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Original article

**ANALYSIS OF FEATURES OF MEDICATION
SUPPLY STRUCTURE IN THE RUSSIAN
FEDERATION AT THE REGIONAL LEVEL**

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The changing trade procedures within the healthcare system aim to improve the procurement mechanisms for medical products (MP), means of supplier identification, ways to reduce contract prices, and informational foundation for contracting. Research on the efficiency of MP procurement systems in the federal subjects of the Russian Federation and legislative acts applied to them is especially relevant today. This work aims to compare structural differences in contract-regulated MP procurement systems in the Republic of Bashkortostan (RB). The official website www.zakupki.gov.ru provides data on volumes and structure of MP supply in medical and pharmaceutical organizations of the RB. This paper contains the indexes of supplier and consumer rotation in the RB trade in 2013 and 2017 and a comparative analysis of tenders according to the form of order placement. The authors calculated the efficiency gains of signed contracts and conducted a comparative analysis of the examined tenders in the MP procurement system according to federal legislation (federal laws). The work undertaken allowed the authors to determine development tendencies in the competition among MP suppliers, identify the structural specificity of the MP tenders, and demonstrate their efficiency. The authors present conclusions drawn based on the comparative analysis and provide recommendations on the improvement of MP procurement in the RB. They identify the high potential of the republic to implement digital public auctions as a form of an MP procurement mechanism in accordance with Federal Law No. 223-FZ.

Keywords: *contracting system; medical products; suppliers*

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Научная статья

АНАЛИЗ ОСОБЕННОСТЕЙ СТРУКТУРЫ ЗАКУПОК ЛЕКАРСТВЕННЫХ ПРЕПАРАТОВ НА РЕГИОНАЛЬНОМ УРОВНЕ В РОССИЙСКОЙ ФЕДЕРАЦИИ

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Изменения в процедурах проведения торгов для нужд здравоохранения направлены на совершенствование системы закупок лекарственных препаратов (ЛП) в области способов определения поставщиков, снижения цен контрактов, информационного обеспечения контрактной системы. Особую актуальность имеют исследования эффективности системы закупок ЛП на уровне субъектов РФ с учетом применяемых нормативно-правовых актов. Цель работы: проведение сравнительного анализа по структурным особенностям закупок ЛП в условиях контрактной системы на уровне субъекта РФ – Республики Башкортостан (РБ). Методы исследования: Источником информации об объемах и структуре закупок ЛП медицинскими и фармацевтическими организациями в РБ являлся официальный сайт РФ www.zakupki.gov.ru. В статье приведены результаты определения индексов обновления поставщиков и заказчиков, участвовавших в торгах в 2013 и 2017 г.г.; сравнительного анализа торгов по форме размещения. Рассчитана экономия финансовых средств по результатам заключения контрактов, проведен её сравнительный анализ. Результаты и обсуждение: Сравнительный анализ проводимых торгов в электронной форме в соответствии с федеральными законами (ФЗ) в системе закупок ЛП позволил выявить тенденции в развитии конкуренции среди поставщиков ЛП. Установлены структурные особенности торгов, показана их эффективность. По результатам сравнительного анализа представлены выводы и приведены

рекомендации, направленные на совершенствование лекарственного обеспечения в РБ. Выявлено, что в Республике Башкортостан имеется высокий уровень потенциала для проведения закупок ЛП в виде открытого аукциона в электронной форме в соответствии с ФЗ-223.

Ключевые слова: контрактная система; лекарственные препараты; поставщики

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Introduction

Many environmental and social factors contribute to the improvement in public physical health, decrease in morbidity rate, accelerated recovery, and life expectancy. Among the most important ones is the supply of the population with medications to cure and prevent diseases. A more comprehensive approach to budget distribution in terms of medical supply [8] is brought about by the change in contracting regulations, new normative acts aligned with the antitrust legislation, Civil Code of the Russian Federation, Budgetary Code, and judicial practice. Shift within the digital tender procedures caused by transfer from Federal Law No. 94-FZ of July 21, 2005, to Federal Laws No. 223-FZ of July 18, 2011, and No. 44-FZ of April 5, 2013 [11–13]. These legislative transformations contribute to the enhancement of the government procurement system [9], methods of supplier identification, governmental contracting procedures [2], information support for the contracting system, and the experience of its implementation [3], active development of the digital economy, and competitive market for the procurement of medical products (MP).

