MONITORING OF DRG-BASED PAYMENT FOR IN-PATIENT AND DAY CARE IN RUSSIAN HOSPITALS IN 2016–2018

Lazareva M., Fediaev D., Akimov O., Zuev A., Avxentyeva M., Zheleznyakova I., Omelyanovskiy V.

Center for Healthcare Quality Assessment and Control of the Ministry of Health of the Russian Federation, Moscow, Russian Federation

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OBJECTIVES

DRG-based payment system was implemented in Russia in 2013 and is used presently by vast majority of subjects of Russian Federation. Introduction of DRG-based payment often leads to decrease of length of stay (LoS) at hospitals. Still there is a risk of increasing rate of more expensive cases hospitalization. This study assessed the general trends in average LoS as well as average DRG relative weight (ARW) at Russian hospitals in 2016–2018.

METHODS

Data on the medical care payment (inpatient medical care and some kinds of day care payed by DRG in Russia) for 2016–2018 was analyzed. Regions not applying federal DRG system or having incorrect or incomplete data were excluded from the analysis. The analysis of LoS and ARW was conducted in the context of system as a whole.

RESULTS

On average, there was a systematic decrease in LoS for inpatient care by 1.4–1.56% per year (from 9.11 to 8.85 days). This tendency was revealed for most medical specialties. Over 2 years the LoS for the specialties “Dentistry for children”, “Pediatric Urology-Andrology” and “Urology” decreased the most (by 11.5%, 11.2% and 10.7%, respectively). On the contrary, there was an increase in LoS over two years for 3 specialties: “Obstetrics”, “Allergology and immunology” and “Other” (see table 1).

On the whole LoS for day care payed by DRG slightly declined by less than 1% in 2 years (from 9.49 to 9.40 days). The most severe decrease was for specialties “Surgery (abdominal)” (by 50.8%, from 11.29 to 5.56), “Maxillofacial Surgery” (by 23.5%, from 6.58 to 5.03) and “Other” (by 15.7%, from 4.42 to 3.73). At the same time, there was a growth for 14 specialties out of 36, including the specialties “Surgery (Combustiology)” which LoS increased by 50.6% over two years (from 8.12 to 12.22 days); “Maxillofacial Surgery” with increase by 36.6% (from 2.26 to 3.08 days) and “Surgery” with increase by 21.2% (from 4.21 to 5.1 days) (see table 2).

ARW increased both in inpatient and in day care. The growth of indicator in inpatient care was systematic – from 1.13 in 2016 to 1.16 in 2017 and 1.17 in 2018. Mostly ARW increased for the specialty “Other” (by 53.5%) (and for “Hematology” by 30% over 2 years). ARW declined for 8 out of 37 specialties, including the most significant decrease in “Urology, “Oncology” and “Medical rehabilitation” (by 23.3%, 12.1% and 5.1% over 2 years respectively) (see table 1).

What concerns outpatient (day) care there was an increase in 2017 by 8.7% (from 1.24 to 1.35) and then in 2018 ARW decreased by 1.1% reaching the level of 1.33. The highest growth of ARW was for specialties “Infectious diseases”, “Ophthalmology” and “Pediatric oncology” (by 88.7%, 36.3% and 31.4% over 2 years respectively). ARW for day care declined over 2 years only for two specialties: “Oncology” (by 29.9%) and “Cardiology” (by 0.7%) (see table 2).

