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# State of the Russian Oncology Service: malignant neoplasms of the tongue C01, 02 (mortality rate and median survival of patients, taking into account the stage of the disease and histological structure of the tumor) Part 2

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Malignant neoplasms of the tongue occupy 0.55% in the general structure of the cancer incidence in the Russian population. No information on other parameters (the number of deaths, mortality of patients, their distribution by stages of the disease and other analytical indicators) is provided in the official reporting.

The opportunity appeared only with the development of Population-based Cancer Registries (PCR) system, but this wealth of material is not used for the official reporting.

Tongue cancer is a visual localization with a high mortality rate, which requires special attention.

The research was conducted in order to investigate the state of the Russian Oncology Service for tongue cancer patients with the calculations of one-year mortality rate, annual mortality rate, median survival, 1,3,5-year observed and relative survival rates. The research was undertaken at the level of the newly created Population-based Cancer Registry of the Federal District for the first time in Russia.

The studies on the analysis of cancer survival rate at the population level are practically not carried out in Russia. Such investigations for all malignant tumor localizations have been conducted since 2000 on the basis of Saint Petersburg PCR database. The level of 5-year observed and relative survival rates of tongue cancer patients in Russia (Saint Petersburg and the NWFD RF) has been determined significantly lower than the EU average (Eurocare-4). To carry out this study, 5188 observations from the NWFD RF PCR database were selected. It has been established that during four periods of observation, the one-year mortality rate of tongue cancer patients in the NWFD RF has decreased under the C01 heading (malignant neoplasm of base of tongue) from 58.5 to 45.8%; and under the C02 heading (malignant neoplasm of other and unspecified parts of tongue) – from 54.5 to 42.7%. The five-year survival rate of tongue cancer patients **has increased by 23.3%**.

**KEYWORDS:** malignant neoplasms of the tongue; one-year mortality; mortality rate for patients in each year of observation; median survival; one-year and five-year observational and relative survival rates; sex; stage of the disease; survival rate of patients by histological types of tumors

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## ABBREVIATIONS:

PCR – Population-based Cancer Registry;

NWFD RF – Northwestern Federal District of the Russian Federation;

ICD – International Statistical Classification of Diseases and Related Health

**INTRODUCTION**

Malignant tongue neoplasm is a rare visual localization with the highest mortality rate.

More than 3000 primary cases of tongue cancer are registered in Russia (3416 in 2018) each year, in the Northwestern Federal District of the Russian Federation – 300 (374 in 2018) [1].

In the general structure of cancer cases diagnosed in Russia, tongue neoplasms occupy 0.55 % (both genders, 2018), in males – 0.8 %, in females – 0.3 %. In the NWFD – 0.6%, 0.9%, 0.3%, respectively [1]. The structure of the pathology of the malignant tongue neoplasm (C01, 02) in the Northwestern Federal District is close to the national average. The levels of standardized incidence rates are also close to it (Table 1) [1–4].

Table 1. Standardized rates of tongue cancer incidence in Russia and the Northwestern Federal District (NWFD). 2018 [1, 2] Табл. 1. Стандартизованные показатели заболеваемости ЗНО языка в России и СЗФО. 2018 г. [1, 2]

	Both sexes	Males	Females
Russia	1,43	2,43	0,71
NWFD RF	1,57	2,64	0,82
Saint Petersburg	1,70	2,95	0,89

In Russia, there is practically no population-level research on the calculation of analytical indicators of the effectiveness of tongue cancer measures, including the survival rates. The only exception is our studies conducted in Saint Petersburg [5–9]. Prior to that, a general idea of the tongue cancer treatment effectiveness could be obtained from the clinical guidelines by Professor R.I. Wagner and Professor A.I. Paces [10–12].

Over the decades, we have gained vast experience in the development of Cancer Registries in the Russian Federation and disseminated it to the whole Northwestern Federal District territory and to other Russian administrative territories which work according to our program.

The database developed for the Northwestern Federal District (more than a million observations) provides voluminous and high-quality information on the state of the Russian Oncology Service to study malignant neoplasms prevalence and analyze in detail rare tumor localizations. For example, malignant neoplasms of the heart, eye, etc. [13, 14].

A large number of studies have been devoted to techniques in survival rate calculation of cancer patients [7–9, 15–23].

Let us consider the effectiveness of the anti-cancer measures taken in Russia in relation to tongue cancer.

**One-year mortality rate of patients**

Reliability assessment of the registration of patients with malignant neoplasms is carried out using accuracy index of calculation, that is, the death-to-case ratio. This calculation is one of the main criteria for the information published in the IARC series “Cancer Incidence in Five Continents” [24]. This value should not exceed 1.0, i.e. the number of deaths should not be more than the number of cases. The technique of calculation this criterion has been outlined before [7–9].

Unfortunately, no data on the number of deaths related to tongue cancer in Russia has been provided. Thus, the severity of the cancer might be identified by the other criteria – mortality or survival rates.

The mortality of patients in the first year of observation (or one-year mortality) for tongue cancer is significant. To study the dynamics of the structure and, subsequently, the survival rate of the patients by histological types of tongue cancer, 5188 observations were selected in the period from 1999 to 2018.