There are numerous studies on medical procurement in the Russian federal subjects and individual medical facilities [4; 5; 7]. However, the authors take interest in the structural features of the medical market under changing contracting regulations and the efficiency of current procurement activities in the Republic of Bashkortostan. This field has never received scientific coverage before.

Materials and methods

This study aims to compare the structural specificities of medical supply procurement under the contracting system in the Republic of Bashkortostan.

The research objectives include the following: to calculate the supplier and customer rotation indexes for tenders in 2013 and 2017; to conduct a comparative analysis of tenders regarding their operational form by value and by quantity; to calculate the cost-saving on completion of the contracts.

In the course of this research, the authors applied the following research methods: the statistical method, the analytical method, comparative analysis. The official procurement informational portal of the Russian Federation www.zakupki.gov.ru served as a source of data on volumes and the structure of MP supply for medical and pharmaceutical organizations [6].

In this research, the authors utilized digital contract cards available through the web portal. They determined the region based on the basic procurement and contracting information for 2013 and 2017. A digital database was compiled via the Microsoft® Office Excel 2013 applied toolkit.

The supplier/customer rotation indexes calculated by the authors present a ratio of all the new suppliers/customers in the Republic of Bashkortostan (RB) that purchased or supplied MP in 2017 to the respective figure in 2013.

The authors selected the trades regulated by contracts aligning with Federal Laws No. 44-FZ and 223-FZ. To calculate the indexes, the following formula was used (1):

$$I_0 = m / M \quad (1)$$

where:

m – the number of new MP customers/suppliers;

M – the total number of MP customers/suppliers in 2017.

The authors calculated the cost-saving (CS) based on the data provided by the united contract roster. The indicator was found via the formula (2) based on the contracting performance over the researched periods:

$$CSc = \frac{N-P}{N} \times 100 \quad (2)$$

where:

P – the contract price;

N – the guaranteed maximum contract price according to its respective notice of procurement.

To apply the starting maximum price indicator, the absolute cost saving of the lots must be higher than zero.

The MP procurement distribution in the procurement system of the RB during each period under analysis (2013 and 2017) allowed the authors to identi-

fy the efficiency of the tenders as a ratio of tender efficiency in every operational form to the overall efficiency rate over the period under review.

Results

The conducted research found that 222 and 229 suppliers entered tenders in compliance with Federal Laws No. 94-FZ and 44-FZ in 2013 and 2017 respectively, while Federal Law No. 223-FZ served as a legislative foundation for 52 and 79 suppliers in the same years. The supplier/customer rotation indexes demonstrate a change in the structure of suppliers despite minor changes in their number (Table 1).

Table 1.

The MP supplier/customer rotation index in the RB, 2017

Contract system participants	$\frac{94-FZ}{44-FZ}$	223-FZ	Average
Suppliers	155/229=0.68	26/79=0.33	0.51
Customers	42/157=0.27	15/39=0.38	0.33

The rotation index reached its maximum in the group of suppliers that carry out the MP procurement based on Federal Law No. 44-FZ and amounted to 0.68. The calculated indicators highlighted the independent state of customers and rising competition between suppliers. Furthermore, they demonstrated low costs for the change of a supplier and contracting due to extensive usage of Internet technologies and a united database in tenders. The lowest rotation index in 2017 compared to 2013 was detected in the group of customers ($I_o = 0.27$) that purchased the MP under the regulations listed in Federal Law No. 44-FZ. The latter indicates a relatively stable state of this group despite changing conditions within the procurement system.