Table 1. The dynamics of length of stay (LoS) and average DRG relative weight (ARW) for inpatient care, 2016–2018

	LoS			ARW		
	Basis	Change (vs the previous year), %		Basis	Change (vs the previous year), %	
	2016	2017	2018	2016	2017	2018
Total	9.11	–1.56%	–1.40%	1.13	3.22%	0.32%
By specialty						
Obstetrics	7.27	–12.99%	26.40%	0.50	0.00%	0.00%
Obstetrics and gynecology	6.57	–2.03%	–1.00%	0.87	0.09%	1.52%
Allergology and immunology	5.91	–7.21%	9.96%	0.38	2.26%	217.47%
Gastroenterology	10.35	–2.60%	–1.48%	0.99	0.58%	–2.53%
Hematology	11.74	–1.04%	–2.22%	1.35	0.25%	29.72%
Dermatology	11.12	–0.08%	–1.19%	0.95	5.73%	0.87%
Cardiology	10.61	–9.13%	1.42%	1.84	0.00%	0.00%
Pediatric Oncology	19.43	–3.95%	0.64%	6.36	0.30%	0.13%
Pediatric Urology–Andrology	7.50	–11.33%	0.19%	1.24	–4.68%	0.25%
Pediatric surgery	7.61	–3.50%	–1.35%	0.98	–0.62%	–0.60%
Pediatric Endocrinology	10.40	–3.66%	–1.47%	1.58	0.02%	–0.01%
Infectious diseases	6.77	0.38%	–0.54%	0.62	4.58%	1.64%
Cardiology	10.27	–2.55%	–3.08%	1.48	–0.84%	1.10%
Coloproctology	10.06	–2.43%	–2.95%	1.35	–0.89%	2.44%
Neurology	11.31	–1.87%	–2.34%	1.34	0.30%	0.56%
Neurosurgery	10.57	–1.27%	–2.14%	1.01	1.64%	2.86%
Neonatology	11.43	0.03%	–1.04%	2.88	0.10%	2.80%
Nephrology (without dialysis)	13.27	–0.89%	–2.94%	1.69	0.16%	0.15%
Oncology	10.42	–1.94%	–5.84%	2.39	7.53%	–18.26%
Otorhinolaryngology	7.62	–2.80%	–0.79%	0.92	0.37%	1.43%
Ophthalmology	6.64	–3.89%	–1.19%	1.19	6.33%	4.01%
Pediatrics	5.73	–1.72%	1.27%	0.58	2.65%	3.32%
Pulmonology	11.62	–2.11%	–1.01%	1.25	–0.05%	0.40%
Rheumatology	12.26	–1.85%	–1.84%	1.57	0.92%	0.81%
Cardiovascular surgery	9.79	–4.60%	–2.67%	1.80	–0.30%	1.64%
Dentistry for children	6.34	–8.83%	–2.90%	0.79	0.00%	0.00%
Therapy	9.22	–0.44%	–2.14%	0.76	1.30%	–1.33%
Thoracic surgery	14.34	–1.57%	–0.86%	2.30	–3.86%	–0.72%
Traumatology and orthopedics	11.70	–3.24%	–2.85%	1.43	7.21%	4.94%
Urology	9.47	–8.35%	–2.58%	1.33	–24.83%	2.09%
Surgery	9.21	–2.54%	–1.70%	0.88	2.11%	0.35%
Surgery (abdominal)	9.56	–2.30%	–1.29%	1.36	3.90%	–0.26%
Surgery (Combustiology)	14.23	–0.41%	–0.69%	2.95	0.82%	0.38%
Maxillofacial Surgery	7.74	–2.89%	–3.94%	1.09	0.57%	0.31%
Endocrinology	11.66	–2.06%	–1.87%	1.45	0.11%	0.15%
Medical rehabilitation	14.22	–1.25%	–0.90%	1.84	6.95%	–11.25%
Other	6.42	–2.26%	5.84%	1.48	13.39%	35.43%

Note: *indicators increase is highlighted by yellow; indicators decrease is highlighted by green.*

Table 2. The dynamics of length of stay (LoS) and average DRG relative weight (ARW) for day care, 2016–2018