Most of the histological types were squamous cell carcinomas: M-8070/3, M-8071/3 and M-8072/3, which accounted for 78.5% of all histological findings. Adenocarcinoma NOS (M-8140/3) accounted for 1.3%. M-8000/3 (malignant neoplasm without histological confirmation) accounted for 1.5%.

The main histological structure of tongue cancer remained stable over the period.

The one-year mortality rate is one of the most important indicators for determining the effectiveness of anti-cancer measures. It is closely linked to cancer localization.

The most important thing to consider here is how to calculate it. It makes no sense when calculated on the basis of summary tabular data from district and regional oncologists by January 20 for the past year – **the mortality data have not been collected** [25]. In the other case, using updated PCR information a year later, the data might be quite reliable to reflect the problem.

Unfortunately, to date, the Ministry of Healthcare of the Russian Federation relies on the routine reporting data (by January 20), not on PCR database. We have already drawn attention to the fact that there are no analytical indicators for the all-Russian level analysis of malignant neoplasms of the tongue.

Let us consider the dynamics of mortality of patients with malignant tongue neoplasm according to the NWFD RF PCR database in one the first year of observation. (Table 2).

Table 2. Dynamics in one-year mortality rate of tongue cancer patients in the NWFD. NWFD RF Population-based Cancer Registry database

Динамика показателя одногодичной летальности больных со ЗНО языка в СЗФО. БД ПРР СЗФО РФ (в % от числа учтенных больных).

	2000	2005	2010	2015	2018	decrease %
Both sexes	59,5	55,6	51,3	47,7	43,1	-27,6
Males	62,4	57,2	52,5	54,9	47,0	-24,7
Females	46,8	50,0	48,8	35,2	34,8	-25,6

One should pay attention to the fact that tongue cancer belongs to the group of cancer with a high mortality rate. At the same time, there was a significant treatment progress. Over 18 years, the mortality rate of patients with tongue cancer decreased in the Northwestern Federal District of the Russian Federation by almost 1/4.

We emphasize that this indicator calculated on the basis of Form No. 7 for many other tumor localizations **has no right to exist, since it is incorrect**. The data cannot be generalized by January 20 over the past year since a significant number of death certificates have not been received by oncological dispensaries [25]. This indicator should be calculated only on the PCR DB and not by summing up the data collected in the region, no earlier than 1-2 years and only after careful control of all received registration cards and a complete set of medical death certificates.

### Year-by-year lethality

Year-by-year mortality (mortality of patients throughout each year of observation) is the most important indicator for the assessment of performance of the oncological service and fundamental study of the patterns of an increased mortality risk in patients at various stages of the ongoing complex of preventive and curative measures.

To study the characteristics of the risk of death in patients over a long period (10 years), 1122 patients diagnosed with tongue cancer in 2000–2004 were selected, according to the PCR database of the Northwestern Federal District of the Russian Federation (Fig. 1, Table 3).

The highest mortality rate during the first year of treatment was noted: 62% of 858 male patients, 50.6% of 264 female patients. Among the survivors, only 40.7% of males and 27.1% of females died during the second year of observation. By the

tenth year of observation all men had died, only 50 women (18.9%) survived. A leap in lethality was noted: among male patients – in the sixth and ninth year, among female patients – in the fifth, seventh and ninth year.

The same patterns of year-by-year lethality are characteristic for most other localizations of malignant neoplasms.

Figure 2 and Table 4 present the data on the year-by-year lethality of tongue cancer patients only for a five-year period of observation. 1503 patients registered in 2010–2014 were selected.

Special attention should be given to a significant decrease in the lethality of patients in the first year of observation compared with the previous years. Thus, the entire complex of anti-cancer measures taken in the period from 2000–2004 to 2010–2014, by the fifth observation period had saved 85 lives of tongue cancer patients in the Northwestern Federal District of the Russian Federation.

### Median survival

The median survival is the period of time during which half of the registered patients die. The methodology for calculating the median survival rates was published by us earlier [7–9]. For the period from 2000 to 2016 median survival (for both sexes) increased from 9.5 months to 1.4 years. Among males – from 9 to 10.3 months, among females – from 1.2 to 2 years.

The median survival is expressed in months for cancer localizations with high lethality. The possibility of calculating it makes it possible to obtain the rates close to our time.

When calculating the rates for localizations with low lethality, its value for 2016 can be obtained no earlier than 2033 or even 2035.

