

# Evaluation on Township Medical Service Ability under the Medical Reform Program: Basis for Service Improvement

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## ABSTRACT

This quantitative correlational study evaluates the healthcare service capacity of township hospitals under the medical reform program focusing on residents' perceptions and the system's effectiveness. The respondents are the 385 residents of Chaoyang, Beijing, China using stratified random sampling method. The main research tool for gathering data was a self-structured survey questionnaire and data were interpreted through percentage, mean, ANOVA and Spearman's Rho. The findings reveal generally positive assessments, with high satisfaction related to accessibility, efficiency, and resource availability, especially in emergency, outpatient, and primary care services. Consistent responses indicate a shared recognition of service effectiveness, supported by qualified providers, strong health policies, and technological advancements. The results underscore the importance of strengthening primary healthcare infrastructure to promote equitable health access and support China's broader goals outlined in the "Healthy China 2030" initiative.

**Keywords:** township medical service, Medical Reform Program, Beijing, China

## INTRODUCTION

Public hospitals in China have traditionally depended on profits generated from high markups on pharmaceuticals and medical supplies, which led to rising healthcare costs and placed significant financial strain on patients. In an effort to control increasing medical expenses and shift public hospital services to prioritize the public good, Beijing carried out two rounds of healthcare reform in 2017 and 2019. The first round concentrated on decoupling drug sales from hospital income, while the second round expanded to include the elimination of markups on medical supplies and adjustments to the pricing of medical services (Gao, 2021).

The two abovementioned rounds of reform in 2017 and 2019 are collectively referred to as the "Beijing Comprehensive Healthcare Reform." The reform aimed to optimize the hospital revenue structure without placing more financial burden on patients, resulting in a system that would function appropriately, efficiently, affordably, and sustainably. While the Beijing reform can potentially provide a direction for public hospital reform in other parts of China, other provinces cannot directly copy Beijing's experience and therefore need to formulate reform plans based on their own socio-economic development.

The foundation of China's New Healthcare Reform, which started in 2009 with the goal of reducing the regional and urban-rural divides, is the development of rural healthcare and medical systems. Village clinics and township hospitals are the two types of medical facilities that provide primary care to farmers in rural China. To be more precise, the former provides the local villages with basic and routine outpatient care, while the latter has beds and can admit patients with non-urgent problems. Both of them operate at the base of the Hierarchical Diagnosis and Treatment System, which aims to reduce the burden on top-tier metropolitan hospitals that are frequently overburdened by the volume of patients they receive and ultimately enhance the overall effectiveness of the country's healthcare system (Zheng et al., 2019).

The "Healthy China 2030" initiative aims to ensure equal access to fundamental public services, gradually reducing disparities in basic health services and health outcomes across different regions, achieving universal health coverage, and fostering social equity, particularly at the community level. Township hospitals, which are a key component of the three-tier rural health service system, play a vital role in providing medical care, disease prevention, and health

maintenance for residents; they are also crucial in addressing the challenges of "difficult and expensive medical treatment" faced by rural populations. It has been observed that township health centers continue to experience issues such as low operational efficiency, a significant outflow of professionals, and difficulties in attracting patients. A strategic allocation of health resources within township hospitals and effectively fulfilling the "gatekeeper" role at the grassroots level are crucial for the long-term and sustainable progress of township hospitals (Zhao et al., 2022).

In 2021, there were 1.16 billion visits to China's township health centers (THCs), which represented 13.7% of all visits to medical institutions. Across 29,600 townships, there were 35,000 THCs, equipped with 1.417 million beds and staffed by 1.492 million health professionals. Although the quantity of THCs may have declined, their capacity in terms of beds has increased. More than 68% of THCs achieved the national standards for "high-quality service in primary care," and 90% of families could access a primary care facility within a 15-minute distance, according to ScienceDirect.com. According to Frontiers, in 2021, rural township health centers had an availability of 2.84 beds per 1,000 individuals and 2.58 health technical personnel per 1,000 individuals.

The research conducted by He and Li (2022) revealed that the majority of patients rated the quality of medical services at the Beijing Tianqiao community health service center as exceeding their expectations, with 93% of the evaluated items meeting the required standards. High scores were noted for efficient handling of business, coordination and referrals with major hospitals, and precise documentation of the diagnosis and treatment process. However, patients' actual perceptions regarding the appropriate allocation of departments, as well as the clarity of signage and availability of various types of specialist clinics, were lower than what they had anticipated.