	LoS			ARW		
	Basis	Change (vs the previous year), %		Basis	Change (vs the previous year), %	
	2016	2017	2018	2016	2017	2018
Total	9.49	–0.86%	–0.09%	1.24	8.72%	–1.14%
By specialty						
Obstetrics and gynecology	7.17	–2.53%	1.24%	1.22	8.93%	2.20%
Allergology and immunology	7.37	–5.78%	–0.02%	0.98	0.00%	0.00%
Gastroenterology	9.94	–3.75%	–0.60%	0.89	0.00%	0.00%
Hematology	10.04	–8.15%	0.26%	1.17	0.00%	3.23%
Dermatology	11.15	–3.40%	0.31%	1.54	0.00%	0.00%
Cardiology	8.55	–2.72%	4.51%	0.98	0.00%	0.00%
Pediatric Oncology	11.55	0.06%	4.81%	9.91	27.40%	3.10%
Pediatric Urology-Andrology	5.22	1.31%	7.71%	1.43	1.65%	3.52%
Pediatric surgery	5.54	–2.36%	2.65%	1.60	0.00%	0.00%
Pediatric Endocrinology	7.97	–2.94%	–1.86%	1.38	0.89%	0.31%
Infectious diseases	9.20	–1.26%	7.13%	1.02	34.91%	39.90%
Cardiology	10.28	–0.32%	1.35%	0.81	–0.74%	0.06%
Coloproctology	4.06	–4.84%	6.57%	1.95	9.36%	2.40%
Neurology	10.55	–1.28%	–1.04%	1.00	0.12%	1.00%
Neurosurgery	10.56	–2.06%	–0.33%	0.94	0.01%	0.01%
Neonatology	9.88	13.12%	–2.07%	1.79	0.00%	0.00%
Nephrology (without dialysis)	17.85	10.40%	5.55%	1.85	14.02%	8.37%
Oncology	6.67	0.48%	–7.43%	4.90	7.09%	–34.51%
Otorhinolaryngology	8.36	–1.17%	–0.79%	0.86	8.71%	4.82%
Ophthalmology	5.96	–4.11%	–2.51%	1.15	13.83%	19.76%
Pediatrics	9.46	–5.12%	–2.25%	0.96	0.49%	1.25%
Pulmonology	9.63	–2.67%	–0.44%	0.90	0.00%	0.00%
Rheumatology	9.45	–1.59%	–4.74%	1.46	0.00%	0.00%
Cardiovascular surgery	2.26	21.56%	12.35%	2.65	5.41%	7.74%
Dentistry for children	4.93	–21.18%	12.23%	0.98	0.00%	0.00%
Therapy	8.59	–7.40%	–2.97%	0.74	0.00%	0.00%
Thoracic surgery	1.89	36.56%	–11.83%	1.32	0.00%	0.00%
Traumatology and orthopedics	8.88	–2.73%	–2.43%	1.09	–0.67%	1.59%
Urology	6.76	–2.70%	–6.97%	1.29	8.65%	8.47%
Surgery	4.21	15.28%	5.18%	0.98	21.02%	5.08%
Surgery (abdominal)	11.29	–53.72%	6.35%	2.47	7.55%	–1.23%
Surgery (Combustiology)	8.12	16.63%	29.11%	1.10	0.00%	0.00%
Maxillofacial Surgery	6.58	–11.99%	–13.10%	1.07	3.38%	–0.10%
Endocrinology	10.34	–0.52%	0.64%	1.10	0.05%	1.34%
Medical rehabilitation	13.87	3.73%	–8.93%	1.69	9.74%	–6.94%
Other	4.42	–26.55%	14.78%	5.55	–9.21%	11.43%

Note: *indicators increase is highlighted by yellow; indicators decrease is highlighted by green.*

CONCLUSION

Both in inpatient and day medical care payed by DRG the LoS is reduced, which corresponds to the global trends and tasks of DRG system implementation. At the same time the trend in ARW deserves special attention because of significant excess of the value over 1, especially in day care. This should be taken into account while revising DRG relative weights in order to maintain financial balance.

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