was relatively higher comparing to the average in Shanghai, except for community health centers, clinics, and maternity care hospitals, There are two main explanations for such differences: on the one hand, patients from out-of-Shanghai residence often go to higher level medical institutions, resulting in an overall higher average cost. On the other hand, expenses are related to disease type and severity (Table 6).

3.4. Demography Characteristics of External-Care-Seeking

According to the current residence of patients from the home page of their medical record, the major source provinces were Jiangsu, Zhejiang and Anhui in 2012, which account for 64%, followed by Henan, Sichuan, Fujian, Shandong, Hubei, Jiangxi and Hunan, which account for 28.9%, while the remaining 21 provinces (cities or regions) only accounted for 11%. This has shown a close relation between external-care-seeking and location and traffic conditions. An inter-regional cooperation and joint supervision shall be higher cost-effectiveness.

4. Changes in the Total Amount of External-Care-Seeking

Since 2010, external-care-seeking have presented the feature of large inpatient. The percentage of external-care-seeking stabilizes over 20%, with the expenses over 22% (Table 7). Compared with 2010 and 2011, the amount of service and medical expenses of external-care-seeking in 2012 had increased, which was featured with a faster increase of inpatient than outpatient and emergency visits. In 2012, the number of outpatient and emergency visits, and discharged patients were increased by 845,000 and 158,000 person times comparing to 2010, respectively, with a growth rate of 9.79% and 31.41%, while the expenses of outpatient and emergency visits and hospitalization were increased by 620 million Yuan (100 million US Dollar) and 3.6 billion Yuan (0.59 million US Dollar), with a growth rate of 24.7% and 54.1%.

5. The Impact on Stakeholders

China's medical institutions follow the principle of jurisdiction, and patients are able to freely travel among different regions. However, with no unified policies and management system, it poses a certain challenge on regulation and supervision of medical services.

5.1. Healthcare Institutions and Staff

The medical care costs of patients from out of Shanghai is an important source of income for medical institutions in Shanghai, which can also promote the development of related industries, such as pharmaceuticals, medical devices retail, dining and accommodation. The interviews with management and medical staff in medical institutions in Shanghai show that it is good for the development of Shanghai medical institutions and improvement of medical personnel skills. Firstly, the severe and complicated diseases have greatly enriched the types of cases in Shanghai, and are conducive to improvement of medical skills. Secondly, with more severe diseases, there is a greater probability of the use of advanced medical instruments, which can improve the efficiency in the use of medical resources and marginal benefit. Thirdly, medical institutions in source regions are also influenced. If the patient has been referred to other medical institutions outside their source regions, it can alleviate the shortage of medical resources or insufficient skills.

5.2. Patients

With a large number of external-care-seeking, Shanghai residents would have to wait for a longer time, which will reduce the availability of medical services, which represents that fewer medical resources and fewer high-quality medical resources per capita. For example, more than 20% actual open beds are used by external-care-seeking patients, the percentage being over 50% in 10 famous tertiary hospitals (a total of 39 top tertiary hospitals in Shanghai). For some specialist division, such as pediatrics and oncology, the ratio reached 60% to 80%.

Table 6. Comparison of average cost for external-care-seeking with the average in Shanghai, 2012.

Medical institutions	Average cost for outpatient and emergency visits		Average cost for hospitalizations	
	External-care-Seeking (Yuan)	Total (Yuan)	External-care-Seeking (Yuan)	Total (Yuan)
Hospitals	375.74	278.18	16351.59	14146.65
Tertiary	421.22	314.28	18011.53	16013.54
Secondary	234.46	222.34	9882.81	11142.35
Community health centers	102.13	115.60	2536.86	6130.19
Clinics	367.65	413.09	-	-
Maternal care hospitals	197.57	238.17	3575.32	4419.16
Specialized disease prevention clinics	241.45	223.54	0.00	2043.65
Total	329.94	223.67	15666.62	13579.95

Table 7. External-care-seeking trend in Shanghai, 2010-2012.

Year	Outpatient and emergency visit (10000)			Outpatient and emergency expenses (100 million Yuan)			Discharged amount (10000)			Hospitalization costs (100 million Yuan)		
	External	Total	Proportion	External	Total	Proportion	External	Total	Proportion	External	Total	Proportion
2010	863.2	18858.5	4.6	25.1	378.0	6.6	50.3	251.6	20.0	67.2	296.0	22.7
2011	866.7	19964.9	4.3	28.0	423.2	6.6	60.4	268	22.5	91.2	340.1	26.8
2012	947.7	21068.3	4.5	31.3	471.2	6.6	66.1	290.9	22.7	103.6	395.0	26.2

For external-care-seeking patients, their diverse medical needs are fully met. They are free to choose medical institutions for treatment based on the needs, and the gradually improving medical insurance reimbursement policies have further reduced their economic concerns and greatly improved economic accessibility of the medical services, in particular, the average expenses of external-care-seeking is higher than that of local patients happened in the same level of hospitals, which may be associated with the types and severity of diseases, but also be caused by lack of supervision in cross-regional medical services [9].

5.3. Health Management

The behavior of external-care-seeking may release the pressure of medical resources development in source regions, and expanded the purchase options for health insurance sectors. The interviews conducted in neighboring province showed that external-care-seeking patients tend to go to regional medical center, such as Shanghai, for treatment once they have major diseases. On the other hand, since the development of medical institutions is not the economic growth points in source regions. This has brought some tips for health administrative departments in Shanghai, namely, to adjust the total amount and structure of resources in Shanghai health resources planning [10].

The service should target in both local patients and a large number of non-local patients. In the estimate of the amount allocation of local medical resources, the number of the latter should be taken into consideration. In addition, the allocation shall take full account of the diseases and flow characteristics of external-care-seeking patients and a hierarchical classification is needed during making plan of resource allocation. They tend to go to medical institutions with high concentrated and comprehensive services (mainly top tertiary hospitals), especially famous specialist divisions.

5.4. Healthcare Sector

In China, the medical insurance follows the principle of jurisdiction, so there are differences in the range of basic medical insurance, directories of essential drugs, and also reimbursement compensation ratio. So far, Shang-

hai has established a collaborative relationship with some provinces and cities in cross-regional medical insurance and reimbursement, and a reimbursement standard provides great convenience for non-local patients [11] [12] [13] [14]. However, most patients get reimbursement afterwards, which is inconvenient.

6. Limitations and the Direction of Research Improvement

The major identification criterion for outpatient and emergency patients is with/without basic medical insurance; therefore, a slight number of local patients who do not have the insurance would be mistaken as external-care seeking patients. In the field investigation at the hospital, doctors said that in rural areas, a lot of migrant workers in informal employment, such as waiters, are not covered by basic medical insurance, and they are possibly mistaken for external-care seeking patients as well. In the future, small-scale surveys can be carried out for the data correction.

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