Although medical services are essential parts of healthcare systems, there are significant differences in their accessibility and efficacy. In spite of reform initiatives, a thorough assessment of the township's current medical care capacity is still required in order to pinpoint deficiencies and potential areas for development. By analyzing the existing situation of township medical services and identifying barriers to their efficacy, this research sought to close this gap and provide information that help develop strategies for improving the quality of healthcare in Beijing, China.

The quality and adequacy of healthcare services can be measured based on patient satisfaction, which is the most important indicator of quality of care. Patient satisfaction measurement provides crucial information on performance, contributing to total quality management. Total quality management includes professional knowledge, competence, and application of appropriate technology, as well as patients' perception of the type and level of care they have received. In today's consumer-oriented healthcare markets, patient-centered measures of satisfaction with nursing care received are a major component of hospital quality management systems. Patient satisfaction is a concrete criterion for evaluation of health care and quality of nursing care (Karaca and Durna, 2019).

Akbaş, (2019), states that patient satisfaction is a crucial measure that indicates the quality of care provided to patients, with nursing care being one of the most important factors influencing satisfaction. Nursing care is a profession that combines moral and emotional aspects of care with professional knowledge and skills, reflecting it in the nurse- patient relationship. High-quality care is a right for all patients and is the responsibility of all nurses. Nursing practices should be based on scientific knowledge, professional ethics, laws, and obligations to ensure the protection of individual and society's rights and security.

Based on the research by Lotfi et al., (2019). Patient satisfaction with care is a complicated collection of criteria, and in order to attain it, the numerous dimensions of structural, medical, nursing, and support services must be examined. According to the study, nurses should prioritize professional communication with patients, and adopting sufficient communication skills may increase patients' satisfaction with nursing care. It is also critical to instruct and encourage hospital personnel, particularly nurses, to actively participate in patient satisfaction as one of the hospital management's objectives.

The empirical findings in the study of Sun et al (2023) revealed that the effectiveness of healthcare services in China underwent considerable changes from 2009 to 2014, after which it remained consistent. Throughout this period, the efficiency of healthcare services in the eastern region surpassed the national average, whereas the western region exhibited lower efficiency. The analysis of environmental factors indicated that higher population density led to a reduction in the excess of healthcare input resources, while economic growth and increased government subsidies

resulted in a greater surplus of these resources. The primary factor driving the enhancement of healthcare service efficiency in China was technological innovation, with the most pronounced growth observed in the western region.

A high number of healthcare facilities combined with inadequate service volumes were primary factors contributing to inefficiencies in the healthcare system. Areas that focus on primary healthcare services and have higher GDP levels showed greater efficiency in their healthcare systems. These insights are anticipated to guide policymakers in creating a healthcare service system in China that is both value-driven and efficient. Since 2009, China has initiated a range of extensive reforms, which include the restructuring of public hospitals, strengthening primary healthcare institutions, and reforming payment methods. Nonetheless, it remains unclear how much these reforms have enhanced medical services in China (Fang and Li, 2023).

According to Cheng *et al.* (2024), efforts should be directed toward constantly enhancing management skills, medical technology, and service quality within the healthcare system; this approach will advance the diagnosis and treatment processes, eventually leading to better healthcare services for rural populations.

The results of the analysis in the study of Peng *et al.* (2021) indicate that in recent years, the focus of Chinese residents' satisfaction with healthcare resources has shifted at the national level from economic affordability to a stronger emphasis on "people-centered" services. However, it is important to note that regional disparities and gaps still require greater attention and must be addressed in the next phase of healthcare reform.

### **OBJECTIVES**

The primary objective of this study is to evaluate the medical service capacity of townships under the medical reform program, serving as a basis for identifying areas for service improvement. Specifically, the study aims to analyze the demographic profile of residents—considering factors such as age, gender, income, and education—to understand how these variables influence perceptions and experiences of healthcare. Additionally, the study seeks to assess the current state of medical service ability within these townships, focusing on service levels and effectiveness. It intends to identify the key factors that influence the effectiveness of medical services, as well as to measure residents' satisfaction with the available healthcare services. Furthermore, the research aims to explore the relationship between residents' satisfaction and service effectiveness, and to determine whether there are significant differences in service ability, key influencing factors, and satisfaction levels across different demographic groups. These insights will inform strategies to enhance the quality and effectiveness of township medical services under ongoing medical reforms.

