

Standardized management of an outpatient service schedule in a large general hospital

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Research

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Abstract

Background: An outpatient schedule should have attending physician names, number of consultations, consultation agenda, and information based on which patients book their appointments. Regulating physician discipline while ensuring improved service quality and high-quality physician–patient relationships have become critical issues in outpatient management. The purpose of this study is to identify the effects of an outpatient service schedule on patient satisfaction.

Methods: This study is based on a mixed-methods approach and investigates the standardization of outpatient schedules' formulation and operation processes. Following the implementation of standardized formulation, operation, and evaluation of outpatient service schedule, we analyzed the outpatient service data as well as third-party patient satisfaction between 2016 and 2018 about 2000 outpatients, and introduced interventions on the corresponding influencing factors.

Results: The outpatient service-suspension rate fell from 2.5% in 2017 to 1.9% in 2018, while the service-substitution rate fell from 2.9% in 2017 to 2.5% in 2018. The service-suspension rates also decreased for attending physicians and professors; rates for senior doctors were higher than for junior doctors. Furthermore, the suspension and substitution rates were at their lowest in the first quarter and at their highest in the third quarter of each year. Patient loyalty, overall satisfaction, and registration convenience improved annually.

Conclusions: The standardized management of outpatient-service schedules is a solemn commitment of public hospitals to honest and lawful practices; however, it also serves as a solid base for the consolidation and development of the medical-service reservation system.

Background

Given the increased pace of medical reform and the comprehensive implementation of medical-service reservation systems in urban tertiary hospitals, the standardized management of outpatient-service schedules (herein after, "outpatient schedules") and honest communication have been listed as essential for the supply-side reform of public hospitals. Outpatient-schedule management is a process by which hospital administrators coordinate human, material, and financial resources through various forms of organization, leadership, and regulation, in order to realize the hospital's service targets in an optimal manner[1, 2]. The outpatient schedule of a hospital should be organized such that it incorporates the needs of patients, coordinates medical resources according to provincial and hospital-level conditions, and employs a staged plan. An outpatient schedule should specify the attending physicians, number of consultations, consultation agenda, and information about the basis upon which patients book their appointments. Regulating physician discipline while ensuring improved service quality and high-quality physician–patient relationships has become a critical issue in outpatient management [3]. Relatively few clinical studies examine the operation and management of doctors' outpatient service in China and limited solutions have been proposed. Hence, many problems still need to be solved urgently. In this

study, we investigate the standardization of outpatient schedules' formulation and operation processes to solve the operational problems, which can then be promoted and applied in large general hospitals in Chengdu, Sichuan.

Materials And Methods

Data source

We collect and analyze data on outpatient services delivered between 2016 and 2018, including service evaluations of outpatient physicians, analyses of service suspensions and substitutions, and third-party satisfaction surveys. The third-party survey employed was completed by volunteers and medical students, who, after standard training, conducted on-site questionnaire-based surveys of 2000 outpatients using an objective sampling scheme. The inclusion criterion of the survey is outpatient status. The exclusion criteria are (1) subjects with cognitive impairment, (2) subjects who were hospital staff, and (3) subjects who could affect the impartiality of the study due to their association with the hospital.

Research methods

Outpatient service information

The Ethics Committee of the West China Hospital, Sichuan University approved this study and exempted it from the requirement for informed consent. We analyze outpatient service records and patient-satisfaction data between 2016 and 2018. Indicators include the annual suspension and substitution rates for all physicians, disaggregated by job level, and the proportions of various contributions. The data are entered into MS Excel and compared via the differential χ^2 test. The significance level boundary is $\alpha = 0.05$. The data was retrieved from the database of the hospital.

Third-party satisfaction survey.