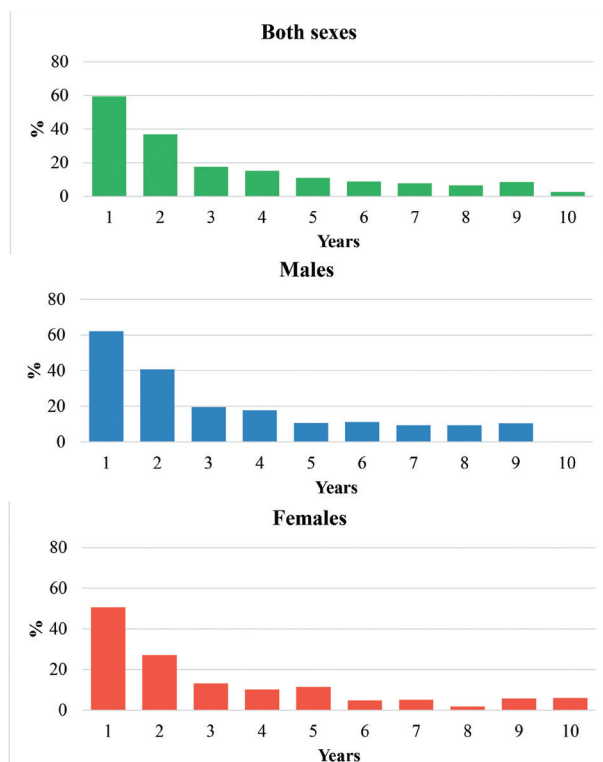


Fig. 1. Year-by-year lethality of tongue cancer (C01, 02) patients in the NWFD. NWFD RF PCR database (2000–2004)  
Рис. 1. Погодичная летальность больных со ЗНО языка (C01, 02) в СЗФО. БД ПРР СЗФО РФ (2000–2004 гг.)

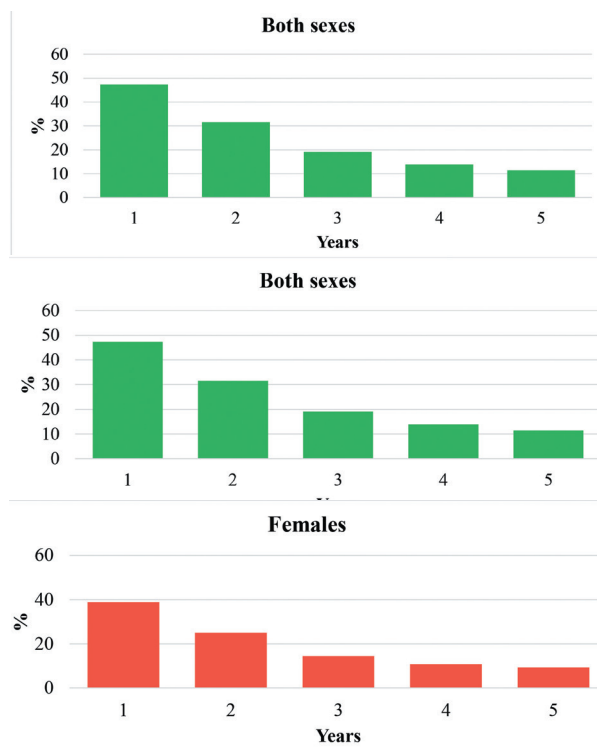


Fig. 2. Year-by-year lethality of tongue cancer (C01, 02) patients in the NWFD. NWFD RF PCR database (2010–2014)  
Рис. 2. Погодичная летальность больных со ЗНО языка (C01, 02) в СЗФО. БД ПРР СЗФО РФ (2010–2014 гг.)

Year-by-year lethality of tongue cancer (C01, 02) patients in the NWFD. NWFD RF PCR database (2000–2004 – 10-year follow-up of patients)

Table 3.

Погодичная летальность больных со ЗНО языка (C01, 02) в СЗФО. БД ПРР СЗФО РФ (2000–2004 гг. – десять лет возможности прослеживания судеб больных)

Табл. 3.

Observation period	Males		Females		Both sexes	
	Abs. number	Lethality	Abs. number	Lethality	Abs. number	Lethality
1	858	62,0	264	50,6	1122	59,4
2	323	40,7	126	27,1	449	36,9
3	190	19,5	91	13,2	281	17,5
4	152	17,8	79	10,2	231	15,2
5	124	10,6	70	11,4	194	10,9
6	109	11,1	62	4,8	171	8,8
7	96	9,4	59	5,1	155	7,8
8	86	9,4	56	1,8	142	6,4
9	77	10,4	53	5,7	130	8,5
10	69	0,0	50	6,0	119	2,5

Year-by-year lethality of tongue cancer (C01, 02) patients in the NWFD. NWFD RF PCR database (2010–2014 – 5-year follow-up of patients)

Table 4.

Погодичная летальность больных со ЗНО языка (C01, 02) в СЗФО. БД ПРР СЗФО РФ (2010–2014 гг. – пять лет возможности прослеживания судеб больных)

Табл. 4.

Observation period	Males		Females		Both sexes	
	Abs. number	Lethality	Abs. number	Lethality	Abs. number	Lethality
1	1018	51,3	485	38,9	1503	47,3
2	460	35,5	276	25,0	736	31,6
3	295	22,2	201	14,4	496	19,1
4	226	16,1	161	10,8	387	13,9
5	163	12,9	119	9,3	282	11,4

**One-year and five-year cumulative observed and relative survival of tongue cancer patients**

The system of Population-based Cancer Registers developed in Russia allows calculating the survival rates of cancer patients. This is the most important criterion for the assessment of the effectiveness of all anti-cancer measures, unfortunately, little used.

If for a certain period we do not see any improvement in the level of this indicator, then it makes no sense to use the indicators actively promoted in the country (beyond PCR), such as an increase in the proportion of the early stage, a decrease in the neglect rate or one-year lethality (calculated beyond PCR). Inevitably, the entire data analysis system must be based on international standards and the PCP database.

Tables 5 and 6 show the one-year and five-year cumulative survival rates of tongue cancer patients in the Northwestern Federal District for the period from 2000 to 2017. All survival rates increased in both males and females (the latter have a higher level of indicators).

The success seems obvious: the mortality rate of tongue cancer patients is decreasing, while the survival rate is increasing.