The authors proceeded to conduct a comparative analysis of different tender forms by their share in the total tender number in monetary and quantitative terms. The results reveal that both in 2013 and 2017, the auction tender under Federal Laws No. 94-FZ and 44-FZ was the most stable organizational form. The average share of tenders of this type amounted to 22.59% in monetary terms and 18.23% in quantitative terms. The authors determined that the average number of four-member auctions maintaining the required competition level equaled 13.06%. At the same time, the average proportion of other trades organized as a price quotation request with four members amounted to 1.25% (Table 2-3).

Table 2.

The share of MP tenders in monetary terms in the RB according to their operational form and federal legislations in 2013 and 2017, %

Tender form	1 supplier				2 suppliers				3 suppliers				4 suppliers			
	94-FZ	44-FZ	223-FZ	223-FZ	94-FZ	44-FZ	223-FZ	223-FZ	94-FZ	44-FZ	223-FZ	223-FZ	94-FZ	44-FZ	223-FZ	223-FZ
	2013	2017	2013	2017	2013	2017	2013	2017	2013	2017	2013	2017	2013	2017	2013	2017
Auction	40.00	42.57	15.14	16.57	20.41	21.99	1.09	1.90	10.26	19.36	0	0.45	11.28	14.83	0	0
Price quotation request	2.23	0.76	13.67	59.77	10.57	0.09	10.67	4.99	2.91	0.10	0	0.42	2.34	0.16	0	4.74
Request for proposal	0	0.05	0	0	0	0.07	0	0	0	0	0	0	0	0	0	0
Single supplier tender	0	0.02	60.60	11.16	0	0	0	0	0	0	0	0	0	0	0	0
Total	42.23	43.47	89.41	87.5	30.98	22.08	11.76	6.89	13.17	19.46	0	0.87	13.62	14.99	0	4.74

Table 3.

The share of MP tenders in quantitative terms in the RB according to their operational form and federal legislations in 2013 and 2017. in %

Tender form	1 supplier				2 suppliers				3 suppliers				4 suppliers			
	94-FZ	44-FZ	223-FZ	223-FZ	94-FZ	44-FZ	223-FZ	223-FZ	94-FZ	44-FZ	223-FZ	223-FZ	94-FZ	44-FZ	223-FZ	223-FZ
	2013	2017	2013	2017	2013	2017	2013	2017	2013	2017	2013	2017	2013	2017	2013	2017
Auction	16.56	35.87	19.20	14.20	11.16	23.87	1.49	3.09	9.39	15.90	0	0.62	13.95	19.15	0	0
Price quotation request	7.40	3.78	10.12	60.49	26.90	0.86	11.46	8.64	7.89	0.27	0	1.85	6.74	0.07	0	2.47
Request for proposal	0	0.02	0	0	0	0.03	0	0	0	0	0	0	0	0	0	0
Single supplier tender	0	0.19	57.74	8.64	0	0	0	0	0	0	0	0	0	0	0	0
Total	23.96	39.85	87.05	74.69	38.06	24.76	12.95	11.73	17.28	16.17	16.17	2.47	20.69	19.22	19.22	2.47

The authors note that in 2013 and 2017, the proportion of four-member tenders carried out under Federal Law No. 223-FZ was only 4.74% of the total number. Furthermore, this type of tenders was performed exclusively in the form of a price quotation request. The total share of price quotation request tenders under Federal Laws No. 94-FZ and 44-FZ was significantly lower and amounted to an average of 6.74% in quantitative terms and 2.40% in monetary terms. However, there was a massive share of price quotation request tenders with one supplier regulated by Federal Law No. 223-FZ. It approximated an average of 36.72% in quantitative terms and 35.31% in monetary terms. Of interest is the fact that procurement from a single supplier is predominantly regulated by Federal Law No. 223-FZ. The monetary share of this type of tenders was 60.60%, while the proportion in quantitative terms amounted to 57.74%.

The analysis of procurement structure and its efficiency in the RB in monetary terms allowed the authors to determine that the tenders carried out under Federal Law No. 44-FZ in 2017 demonstrated the best performance. This group included auctions with an efficiency rate of 19.10% (Table 4).

Table 4.