Patients' perceptions of outpatient service are investigated using a satisfaction questionnaire, which includes items such as overall satisfaction with visit, administrative efficiency, physicians' level of service, and patient loyalty. Responses are provided on a five-point scale: *very positive*, *positive*, *neutral*, *negative*, or *very negative*. The satisfaction rates of indicators are then calculated as follows: the number of people who answered *very positive* or *positive* (the number of people surveyed—the number of people who did not answer the question) x 100%. The satisfaction rate is calculated as the number of *very positive* or *positive* responses/ number of respondents.

Results

Evaluation of outpatient services

Even though the number of outpatient visits increased steadily from 2016 to 2018, the suspension rate fell from 2.5% in 2017 to 1.9% in 2018, while the substitution rate dropped from 4.1% in 2016 to 2.9% in 2017 and to 2.5% in 2018. As shown by Table 1, these differences are statistically significant ($p < 0.05$).

Table 1
Outpatient services provided by all doctors (%)

Year	Consultation appointments kept	Service suspensions	Service substitutions	χ^2 value	p value
2016	93.4	2.5	4.1	699.638	0.000
2017	94.5	2.5	2.9		
2018	95.6	1.9	2.5		

Evaluation of outpatient services disaggregated by job level

As shown by Table 2, the group most responsible for service suspensions between 2016 and 2018 were the specialists, while the least responsible were the professors. In 2018, the suspension and substitution rates of professors decreased as a proportion of the total, while specialists' proportion of substitutions increased significantly relative to 2016. Hypotheses testing indicates that differences between the suspension and substitution rates of the three consultation types are statistically significant ($p < 0.05$).

Table 2
Service suspensions and substitutions by consultant level (%)

Service	Year	Attending physician consultations	Professor consultations	Specialist consultations	χ^2 value	p value
suspensions	2016	28.6	30.3	41.1	1157.819	0.000
	2017	11.7	10.4	77.9		
	2018	16.7	7.8	75.5		
substitutions	2016	38.7	14.5	46.8	887.964	0.000
	2017	53.7	20.0	26.3		
	2018	30.0	9.2	60.8		

Distribution of outpatient-service suspension and substitution causes

In both 2016 and 2018, holidays, conference leave, and department arrangements contributed most to service suspension and substitution. In 2018, the contribution proportion attributed to conference leave was 26.7%, higher than the 20.4% in 2016, whereas the proportion attributed to holidays was 27.4%, which was lower than the 32.5% in 2016. In addition, the proportion attributed to departmental arrangements was 21.9% in 2018. These results are shown in Figure 1.

Quarterly evaluation of outpatient-service suspension and substitution

As displayed in Table 3, for 2016, 27.3% of suspensions and 23.3% of substitutions came in the first quarter, which fell to 10.4% and 16.0%, respectively, in 2018. Conversely, the proportion of suspensions in the third quarter increased from 25.9% in 2016 to 41.3% in 2018, with the substitution proportion also rising from 30.8% to 35.6%. The third and fourth-quarter rates tend to be above the yearly average, with the third-quarter proportions generally the highest. Hypotheses testing indicates that differences in the temporal distribution of suspensions and substitutions are statistically significant ($p < 0.05$).

Table 3
Quarterly distribution of suspensions and substitutions

Service	Year	First quarter	Second quarter	Third quarter	Fourth quarter	χ^2 value	P value
suspensions	2016	27.3	17.3	25.9	29.5	344.872	0.000
	2017	24.2	22.0	29.5	24.3		
	2018	10.4	21.7	41.3	26.6		
substitutions	2016	23.3	22.6	30.8	23.3	221.765	0.000
	2017	17.4	16.6	43.4	22.6		
	2018	16.0	24.7	35.6	23.7		

Outpatient satisfaction

The results of the satisfaction surveys are displayed in Table 4. In general, patient loyalty, overall satisfaction with outpatient service, physicians' level of service, and the convenience of registration improved year after year. Although the satisfaction with outpatient visit administrative efficiency dropped slightly in 2018, the overall satisfaction level increased significantly from 85.0% in 2016 to 89.4% in 2018.