However, the lack of desire among the health officers to use reliable objective criteria according to international

standards makes us pay attention to the state of organization of treatment of patients in this group in the Northwestern Federal District compared to the European program (Eurocare-4).

The average European level of the observed and relative five-year survival rate of tongue cancer patients of the 1990s was not reached even in 2013 [26]. According to the Saint Petersburg PCR database, the survival rates of tongue cancer patients are slightly better. This is easy to explain given the qualification of specialists in Saint Petersburg and the availability of medical care for citizens in scientific medical institutions of the federal level. The factor of the small annual number of registered tongue cancer cases should be taken into account, particularly in a large city of Saint Petersburg, with 21-58 new cases reported each year in 2000–2018. In different years they could differ significantly in age composition and health status. If the data for Saint Petersburg are excluded from the PCR database of the Northwestern Federal District, the territorial indicators would be rather modest. All data on the survival rate of patients were taken only from the PCR database (Saint Petersburg and the Northwestern Federal District of the Russian Federation).

The comparison is shown in Table 7.

Cumulative observed survival of tongue cancer (C01, 02) patients in the NWFD. NWFD RF PCR database  
Кумулятивная наблюдаемая выживаемость больных со ЗНО языка (C01, 02) в СЗФО. БД ПРР СЗФО РФ

Table 5.  
Табл. 5.

		Both sexes																	
Year of diagnosis		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Abs. number of patients		253	212	200	254	206	208	238	232	236	281	270	293	308	229	320	387	404	429
Observation period	1	41,6	36,5	43,2	46,1	38,1	46,1	43,6	44,6	55,3	51,6	48,9	43,7	52,9	54,8	57,6	54,0	60,4	54,1
	2	27,4	23,4	28,9	26,5	25,9	27,2	28,0	25,1	35,3	32,6	33,7	26,7	33,3	39,8	39,5	37,3	36,8	
	3	22,9	18,6	25,8	21,7	20,8	18,6	19,4	18,9	31,2	28,5	27,2	22,8	28,1	31,5	31,7	27,8		
	4	20,0	14,7	22,7	19,3	18,3	16,1	16,2	17,0	26,1	24,4	24,9	19,7	26,2	26,3	22,2			
	5	18,7	12,7	19,6	18,1	16,7	14,1	14,3	16,5	25,1	21,8	23,2	17,3	24,5	25,1				
		Males																	
Year of diagnosis		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Abs. number of patients		206	160	157	193	145	160	185	174	172	179	187	194	213	148	221	238	248	279
Observation period	1	39,0	34,6	38,7	44,4	36,3	44,7	40,3	41,5	55,4	44,8	47,9	38,5	48,7	49,1	51,8	47,4	56,4	47,1
	2	25,6	21,1	25,7	22,5	22,4	25,4	25,0	22,6	31,0	26,1	31,7	23,0	31,6	32,0	31,8	31,4	30,0	
	3	21,1	15,4	21,7	19,3	17,5	16,3	15,2	17,6	27,8	22,3	22,6	19,8	26,3	23,7	26,2	22,8		
	4	17,5	11,5	18,4	17,2	15,4	13,7	12,3	15,1	22,1	18,6	19,8	16,6	25,0	18,5	18,2			
	5	16,5	10,2	16,5	16,2	13,9	11,7	9,9	15,1	21,4	15,9	18,8	15,2	22,7	16,8				
		Females																	
Year of diagnosis		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Abs. number of patients		47	52	43	61	61	48	53	58	64	102	83	99	95	81	99	149	156	150
Observation period	1	52,7	42,3	60,0	51,7	42,4	51,1	55,3	54,1	55,2	63,5	50,9	54,3	62,7	65,0	70,4	65,2	67,2	67,3
	2	35,1	30,5	40,8	39,6	35,0	33,3	38,9	33,3	46,8	43,9	38,0	34,3	37,3	53,4	56,6	47,5	49,3	
	3	30,7	28,5	40,8	29,3	29,5	26,6	34,7	22,9	40,1	39,5	36,6	28,8	32,3	45,3	43,9	37,0		
	4	30,7	24,4	38,4	25,8	25,8	24,4	30,4	22,9	36,8	34,6	35,1	26,0	28,8	40,3	31,4			
	5	28,5	20,3	31,2	24,1	23,9	22,2	30,4	20,8	35,0	32,0	32,0	21,7	28,8	40,3				

Cumulative relative survival of tongue cancer (C01, 02) patients in the NWFD. NWFD RF PCR database  
Кумулятивная относительная выживаемость больных со ЗНО языка (C01, 02) в СЗФО. БД ПРР СЗФО РФ

Table 6.  
Табл. 6.

