

# Chronic Non-Communicable Disease Prevention in Russian Federation (RF)

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**Abstract** In the Soviet Union, there was one of the most developed medical systems all over the world with the main accent to preventive medicine. The main component of chronic disease prevention was named “dispanserization”. It includes nurses, doctor’s control, clinic and laboratory methods of investigation one time a year and dynamic control during the year (if it was needed). Perestroika resulted in breakup of the medicine. In 2006, the Ministry of Public Health decided to reconstruct the system of prevention medicine, but it does not work. For example, in Russia, the average duration of life is the lowest in Europe, it does not rank in first hundred of the most development countries anymore; it is on average 12-15 years lower than in Scandinavia. RF is the country with most smokers from all over the world. In 2006, the Ministry of Public Health decided to reconstruct the system of dispanserization. Some of methods of health observation are not supported by evidence-based-medicine. In 2009, the Ministry of Public Health organized the “center for health”. But also this system does not work.

**Keywords** RF, Prevention Medicine, State Policy, Dispanserization, Center For Health, Chronic Diseases

## 1. Soviet Union

In USSR it was used the Semashko health system. Nicolay A. Semashko (1849-1947) was the first minister of public health in Soviet Union (1918-1930). He developed the new health system just after revolution (1917). The system was based on two main principles: free medical care access and emphasis on prevention of communicable diseases. Patients did not pay any money for their visit to doctor, medical care costs were covered by government[1,2].

Semashko medical system was centralized and managed by Ministry of Public Health. The Ministry planned how many medical staff of medical facilities will be needed next year, next five years and so on. This allowed do not have any great difference in medical care access and quality between regions of country, rural and urban territories[1]. But sometimes there was deficient in access to medical care[3].

There was the strong control on communicable diseases. It includes sanitary observation, isolation of patients with infectious diseases, immunization and so on. Up to 100% of children and 90% of adults were vaccinated. Strong state regulation did not allow people any access to working place, school or nursing without immunization. Every year children were controlled on excrement contamination by helminthes[4].

In the years 1970-1980 in the Soviet Union, there was one

of the most developed medical systems all over the world. The average duration of life was one of the tenth all over the world and one of the first in Europe. Sometimes the health system was cost-non-effective, but it works[3].

The main component of chronic disease prevention was named “dispanserization”[5,6]. It appeared in 1960-1970 years. Dispanserisation includes nurses, doctor’s control, clinic and laboratory methods of investigation one time a year and dynamic control during the year (if it was needed). In big enterprises there was a doctor or a nurse, which worked full time. In all schools there also were nurses. This medical stuff made up a dynamic observation of all individuals, and if it was needed referred individual to clinics to detail examination[5].

As a rule, nurses and doctors in schools and enterprises also made immunization due to “national schedule of vaccination”. This schedule was developed by Ministry of Public Health and determined time periods in which immunization have to be done. People did not have any freedom to do vaccination or not. Only in medical reasons (for example, kidney disease) individual could be not vaccinated[7,8].

## 2. Perestroika

Perestroika (‘reconstruction’, during the 1980s) resulted not only in breakup of the Soviet Union, but also it resulted in the breakdown of the main governmental institutes, including those for medicine. Management of health system was decentralized There was a strong deficient of financial support of medical care and medical access[3].