Table 4
Outpatient satisfaction rate (%)

Item	2016	2017	2018
Outpatient visit administrative efficiency	65.1	65.5	65.2
Doctors' levels of service	84.6	91.8	92.6
Convenience of registration	72.6	77.5	78.1
Patient loyalty (satisfaction with the hospital and medical service upon subsequent visits)	89.5	91.4	92.0
Overall satisfaction with the hospital visit	85.0	87.8	89.4

Integrating service education into hospital culture

An outpatient schedule is not only important for the hospital's day-to-day operations, but also provides behavioral guidance for medical staff and managers and reflects the hospital's culture. The consultation-reservation system is designed to allow patients to arrange their hospital visits more easily and shorten their waiting times, thereby improving patient satisfaction [4]. A department's outpatient schedule is usually prepared by the department's director, who should allocate specialist and sub-specialist consultations based on the subspecialty's development, professional structure, and staff status, as well as patients' needs. By arranging flexible seasonal schedules based on the number of patients and departmental status, limited medical resources can be utilized in the most efficient manner.

Reducing service suspension and substitution

A medical-service reservation system is implemented by hospitals to improve patient-oriented services, as it introduces a dual-restriction mechanism on both physicians and patients, effectively preventing both from missing their appointments [5]. Physicians in large general hospitals are not only responsible for providing medical services, but also for fulfilling educational and scientific research responsibilities. However, cancellations of patient services on short notice as a result of conflicts with other tasks damage the reputation of the hospital and lead to disputes between physicians and patients [2]. Therefore, outpatient schedules must be prepared under the supervision of the director of each clinical department, submitted to the outpatient department in a timely manner, and published on the reservation platform. This way, physicians can attend their outpatient consultations according to the schedule, while patients can book their appointments in advance. Physicians should apply for a suspension or substitution at least one week ahead, a request that should then be approved by the director of the department, or by the hospital director in cases of suspension requests. In emergency situations, the corresponding department should coordinate with the outpatient department to reschedule the affected patients properly.

Standardizing the creation of outpatient schedules

The outpatient schedule should cover the entire service-provision process, including physicians' applications, management reviews, outpatient-schedule administration, and quality assessment. The standardized management of this schedule can help improve its implementation, thereby ensuring high-quality delivery of outpatient services. In 2018, based on the hospital management method, our hospital standardized the management of the outpatient schedule, clearly identified various individuals' responsibilities, and incorporated evaluation into service-quality assessment. Outpatient visits were arranged strictly according to the schedule, and a regulated leave-approval process was implemented for physicians. Furthermore, templates for service suspension and substitution were formalized to prevent physicians from providing incorrect or unclear information that could lead to processing errors. Finally, an outpatient-schedule management system was established, where responsibilities for individual tasks were clarified. Using this system, problems were reported, reviewed, and addressed regularly.

Linking outpatient service evaluations with departmental appraisals and promotions

Since physicians are the main implementors of the outpatient schedule, their honesty is key to the program's proper execution. Therefore, our hospital launched services focusing on honest communication and promoted the credibility and authority of the outpatient schedule program. Disclosing the suspension rates of each department in weekly morning meetings and via EnterpriseWeChat, categorizing the reasons behind absences, and making physicians' salary increases and promotions dependent upon their outpatient service evaluations encouraged departments to participate actively in the hospital's management. In addition, physicians showed more enthusiasm in adhering to outpatient consultations.

Discussion

Outpatient schedule management raises the hospital's credibility and authority

The outpatient department of a hospital should focus on patient demand, the concept of patient-oriented service, and providing patients with high-quality, affordable, and reliable services [6]. Currently, China's medical and healthcare field is attempting to manage the conflict between the rapidly growing need for medical services and the slower development of service capacity. The effects of this conflict have been exacerbated by inefficient supply mechanisms for medical services, while the main manifestation of the conflict is difficult and expensive hospital visits. "Supply-side reform" has taken centerstage in the healthcare field [7]. A hospital's outpatient-schedule management can improve the supply of medical services, while also raising overall management of medical services and promoting honest communication. This is a task for health officials and hospital management, which is consistent with

China's new-era socialist values. Improved communication among all parties relevant to the outpatient environment (physicians, patients, administrators, and other staff members) also enhances the hospital's brand, reputation, and culture.