		Both sexes																	
Year of diagnosis		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Abs. number of patients		253	212	200	254	206	208	238	232	236	281	270	293	308	229	320	387	404	429
Observation period	1	43,2	37,9	45,2	48,0	39,5	47,8	45,1	46,1	57,2	53,0	50,4	45,0	54,3	56,1	59,1	55,2	61,7	55,5
	2	29,5	25,3	31,5	28,6	27,9	29,0	29,8	26,7	37,7	34,3	35,7	28,3	35,0	41,7	41,6	39,0	38,5	
	3	25,5	21,0	29,0	24,3	23,3	20,5	21,2	20,7	34,3	30,6	29,4	24,8	30,2	33,9	34,4	29,7		
	4	23,1	17,4	26,3	22,4	21,3	18,2	18,2	19,1	29,8	26,8	27,5	22,1	28,8	28,9	24,8			
	5	22,5	15,7	23,4	21,9	20,2	16,3	16,4	19,1	29,5	24,4	26,2	20,1	27,8	28,3				
		Males																	
Year of diagnosis		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Abs. number of patients		206	160	157	193	145	160	185	174	172	179	187	194	213	148	221	238	248	279
Observation period	1	40,6	36,0	40,5	46,4	37,8	46,2	41,8	43,0	57,3	46,2	49,5	39,6	50,1	50,3	53,3	48,6	57,8	48,3
	2	27,7	23,0	28,2	24,5	24,2	27,1	26,7	24,2	33,1	27,8	33,7	24,3	33,3	33,7	33,6	33,1	31,6	
	3	23,8	17,6	24,7	22,0	19,6	18,0	16,8	19,6	30,7	24,3	24,6	21,6	28,5	25,7	28,5	24,6		
	4	20,6	13,9	21,8	20,5	17,9	15,6	14,1	17,4	25,2	20,8	22,1	18,7	27,8	20,6	20,4			
	5	20,2	13,0	20,1	20,1	16,9	13,7	11,7	18,0	25,1	18,2	21,7	17,7	26,0	19,4				



Females

Year of diagnosis	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Abs. number of patients	47	52	43	61	61	48	53	58	64	102	83	99	95	81	99	149	156	150	
Observation period	1	54,4	43,7	62,2	53,0	43,7	52,9	56,7	55,8	57,0	64,8	52,6	55,8	63,9	66,4	72,1	66,4	68,4	68,9
	2	37,2	32,4	43,7	41,5	37,4	35,5	40,4	34,8	49,9	45,6	39,9	36,3	38,8	55,7	59,3	49,3	51,1	
	3	33,1	31,3	44,5	31,5	32,7	28,9	36,6	24,2	44,0	41,6	39,3	31,3	34,1	48,2	47,1	38,9		
	4	33,9	27,9	42,7	28,6	29,9	27,0	32,5	24,5	41,8	37,1	38,1	29,1	31,1	43,6	34,5			
	5	32,2	24,1	35,3	27,7	28,7	25,1	32,9	22,4	41,3	34,9	35,3	25,1	31,7	44,5				

Table 7.

Comparative data on the cumulative 5-year observed and relative survival of tongue cancer patients on the EU average in the NWFD RF and St. Petersburg

Табл. 7.

Сравнительные данные кумулятивной 5-летней наблюдаемой и относительной выживаемости больных со ЗНО языка в среднем по Европе, в СЗФО и Санкт-Петербурге

	Observed (%)		Relative (%)	
	Males	Females	Males	Females
Eurocare (1995–1999)	36,8	47,2	41,6	54,4
Northwestern Federal District of the Russian Federation (2013)	16,8	40,3	19,4	44,5
Saint Petersburg (2013)	24,3	39,0	27,4	43,4

Dynamics of one-year and five-year survival of patients with cancer of the tongue, taking into account the stage of the disease

Dynamics in the observed 5-year survival rate of tongue cancer (C01,02) patients (males) in the NWFD, taking into account the stage of the disease, NWFD RF PCR database

Table 8.

Figures 3, 4 and Tables 8, 9 show a complete picture of the effectiveness of treatment of cancer patients in the Northwestern Federal District. **Three five-year follow-up periods** from 1999 to 2013 have been compared, with the number of patients recorded for each period – about a thousand.

Табл. 8.

Динамика наблюдаемой 5-летней выживаемости больных со ЗНО языка (C01, 02) (мужчины) в СЗФО с учетом стадии заболевания, БД ПРР СЗФО РФ

There is, above all, the discrepancy between the distribution of patients according to the stage of the disease and the value of survival rates (especially among males).

In the first stage of the disease, the one-year survival rate of patients should be at least 90% (2% per year, considering the probabilities of dying from other causes), while our number of survivors is 30–50%. In the second stage, it should be about 80%, not 30%.

This indicates the presence of two processes. The first is the **low level of diagnostics of tumours of this pathology**. The second is the **strongest administrative pressure** with the requirement to constantly increase the proportion of patients diagnosed with stages I and II. Since in the list of analytical indicators for assessing the activities of the Russian Oncology Service there is no requirement to calculate the survival rates of patients **at the population level based on the international standards**, the state of treatment effectiveness is unknown (Fig. 3 and 4), even for specialists.

At the same time, it should be emphasized that the ongoing anti-cancer measures still contribute to the improvement of specialized care for tongue cancer patients. The five-year survival rate kept growing steadily among the male population from 15.8 to 17.9%, among females – from 25.9 to 30.7%. The positive effect was demonstrated mainly in patients with stages I and II. The fact that the diagnostic quality improved is also important. The proportion of patients with an unknown stage of the disease decreased among males from 14.5 to 7.1%, among females – from 13.2 to 6.3% (Tables 8, 9).