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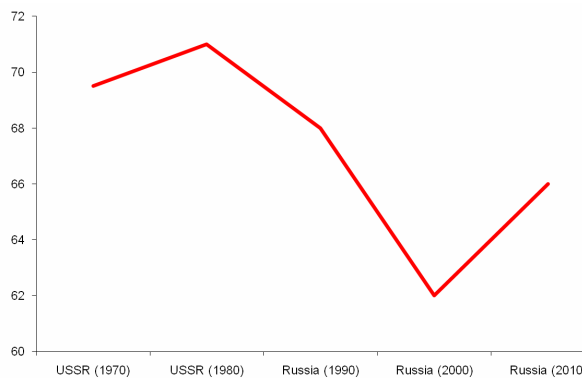
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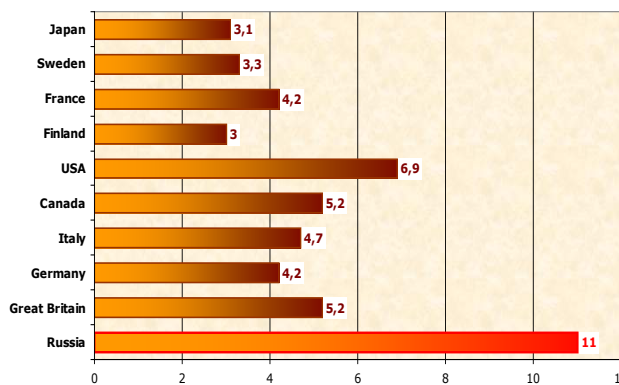
In new financial mechanism doctors and nurses receive money for medical service. So, as more there will be service, as much salary they will have. In such conditions medical stuff does not have any motivation to provide prevention procedures or to help patient to make up their individual behavior healthier[2].

Created as a part of the general Russian medical system, prevention care in Russia has mirrored all the good and bad qualities of that system during Perestroika. The system of dispensarization and rehabilitation was generally destroyed [9].

Now in Russia, the average duration of life is the lowest in Europe, it does not rank in first hundred of the most development countries anymore; it is on average 15-17 years lower than in Scandinavia, Japan, France, and USA[10,11]. The average duration of life form men is about 10 years lower than those for women. As it visible from Fig. 1, average duration of life fall down after Perestroika. Resent years it increases but average duration of life is still lower than in time of Soviet Union. In Russia there is one of the highest levels of children which are died during the first year of life (Fig 2)[12].



**Figure 1.** The Average Duration of Life in USSR and Russia [12]



**Figure 2.** Number of Children Died During the First Year of Life (on 1000 Born Alive) [10], [12]

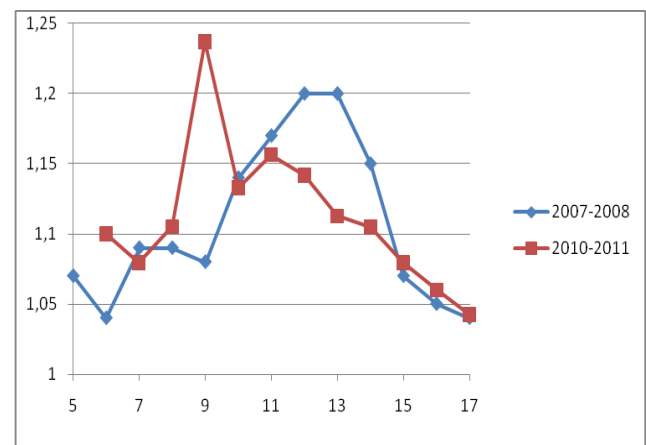
**Table 1.** Decrease of the Average Duration of Life in Russia with Some Other Countries (Male/Female) [10], [12]

Year	From USA	From France	From Sweden	From Japan
1900	15.9/16.2	12.7/14.1	20.3/20.8	14.5/13.1
1965	2.3/0.5	3.0/1.4	7.2/2.8	3.2/-0.5
2010	13.8/6.5	15.9/10.5	17.3/9.0	17.6/11.9

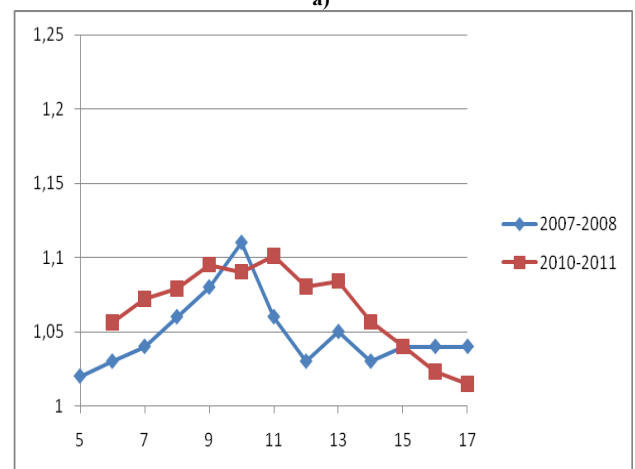
Nowadays, RF is the country with most smokers from all over the world. Schoolchildren start to smoke from age of 12-13 years old. During the last years number of smokers among women increases more rapidly than in men[10]. From the sevens grade of school to the eleven grade number of smoking schoolchildren grows up twice. In addition up to 60% of students smoke and 89% have psychoemotional stress[13].