Outpatient schedule is a facilitator of efficient operation

Large general hospitals are often patients' first choice due to their advantages in providing high-quality medical resources and comprehensive specialist and sub-specialist departments. The outpatient department drives the operation of various departments and sectors of the hospital as the physicians who work there admit and discharge patients. Therefore, an appropriate outpatient schedule is necessary to ensure a hospital's efficient operation. Following the introduction of the consultation reservation system in 1992, our hospital became the first to make all consultations with experts, specialists, and sub-specialists available to the public for reservation. Patients can make appointments via the mobile app, WeChat, the hospital's webpage, telephone, and self-service machines. Subsequently, the average daily outpatient volume increased from a daily average of 8000 in 2008 to 20000 in 2019, which represented a challenge for the continued credibility of the outpatient schedule. An additional issue is that 70% of patients do not reside locally, including patients who live in remote mountainous areas. To address this issue, our hospital implemented the consultation reservation system and the segmented consultation mechanism, which improved the service provided to patients and encouraged physicians not to miss consultations, thereby raising the credibility of the hospital in the eyes of its patients [8]. Jing [9] indicates that the reservation rate for specialist consultations was 29.9% higher than that of ordinary consultations, whereas the suspension rate of the former was 3.6% lower than that of the latter. Nevertheless, our study finds that specialist consultations produced the most suspensions between 2016 and 2018. In 2018, specialist consultation suspensions and substitutions represented 75.5% and 60.8% of the total, respectively. These percentages demonstrate the disparity between the supply of and demand for specialist consultations. Another possible explanation for those rates is that by continuously analyzing patient visit data and improving services, our hospital has increased the number of specialist consultations offered in order to satisfy patients' demands for high-quality medical service and specialist consultations. On this basis, standardized management of the outpatient schedule can improve the quality of specialist consultations, thereby ensuring the hospital's exceptional operation.

The department director should be responsible for the outpatient schedule

In order to raise the credibility of the hospital, when reviewing applications for service suspension, the director of the department should consistently focus on both providing patient-oriented service and preventing physicians from suspending their services without acceptable reasons [10]. Reasons for outpatient-service suspensions and substitutions were not provided until 2017. Our results show that 27.3% of suspensions and 23.3% of substitutions came in the first quarter in 2016, percentages that then

fell to 10.4% and 16.0%, respectively, in the first quarter of 2018. However, the suspension and substitution proportions were higher than average in the third and fourth quarters, with the third-quarter figures significantly higher.

In 2018, conference leave accounted for 26.7% of service suspension and substitution, which was higher than the 20.4% of 2016. Conversely, the proportion of service suspension due to education, sick leave, and holiday was lower in 2018 than in 2017. In 2018, departmental arrangements accounted for 21.9% of service suspensions and substitutions. In sum, holidays, conference leave, and departmental arrangements have respectively accounted for more than 20% of service suspensions and substitutions in the time period studied, and cumulatively account for more than 84%, as seen in Figure 1.

We believe that the influences of holidays, conference leave, and department arrangements on the outpatient schedule are controllable. Assigning the responsibility of service-schedule preparation to the department director has several advantages. Directors possess a better understanding of the department and the required allocation of appointments and they are more aware of the conference schedules of different groups within the department.

Large general hospitals integrate medical service, education, and scientific research. When the director of the department formulates the outpatient schedule, that person can organize a schedule that is implementable and that ensures physicians' rights to take leaves. With detailed and relevant department knowledge, patient services are prioritized, and suspensions can be reduced to a minimum. In contrast, a temporary outpatient schedule prepared by either the departmental secretary or a temporary staff member can be difficult to implement, resulting in high service-suspension and substitution rates.