### **METHODS**

The research method used in this study is Quantitative method. The research covered the district of Chaoyang, located in Beijing China. Beijing has six urban districts, one of which being Chaoyang District.

The district's total permanent population at the end of 2019 was 3.473 million. In order to guarantee enough statistical power and confidence in the study's conclusions, the sample size were determined using Raosoft sample size calculator with 95% confidence level and 5% margin of error. A sample size of 385 is taken from the entire population of Chaoyang, China. In order to provide proper representation of various demographic groups within the township population, the sample size for this study were selected based on the principles of random sampling. A more precise and representative sample were obtained by segmenting the population into discrete strata according to pertinent criteria like age, gender, socioeconomic position, and geography.

The main research tool for gathering data was a self-structured survey questionnaire. Part I of the survey questionnaire includes the demographic profile of the respondents according to age, gender, annual household income and educational level. Part II includes the assessment of the medical service of Chaoyang Province, Beijing China. Part III focused on the factors affecting the medical service ability based on satisfaction level and service effectiveness. Part III includes the satisfaction level with the existing township medical service.

The researcher secured an ethics clearance for the school prior to data gathering. Using the WeChat application, questionnaire translated into Chinese was distributed to the respondents. The respondents were given time to answer

the survey then follows the retrieval of the responses. After the data collection, the results were treated with statistical tools, analyzed, and interpreted, assisted by the data analyst.

In data analysis, percentage distribution was used to describe the demographic profile; Mean & Standard Deviation were used to assess the services of the township medical services and factors affecting the effectiveness of the medical services; while ANOVA and T-test were used to determine the significant difference in the respondents' assessment when demographic profile is considered. In addition, Pearson R was used to determine the relationship between the residents' satisfaction level and the township medical services.

## RESULTS

### 1. What is the demographic profile of the respondents in terms of:

#### 1.1. Age;

#### 1.2. Gender;

#### 1.3. Annual Household Income; and

#### 1.4. Education Level?

**Table 1. Demographic Profile of the Respondents**

Age Group	Frequency	Percentage
18-25 years old	100	26.0 %
26-35 years old	96	24.9 %
36-45 years old	88	22.9 %
46-59 years old	101	26.2 %
<b>Total</b>	<b>385</b>	<b>100%</b>
Gender	Frequency	Percentage
Female	204	53.0 %
Male	181	47.0 %
<b>Total</b>	<b>385</b>	<b>100%</b>
Annual Household Income	Frequency	Percentage
Below 50,000	89	23.1 %
51,000-100,000	104	27.0 %
101,000-200,000	104	27.0 %
Above 200,000	88	22.9 %
<b>Total</b>	<b>385</b>	<b>100%</b>
Education Level	Frequency	Percentage
High school or below	92	23.9 %
Vocational Course	82	21.3 %
College Graduate	105	27.3 %
Post Graduate	106	27.5 %
<b>Total</b>	<b>385</b>	<b>100%</b>

The demographic profile of the 385 respondents illustrates a relatively balanced distribution across various age groups, with the highest proportion (26.2%) aged 46-59 years, slightly edging out the other groups. The age distribution suggests that middle-aged residents constitute a significant portion of the respondents, which may influence perceptions and experiences of township medical services.

Gender distribution shows a slight female majority, with females comprising 53% and males 47%. This near parity indicates that both genders are fairly represented in the survey, providing a comprehensive perspective on residents' healthcare experiences.

Regarding annual household income, roughly 23% of respondents earn below 50,000, while the remaining respondents are fairly evenly split among the other income brackets: 27% earn between 51,000-100,000, another 27% between 101,000-200,000, and about 23% above 200,000. This spread suggests that respondents come from a diverse economic background, potentially affecting their healthcare needs and satisfaction levels.

In terms of education, a significant portion of respondents (27.5%) are postgraduate degree holders, with similar proportions holding college degrees (27.3%), vocational courses (21.3%), and high school or below (23.9%). This indicates a relatively educated sample, which could influence their expectations and evaluations of medical services.