Period		Stage					Total
		I	II	III	IV	Unk.	
1999–2003	Number	31	175	315	240	129	890
	%	3,5	19,7	35,3	27,0	14,5	
	1	80,3	66,4	46,7	16,6	27,1	40,7
	2	53,6	42,6	28,7	7,4	15,4	24,6
	3	43,5	36,6	23,2	5,6	12,8	20,3
	4	40,2	30,6	18,7	5,6	12,0	17,2
2004–2008	5	33,5	28,8	16,7	5,1	12,0	15,8
	Number	38	150	302	275	71	836
	%	4,5	17,9	36,2	32,9	8,5	
	1	78,4	61,5	46,2	27,6	40,7	43,8
	2	64,4	37,2	25,3	15,3	18,2	25,3
	3	58,8	30,8	17,4	10,0	12,7	18,9
2009–2013	4	42,0	26,5	15,0	8,5	9,1	15,7
	5	33,3	24,3	13,9	8,5	7,3	14,3
	Number	56	176	359	265	65	921
	%	6,1	19,1	38,9	28,8	7,1	
	1	96,0	65,3	47,6	21,4	43,4	45,7
	2	74,9	46,2	28,8	9,4	24,4	28,7
3	70,2	37,2	22,0	6,7	18,7	22,9	
4	70,2	33,4	17,2	4,7	18,7	19,7	
5	55,3	31,0	16,7	4,7	13,3	17,9	



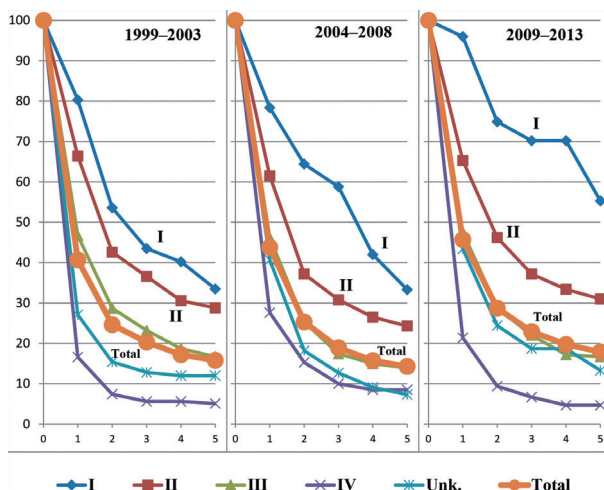


Fig. 3. Dynamics in the observed 5-year survival rate of tongue cancer (C01,02) patients (males) in the NWFD, taking into account the stage of the disease, NWFD RF PCR database  
Рис. 3. Динамика наблюдаемой 5-летней выживаемости больных со ЗНО языка (C01, 02) (мужчины) в СЗФО с учетом стадии заболевания, БД ПРР СЗФО РФ

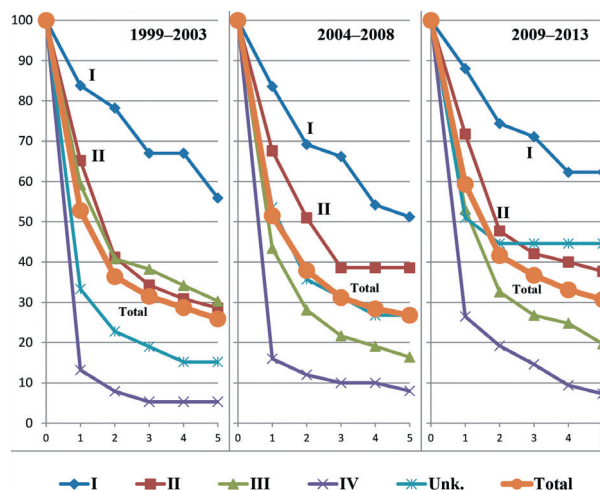


Fig. 4. Dynamics in the observed 5-year survival rate of tongue cancer (C01,02) patients (females) in the NWFD, taking into account the stage of the disease, NWFD RF PCR database  
Рис 4. Динамика наблюдаемой 5-летней выживаемости больных со ЗНО языка (C01, 02) (женщины) в СЗФО с учетом стадии заболевания, БД ПРР СЗФО РФ

Table 9.  
Dynamics in the observed 5-year survival rate of tongue cancer (C01,02) patients (females) in the NWFD, taking into account the stage of the disease, NWFD RF PCR database

Табл. 9.  
Динамика наблюдаемой 5-летней выживаемости больных со ЗНО языка (C01, 02) (женщины) в СЗФО с учетом стадии заболевания, БД ПРР СЗФО РФ

Period	Stage					Total	
	I	II	III	IV	Unk.		
1999 – 2003	Number	19	90	76	38	34	257
	%	7,4	35,0	29,6	14,8	13,2	
	1	83,8	65,2	59,2	13,2	33,3	52,8
	2	78,2	41,2	40,8	7,9	22,8	36,4
	3	67,0	34,3	38,2	5,3	19,0	31,5
	4	67,0	30,9	34,2	5,3	15,2	28,7
2004 – 2008	Number	38	75	80	50	41	284
	%	13,4	26,4	28,2	17,6	14,4	
	1	83,6	67,6	43,4	16,0	53,6	51,5
	2	69,2	51,0	28,1	12,0	35,7	37,9
	3	66,2	38,6	21,7	10,0	31,3	31,2
	4	54,2	38,6	19,1	10,0	26,8	28,4
2009 – 2013	Number	73	134	149	75	29	460
	%	15,9	29,1	32,4	16,3	6,3	
	1	88,0	71,8	53,1	26,5	51,0	59,3
	2	74,4	47,7	32,6	19,2	44,6	41,6
	3	71,1	42,1	26,8	14,6	44,6	36,7
	4	62,3	40,0	24,8	9,4	44,6	33,1
5	62,3	37,7	19,7	7,3	44,6	30,7	

**Survival of patients with cancer of the tongue in accordance with the detailed localization structure**

In the state reporting, malignant neoplasms of the tongue are represented by two ICD-10 headings – C01 and C02 (Table 10).