Successful implementation of the outpatient schedule relies on physicians

With the current focus on healthcare reform, providing premium services to patients, increasing quality resources, and promoting physicians' enthusiasm are common challenges for health administrative departments and hospital administrators [11]. Our results indicate that although the number of outpatient visits grew steadily over the period studied, the suspension and substitution rates fell to such an extent that the differences were statistically significant ($p < 0.05$). By managing outpatient consultations according to the hospital outpatient-service suspension and substitution management method and publishing documents such as *Notices on Further Strengthening the Management of Outpatient Service Suspension of Re-Employed Doctors after Retirement* and *Supplementary Explanation on the Rules of Service Suspension and Substitution Evaluation*, our hospital can regulate doctors' behaviors. In addition, the announcement of evaluation results on WeChat can improve the implementation of the schedule. Standardized management of the outpatient schedule not only provides patients with added convenience but also induces both doctors and patients to promote the credibility of the hospital. In addition, outpatient physicians in large general hospitals are all evaluated on performance indicators for time and

tasks, which are included in the plan assessment and provide important indicators of physicians' self-development and practice of their specialty and sub-specialty.

Physicians are the primary implementors of the outpatient schedule; they also play a significant role in achieving self-development goals by providing organized outpatient services. The support of physicians is essential for the successful implementation of this type of program.

The outpatient schedule should be adaptable

Outpatient-schedule management is an important part of hospital management. Our results demonstrate that satisfaction indicators including patient loyalty, doctors' level of service, and convenience of registration have all steadily increased in the hospital and time period we analyzed. In addition, the overall satisfaction rate grew from 85.0% in 2016 to 89.4% in 2018, indicating that the standardized management of the outpatient schedule has led to improved patient satisfaction.

Our hospital, the subject of this study, supervises departmental implementation of the program using appropriate information technology. Internally, the outpatient department monitors and publishes each physician's outpatient consultation attendance while, externally, outpatient appointment information is updated in a timely manner on the reservation platform. Facilitated by technology growth and improved access to information, these efforts have provided solutions to many problems. However, the outpatient schedule system technology cannot incorporate humanistic management concepts and, therefore, refined management rules should be established, incorporating same-level substitution, non-complete unit consultation addition, service suspension, and appointment restriction [12]. More effective and sustainable schedule-management methods should be considered to optimize performance and ensure that patients and medical staff continue to be satisfied while the quality of medical services are continually enhanced [13]. Overseen by people with the best access to the necessary information, and utilizing the most advanced technology available, a modern and prioritized outpatient schedule maximizes patient-physician encounters and minimizes or removes wait times as well as staff substitutions and suspensions. A finely tuned, multipurpose, and fully functional outpatient schedule can be developed into an important tool in a hospital's quest to provide quality health services, stellar patient care, and high levels of patient satisfaction.

Conclusion

Standardized management of outpatient schedules is an important element of modern hospital administration and central to a hospital's efficient operation. By analyzing outpatient physician service data and recommending the adoption of appropriate interventions, this study promotes the standardized implementation of outpatient schedules; tools that can induce improvements in the quality of medical services and inspire honest communication. The establishment of information symmetry between patients and hospital is a part of deepening public hospital reform, and also improves the hospital management ability.

Declarations

Ethics approval and consent to participate

The Ethics Committee of the West China Hospital, Sichuan University approved this study.

Consent for Publication

Exempt informed consent

Availability of data and materials

The data used to support the findings of this study are available from the corresponding author upon request.

Competing interests

Funding was received under the Research on the health service needs of elders living in groups and the corresponding medical resource allocation project (Sichuan Key Research Project Program). The authors are employees of the hospital analyzed in the study.

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Author's contributions

YY has done the literature search, data processing and article writing. QG was involved in literature search and data collection. XH selected the topic and direction of the article. LY also contributed in selecting the topic and direction of the article along with final revision of the manuscript. All authors read and approved the final manuscript.