## 2. What is the respondents' assessment on current state of medical service ability in townships under the medical reform program?

**Table 2. Respondents' Assessment on Current State of Medical Service Ability in Township Under the Medical Reform Program**

Indicators	Mean	SD	Interpretation	Rank
1. The overall quality of medical service available is above satisfaction level.	3.27	0.806	Strongly Agree	3
2. The township medical service ability is accessible.	3.32	0.781	Strongly Agree	1
3. The availability of healthcare facilities, staff and resources is above expectation level.	3.25	0.806	Agree	6-7
4. The efficiency of township medical service ability is above expectation.	3.3	0.759	Strongly Agree	2
5. The range of medical services offered is above average.	3.25	0.766	Agree	6-7
6. The quality of medical equipment and facilities is above average.	3.26	0.823	Strongly Agree	4-5
7. Timeliness of medical appointments and treatments is above average.	3.26	0.85	Strongly Agree	4-5
<b>Overall Mean</b>	<b>3.27</b>	<b>0.493</b>	<b>Strongly Agree</b>	

The assessment results in Table 2 reveal that respondents generally perceive the current state of township medical service ability under the medical reform program quite positively. The overall mean score of 3.27, falling into the "Strongly Agree" category, indicates that most respondents agree that the medical services in townships meet or exceed expectations.

Specifically, the highest-ranked indicator is the accessibility of township medical services, with a mean score of 3.32 and a ranking of 1. It suggests that residents find medical services easily accessible, which is crucial for effective healthcare delivery. The second-ranked indicator is the efficiency of township medical services, with a mean of 3.3, also reflecting strong satisfaction with how efficient the services are.

Other indicators, such as the availability of healthcare facilities, staff, and resources (mean 3.25), and the quality of medical equipment and facilities (mean 3.26), show that residents perceive these aspects positively, though slightly lower than accessibility and efficiency. The range of medical services offered and the timeliness of appointments and

treatments also scored above average, indicating that residents feel they have reasonably comprehensive and timely healthcare options.

The standard deviations (SDs) around 0.75 to 0.85 suggest moderate variability in responses, but overall, the perceptions trend towards satisfaction. The consistency and high ratings across these indicators imply that township medical services have generally improved and are viewed favorably by residents under the medical reform program.

### 3. What is the respondents' assessment on the factors influencing the medical services in township in terms of:

#### a. Service Level

#### b. Service Effectiveness

**Table 3- Respondents' Assessment on the Factors Influencing the Medical Services in Townships in Terms of Service Level**

Indicators	Mean	SD	Interpretation	Rank
1. Primary care like those health services that cover a range of prevention, wellness, and treatment for common illnesses is made available to all residents.	3.27	0.791	Strongly Agree	3
2. Outpatient care such as consultation, procedure, treatment, or other service that is administered without an overnight stay at a hospital or medical facility is available.	3.28	0.792	Strongly Agree	2
3. Emergency care like first skilled [acceptable] assistance given to a victim (sick or injured) on the occurrence of accident or sudden illness in order to preserve life, prevent further injury and relieve suffering until qualified medical care is available.	3.31	0.797	Strongly Agree	1
<b>Overall Mean</b>	<b>3.28</b>	<b>0.581</b>	<b>Strongly Agree</b>	

The data in Table 3 indicate that residents strongly agree that key factors influencing the medical services in townships, particularly in terms of service level, are well established under the current system. The highest-rated indicator is emergency care (mean 3.31), highlighting that residents perceive prompt and skilled emergency services as crucial and effectively provided. Outpatient care follows closely with a mean of 3.28, suggesting that outpatient services such as consultations and treatments are readily available and accessible.

Primary care, which encompasses prevention, wellness, and treatment for common illnesses, received a mean score of 3.27, confirming that residents feel these fundamental health services are adequately provided in the townships. The overall mean score of 3.28 indicates a general consensus that these essential service levels are strongly agreeable, reflecting a positive perception of the township's service capacity in critical healthcare areas. The moderately low SD (0.581) suggests that residents' responses are relatively consistent, further supporting the perception that service levels are effectively meeting community needs.