PCR database provides an opportunity to study the structure and survival of patients for separate ICD headings and for the detailed characteristics of the C.02 heading (with the fourth character) as well.

Table 11 shows the detailed structure of the primary tongue cancer cases recorded in the Northwestern Federal District, along with the observed one-year and five-year survival rates of patients.

Of the two headings (5188 observations), the share of the C01 heading (malignant neoplasm of the base of the language) accounted for 1925 registered cases (37.1%), and the heading C02 (malignant neoplasm of other and unspecified parts of the language) – 3262 cases (62.9%).

It should be noted that during the first observation period (1999–2003), the C.02.9 heading (Malignant neoplasm of tongue, unspecified) accounted for 35.8% of all cases from the C02 heading, in 2014–2017 – 19.0%. The main part of the C02 heading is the C02.1 subheading – malignant neoplasm of border of tongue (from 48.2% to 57.3%). The one-year survival rate by the fourth observation period (2014–2017) for the C01 heading was 54.2%, for the C02 heading – 57.3%.

The survival rate of tongue cancer patients during the first year of follow-up increased to 100% for heading C02.4 (lingual tonsil) and up to 88.9% for heading C02.3 (anterior two-thirds of tongue, part unspecified) (Table 10).

The five-year survival rate of patients with cancer of the tongue for the three observation periods increased for the C01 column from 15.7% to 19.2%; for the heading C02 – from 20.1% to 23.6%.

Table 11 contains the rest of the data.

Table 10. Distribution of headings of the tongue cancer (C01, 02) according to the fourth character of ICD-10  
 Табл. 10. Распределение рубрик ЗНО языка (C01, 02) по четвертому знаку МКБ-10

<b>C01 – Malignant neoplasm of base of tongue</b>
<b>C02 – Malignant neoplasm of other and unspecified parts of tongue</b>
<b>C02.0 – dorsal surface of tongue:</b>
<b>C02.1 border of tongue</b>
<b>C02.2 ventral surface of tongue</b>
<b>C02.3 anterior two-thirds of tongue, part unspecified</b>
<b>C02.4 lingual tonsil</b>
<b>C02.8 overlapping sites of tongue</b>
<b>C02.9 tongue, unspecified</b>

**Survival of tongue cancer patients by histological types of tumors**

To study the characteristics of the histological structure and survival of tongue cancer patients, 5188 patients were selected over the entire observation period. In 4671 (90.0%) patients, the diagnosis was histologically confirmed. The share of morphologically confirmed diagnoses was 43.7% by 2014–2017.

Over the four observation periods, the histological structure of the tongue cancer has not shown any significant changes. The most common was squamous cancer (M-8070/3, M-8071/3, M-8072-3). Adenocarcinoma NOS represent a small part. The share of the **M-8000/3 rubric – Neoplasm, malignant** has slightly decreased, which is, in fact, without a specific tumor histotype. The one-year survival rate of patients exceeded 50% for almost all the presented histotypes, (Table 12).

The structure and survival rate of tongue cancer (C01,02) patients in the NWFD. NWFD RF PCR database (both sexes)  
 Структура и выживаемость больных со ЗНО языка (C01, 02) в СЗФО. БД ПРР СЗФО РФ (оба пола)

Table 11. Табл. 11.

Nosology	1999–2003						2004–2008						2009–2013						2014–2017					
	Abs. No	%	Survival			Abs. No	%	Survival			Abs. No	%	Survival			Abs. No	%	Survival						
			1-year	5-year	10-year			1-year	5-year	1-year			5-year	1-year	5-year			1-year						
C01	544		41,2	15,7	10,8	527		42,5	12,8	462		46,5	19,2	392		54,2								
C02	603		45,5	20,1	17,1	593		48,5	21,3	919		52,0	23,6	1148		57,3								
.0	15	2,5	40,0	6,7	0,0	27	4,6	48,0	14,4	68	7,4	47,2	13,1	51	4,4	64,0								
.1	291	48,2	54,6	26,8	23,1	293	49,4	55,2	26,2	485	52,8	59,5	27,4	658	57,3	61,0								
.2	20	3,3	55,0	15,0	15,0	18	3,0	50,0	16,7	38	4,1	55,6	30,0	94	8,2	71,4								
.3	12	2,0	58,3	16,7	16,7	10	1,7	50,0	20,0	14	1,5	73,9	24,6	11	1,0	88,9								
.4	13	2,2	38,5	15,4	15,4	6	1,0	50,0	16,7	6	0,7	60,0	30,0	6	0,5	100,0								
.8	36	6,0	29,6	7,9	7,9	49	8,3	40,8	10,2	73	7,9	34,7	8,2	110	9,6	36,4								
.9	216	35,8	35,1	15,0	12,1	190	32,0	40,0	18,2	235	25,6	41,2	22,3	218	19,0	46,3								