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Figures

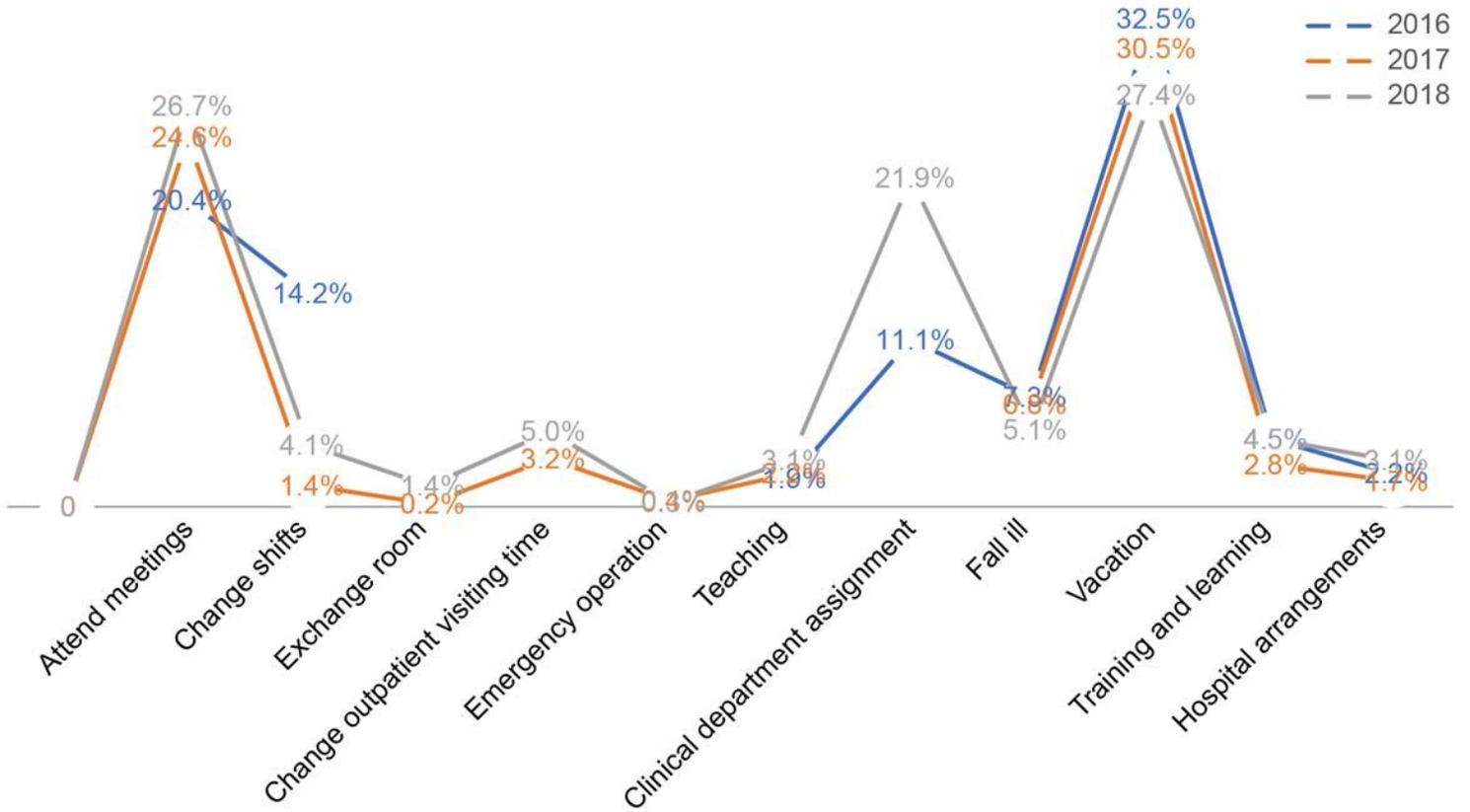


Figure 1

Causes of outpatient service suspension and substitution 2016–2018