**Table 4. Respondents' Assessment on the Factors Influencing the Medical Services in Township in Terms of Service Effectiveness**

Indicators	Mean	SD	Interpretation	Rank
1. The availability of medical supplies and equipment is affecting service ability.	3.28	0.817	Strongly Agree	3

2. The number of healthcare providers is impacting the service ability.	3.27	0.79	Strongly Agree	4-5
3. The qualifications of healthcare providers are connected to the effectiveness of medical service ability.	3.34	0.762	Strongly Agree	1
4. Local health policies, regulations and administrative efficiency is affecting the medical service ability.	3.31	0.782	Strongly Agree	2
5. Modern medical technologies and innovative practices contributes to the effectiveness of medical service ability.	3.25	0.771	Agree	6
6. Transport services availability affects the effectiveness of medical service ability.	3.27	0.826	Strongly Agree	4-5
<b>Overall Mean</b>	<b>3.29</b>	<b>0.489</b>	<b>Strongly Agree</b>	

Table 4 highlights that residents strongly agree with the key factors influencing the medical services in townships in terms of service effectiveness. The most influential factor is the qualifications of healthcare providers (mean 3.34), indicating that the competency and expertise of medical personnel are seen as central to service effectiveness.

Next, local health policies, regulations, and administrative efficiency (mean 3.31) are also perceived as highly impactful, emphasizing the importance of effective governance and policy implementation. The availability of medical supplies and equipment (mean 3.28) and transport services (mean 3.27) are similarly recognized as significant contributors, reflecting the importance of logistics and resource availability in service delivery.

The impact of the number of healthcare providers, with a mean of 3.27 and ranked 4-5, suggests that adequate staffing influences service effectiveness. Modern medical technologies and innovative practices, with a slightly lower mean of 3.25, are acknowledged as contributing to improved service outcomes but are perceived slightly less critically than other factors.

Overall, the average mean score of 3.29 indicates residents' strong agreement that these factors collectively influence the effectiveness of medical services in township settings, with provider qualifications and administrative policies being particularly pivotal.

#### 4. What is the satisfaction level of residents with the existing township medical services?

**Table 5-Satisfaction Level of Residents with the Existing Township Medical Services**

Indicators	Mean	SD	Interpretation	Rank
1. I am satisfied with the overall quality of medical care provided in our township.	3.28	0.82	Strongly Agree	5
2. The healthcare professionals are respectful and with empathy.	3.3	0.782	Strongly Agree	3
3. It is easy to schedule appointments with healthcare providers in our township.	3.38	0.741	Strongly Agree	1
4. The wait times is justifiable/ reasonable.	3.2	0.855	Agree	7
5. Medical facilities in our township is clean and well-maintained.	3.32	0.786	Strongly Agree	2
6. Healthcare providers are qualified and competent.	3.28	0.816	Strongly Agree	5
7. I believe that my medical concerns are immediately attended during my visit to medical facilities.	3.3	0.798	Strongly Agree	3
8. The range of medical services available in our township satisfy my needs.	3.29	0.838	Strongly Agree	4
9. I am confident in the accuracy of diagnosis and treatments provided by township healthcare providers.	3.27	0.787	Strongly Agree	6
<b>Overall Mean</b>	<b>3.29</b>	<b>0.802</b>	<b>Strongly Agree</b>	

Table 5 indicates that residents have a high level of satisfaction with township medical services, with an overall mean satisfaction score of 3.29, which is interpreted as "Strongly Agree." The highest-rated indicator is the ease of scheduling appointments (mean 3.38, rank 1), highlighting accessibility as a key strength of the services.

Other aspects such as medical facilities being clean and well-maintained (mean 3.32, rank 2), respectful and empathetic healthcare professionals (mean 3.3, rank 3), and the range of services satisfying residents' needs (mean 3.29, rank 4) also received high ratings, reflecting positive perceptions in these areas.

The perception that medical concerns are attended to immediately during visits is also rated highly (mean 3.3, rank 3), while confidence in the accuracy of diagnoses and treatments remains strong (mean 3.27, rank 6). The wait times, with a mean of 3.2, are viewed as reasonable (rank 7), though slightly lower than other indicators.

Overall, the data suggest that township residents are largely satisfied with the quality, accessibility, and professionalism of local healthcare services, though minor improvements could be targeted in areas like wait times and diagnostic confidence to further enhance satisfaction.