The tender efficiency according to the operational forms in the RB in monetary terms, %

Tender form	94-FZ	44-FZ	223-FZ	223-FZ	Average
	2013	2017	2013	2017	
Auction	15.86	19.10	12.92	14.36	15.56
Price quotation request	17.57	13.96	11.93	9.54	13.25
Request for proposal	0	0.51	0	0	0.13
Single supplier tender	0	0.68	0	0.08	0.19
Total	33.43	34.25	24.85	23.98	29.13

In this research, the authors identified the efficiency of tenders according to their operational form and place in the structure of a respective period in the RB (Fig. 1).



Fig. 1. Efficiency distribution by the tender form according to Federal Laws No. 94-FZ, 44-FZ, and 223-FZ in the RB in 2013 and 2017

The authors determined the procurement via auction regulated by Federal Law No. 223-FZ as the most efficient form of tender in 2017. Its efficiency rate reached 59.88%. Auctions regulated by Federal Laws No. 94-FZ and 44-FZ also demonstrated an efficiency increase of 8.33%. Finally, the efficiency of auctions under Federal Law No. 223-FZ grew by 7.89% compared to the respective figure in 2013.

Discussion

In the face of limited financial resources, the research on governmental procurement structure in federal subjects of the Russian Federation becomes of prominent interest [1; 10]. The differentiation of MP procurement tenders conducted by the authors earlier revealed high developmental prospects of the digital economy. Furthermore, the conducted analysis pointed out the need to reduce the uncertainty and risks of failure in tenders as it may potentially lead to increased tender prices. On average, 95.67% of all MP procurement tenders under Federal Laws No. 94-FZ and 44-FZ in 2013 and 2017 were deemed successful. However, the number of successful tenders regulated by 223-FZ was lower and amounted to an average of 64.68%. In 2017, 42.22% of the tenders failed, including single-lot ones. The latter constituted 30.55% of the total procurement cost in the analyzed period.

In the present research, the authors conducted a comparative analysis of the MP procurement tenders in the Republic of Bashkortostan in 2013 and 2017. They established that the number of successful MP procurement tenders in the RB peaked in 2017 and concerned mostly the tenders regulated by Federal Law No. 44-FZ. The mentioned legislation promoted open digital auctions due to their prominent advantages. These include lower budget costs on the organization of tenders, the lack of need to compile a procurement statement for customers, and no need to revise MP procurement statements of individual customers for suppliers. At the same time, the bid increment amounted to 0.5% to 5% of the initial guaranteed maximum contract price. Digital signatures created a safer environment for the organization of tenders. However, some enterprises chose to enter tenders through the individual states as permitted by Federal Law No. 223-FZ. This allowed them to present their requirements for tender participants without carrying out all the tender steps. The authors find it interesting that in the examined situation, digital price quotation requests became the prevailing procurement method (69.92%) as they ensured fast and the simplest procurement procedure.

The comparison of the tenders revealed that in 2017, the introduction of the united digital system of request placement raised the competitiveness rate

among suppliers and significantly decreased the share of inefficient procurement methods. At the same time, the share of successful tenders went down. The authors attribute this to a cumulative purchase from a range of pharmaceutical organizations in the RB taking up a large proportion of the total tender capacity. This situation highlights the need for a decrease in risks and uncertainty associated with large lots.

Conclusion

In this research, the authors carried out a comparative analysis of MP procurement and its structural specificity in the contracting system within the Republic of Bashkortostan. The supplier and customer rotation indexes for 2013 and 2017 found in the course of the research demonstrated an independent state of customers that stems from a rising competition between suppliers, low costs of changing a supplier, contract formation in a widely digitalized procurement environment, and a united database available in digital tender platforms. The analysis of tenders by their operational form in monetary and quantitative terms indicated a lack of requests for proposals. The auction tenders under Federal Law No. 44-FZ, price quotation requests, and one-supplier tenders were the prevailing tender forms. Nevertheless, the fact that in 2017 the auction tenders under Federal Law No. 223-FZ demonstrated the highest cost-saving and tender efficiency compared to 2013. Therefore, this area requires further research with a view to finding ways to enhance tender mechanisms in the MP procurement in the Republic of Bashkortostan.

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