Table 12. Dynamics in the histological structure and survival rate of tongue cancer patients in the NWFD. NWFD RF PCR database (both sexes)  
 Табл. 12. Динамика гистологической структуры и выживаемости больных со ЗНО языка в СЗФО. БД ПРР СЗФО РФ (оба пола)

...	1999–2003						2004–2008						2009–2013						2014–2017					
	Abs. No	%	Survival			Abs. No	%	Survival			Abs. No	%	Survival			Abs. No	%	Survival						
			1-year	5-year	10-year			1-year	5-year	1-year			5-year	1-year	5-year			1-year						
8070/3	365	31,8	53,9	23,6	19,9	416	37,1	46,6	14,9	585	42,4	52,2	22,0	718	46,6	55,4								
8071/3	362	31,6	44,4	15,3	11,6	335	29,9	50,2	22,2	417	30,2	49,0	23,1	413	26,8	56,3								
8072/3	128	11,2	49,0	25,3	18,0	117	10,4	58,6	21,0	122	8,8	55,0	25,6	97	6,3	58,6								
8140/3	13	1,1	61,5	38,5	30,8	23	2,1	33,3	13,2	19	1,4	54,3	40,7	10	0,6	57,9								
8000/3	27	2,4	25,9	11,1	11,1	17	1,5	35,3	5,9	9	0,7	44,4	33,3	26	1,7	47,8								
8020/3	13	1,1	53,8	15,4	15,4	9	0,8	44,4	22,2	3	0,2	66,7	0,0	1	0,1	0,0								
Group total	908	79,2				917	81,9			1155	83,6			1265	82,1									
Total	1147		43,4	18,0	14,1	1120		45,7	17,4	1381		50,2	22,2	1540		56,5								

Note:  
 M-8070/3 – Squamous cell carcinoma, NOS  
 M-8071/3 – Squamous cell carcinoma, keratinizing, NOS  
 M-8072/3 – Squamous cell carcinoma, large cell, nonkeratinizing  
 M-8140/3 – Adenocarcinoma, NOS  
 M8000/3 – Neoplasm, malignant  
 M-8020/3 – Carcinoma, undifferentiated, NOS  
 Примечания:  
 M-8070/3 – плоскоклеточный рак БДУ  
 M-8071/3 – плоскоклеточный рак ороговевающий БДУ  
 M-8072/3 – плоскоклеточный рак крупноклеточный неороговевающий  
 M-8140/3 – аденокарцинома БДУ  
 M8000/3 – новообразования злокачественные  
 M-8020/3 – недифференцированный рак БДУ



## SUMMARY

The research has considered the characteristics of the detailed localization distribution and histological structure of the tongue cancer at the federal district level for the first time in Russia.

State of Cancer Care at the level of the federal district and a large city has been described. The effectiveness of the Russian Oncology Service has

been compared to the average European survival rates of patients. The year-by-year lethality of tongue cancer patients has been considered.

The results indicate that there is a positive dynamics in the calculated rates: the median survival, year-by-year lethality, one- and five-year survival of patients. However, Russia is significantly behind the European average.

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# Состояние онкологической службы России: злокачественные новообразования языка C01, 02 (летальность больных, медиана выживаемости больных с учетом стадии заболевания и гистологической структуры опухоли). Часть 2

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В общей структуре заболеваемости ЗНО населения России новообразования языка занимают 0,55%. Никакой информации о других параметрах (числе умерших, летальности больных, распределении их по стадиям заболевания и других аналитических показателях) в официальной отчетности не предусмотрено.

Такая возможность появилась только с создания системы популяционных раковых регистров, но эти богатейшие материалы в государственной отчетности не используются.

Нами впервые в России на уровне вновь созданного ракового регистра федерального округа проведено исследование о состоянии онкологической помощи больным с ЗНО языка, с расчетами таких параметров как одногодичная летальность, погодичная летальность, медиана выживаемости, 1, 3, 5-летняя наблюдаемая и относительная выживаемость больных.

В России практически не проводятся исследования по анализу выживаемости больных ЗНО на популяционном уровне. Такие разработки по всем локализациям ЗНО проводятся нами с 2000 года на основе созданной БД ПРР Санкт-Петербурга. Было установлено, что уровень 5-летней наблюдаемой и относительной выживаемости больных с ЗНО языка в России (Санкт-Петербурге и СЗФО РФ) заметно ниже среднеевропейских (программа Eurocare-4).

Для проведения настоящего исследования нами из БД ПРР СЗФО РФ отобрано 5188 наблюдений. Установлено, что за четыре периода наблюдения летальность больных с ЗНО языка на первом году наблюдения в СЗФО снизилась по рубрике C01 (ЗНО основания языка) с 58,5 до 45,8%, а по рубрике C02 (ЗНО других и неуточненных частей языка) – с 54,5 до 42,7%. Пятилетняя выживаемость больных с ЗНО языка возросла на 23,3%.

**КЛЮЧЕВЫЕ СЛОВА:** ЗНО языка; одногодичная летальность; летальность больных на каждом году наблюдения; медиана выживаемости; однолетняя и пятилетняя наблюдаемая и относительная выживаемость; пол; стадия заболевания; выживаемость больных по гистологическим типам опухолей