## 5. What relationship exists between the residents' satisfaction level and the township medical services?

**Table 6- Relationship Between the Residents' Satisfaction Level and the Township Medical Services**

Variables	Spearman's rho	Interpretation	p	Significance

Service Level and Satisfaction Level	0.425	Moderate	<0.001	Significant
Service Effectiveness and Satisfaction Level	0.51	Strong	<0.001	Significant

Table 6 presents the correlation analysis between residents' satisfaction levels and the effectiveness of township medical services. The results show a Spearman's rho of 0.425 for the relationship between service level and satisfaction, indicating a moderate positive correlation, while the correlation between service effectiveness and satisfaction is higher at 0.51, indicating a strong positive relationship.

Both correlations are statistically significant, with p-values less than 0.001, suggesting that improvements in service level and overall service effectiveness are closely associated with higher resident satisfaction. This indicates that enhancing the quality and effectiveness of township healthcare services may lead to increased satisfaction among residents.

## DISCUSSION

The diverse demographic composition provides a comprehensive perspective on residents' healthcare experiences and expectations within the township medical services system.

The assessment of township medical service ability under the medical reform program indicates generally positive perceptions among respondents. The overall rating, with a mean score of 3.27, falls within the "Strongly Agree" category, suggesting that most residents view the services as meeting or exceeding expectations. Key indicators such as accessibility and efficiency received the highest scores, reflecting residents' satisfaction with the ease of access and operational effectiveness of township healthcare. Additionally, perceptions of the availability of facilities, staff, and resources, as well as the quality of medical equipment, were also favorable. Although responses showed moderate variability, the overall trend points to notable improvements and a positive appraisal of township medical services under the reform initiative.

The respondents' assessment on the key factors influencing medical service levels in townships indicates as well established under the current system. Participants particularly emphasized the effectiveness of emergency care, outpatient services, and primary care, with mean scores around 3.27 to 3.31. The relatively low variability in responses suggests a consistent perception among residents that these service components are adequately provided and accessible, reflecting a positive evaluation of the township's healthcare capacity in critical areas.

In terms of service effectiveness, with a mean score of 3.29 with an SD of 0.489, which indicates that respondents perceive the service effectiveness to be "Very Effective." The low standard deviation suggests consistency in responses, underscoring a consensus on the impact of these key factors. Overall, respondents emphasize the importance of qualified providers, strong health policies, adequate medical supplies, and effective transportation in achieving high standards of healthcare in townships, with technology seen as an additional supporting factor.

The above findings support the "Healthy China 2030" initiative which aims to ensure equal access to fundamental public services, gradually reducing disparities in basic health services and health outcomes across different regions, achieving universal health coverage, and fostering social equity, particularly at the community level. Township hospitals, which are a key component of the three-tier rural health service system, play a vital role in providing medical care, disease prevention, and health maintenance for residents; they are also crucial in addressing the challenges of "difficult and expensive medical treatment" faced by rural populations. It has been observed that township health centers continue to experience issues such as low operational efficiency, a significant outflow of professionals, and difficulties in attracting patients. A strategic allocation of health resources within township hospitals and effectively fulfilling the "gatekeeper" role at the grassroots level are crucial for the long-term and sustainable progress of township hospitals (Zhao et al., 2022).

## CONCLUSIONS

Based on the findings, residents generally perceive township healthcare services positively, particularly noting improvements in accessibility, efficiency, and the availability of facilities and resources following the medical reform. Key components such as emergency care, outpatient services, and primary care are recognized as effective and accessible, with consistent perceptions among residents. The study underscores the vital role of qualified providers, robust health policies, and technological support in maintaining service quality. However, challenges such as low operational efficiency, professional workforce outflow, and patient attraction remain. Strategic resource allocation and strengthening township hospitals' gatekeeper functions are essential for sustainable development, aligning with the broader goals of achieving equitable healthcare access and supporting the "Healthy China 2030" initiative.

### IMPLICATIONS

The study's findings imply that continued investment in township healthcare infrastructure, personnel training, and resource allocation is crucial to sustain and enhance service quality. Strengthening the role of township hospitals as primary gateways to healthcare can improve efficiency and patient outcomes, especially in rural areas. Policymakers should also leverage technological advancements to further improve accessibility and service effectiveness. Overall, the results highlight the importance of healthcare services align with national initiatives like "Healthy China 2030."

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