Already there are about 30% of citizens with obesity and overweight, and this number will increase due to high-level prevalence of obesity in adolescents. After Perestroika Russia becomes one of the tens countries with prevalence of overweight and obesity.

The observations of the last years demonstrated high level of obesity and overweight prevalence in schoolchildren, mainly during and after puberties (Fig. 3). Boys are more obese than girls (Table 2, 3). Early we demonstrated prevalence of a central type of adipose tissue allocation related to weight increase is observed in investigated samples of peripuberty children[14]. Considering obvious economic growth in Russia during the last several years and a strong tendency for a western lifestyle the adopter of among the Russian population, especially those dwelling in cities, an increase in obesity rates might be expected.



**a)**



**b)**

**Figure 3.** Body Mass Index of Moscow Schoolchildren in Comparison with Age Norms. (a) Boys, (b) Girls

**Table 2.** Number of Boys (in Percents) with Overweight and Obesity among Moscow Schoolchildren in Different Years of Observation (Unpublished Date)

Age, years old	Overweight, 2011	Obesity, 2011	Overweight, 2008	Obesity, 2008
6	22.5	24.8	20.8	14.5
7	19.4	21.8	27.5	23.2
8	21.7	24.4	27	21.6
9	24	25.9	3.3	23.3
10	22.6	27.3	22.4	29.9
11	23.9	29.5	29.8	29.8
12	27.2	23.7	23.5	39.2
13	28.4	18.1	20.7	37.9
14	23.6	14.2	30	15
15	22.8	14.3	33.3	11.1
16	19.8	11.6	21.4	7.1

**Table 3.** Number of Girls (in Percents) with Overweight and Obesity among Moscow Schoolchildren in Different Years of Observation (Unpublished Date)

Age, years old	Overweight, 2011	Obesity, 2011	Overweight, 2008	Obesity, 2008
6	23.5	14.3	11.4	11.4
7	21.9	16.2	26.2	10.8
8	23.9	17.2	21.4	16.7
9	25.3	19	30.6	16.7
10	23.4	18.4	15	25
11	25.8	18.1	25.9	7.4
12	24.1	12.4	20.9	6.9
13	26.1	12	36.7	3.3
14	25.6	8.6	32.1	3.6
15	21	7.1	27.3	0
16	18.4	4.3	36.4	0

Due to unpublished data of Russian National Institute of Nutrition, in Russia there is the lowest level of fruits and vegetables intake in Europe. Mean intake of fruits is 110 grams per day, and mean intake of vegetables is 170 grams per day. Let mind, that WHO recommendation is at least 400 grams per day as a summary for fruits and vegetables. At the same time mean intake of salt is 12 grams per day (norm is lower 10 grams per day)[13].

Out observation demonstrated that 30-40% of schoolchildren several times a week visit fast-food restaurants. Only 10% of respondents visit such restaurants rarer then one time a month. 80% of schoolchildren have problems with eating regime. More then 50% of respondents eat during watching TV, cinema or working on PC. 90-100% schoolchildren eat extremely high level of sugars, 60% of them eat high level of different animal fats. Only 20% schoolchildren receive enough vitamins, microelement and plant fats.

In general, childhood obesity has become an epidemic on a worldwide scale[15] and it continues to increase[16]. Several serious consequences of excess weight occur in adults with the most common being chronic non-communicable diseases[17-21]. That is why the situation in RF with prevalence of overweight and obesity in schoolchildren seems to be critical.

In the same time it is shown that hypodynamia to be more prevalent in young-age-people than in high-age people. Schoolchildren have critical level of physical inactivity.

Boys are more active than girls[22,23]. During recent twenty years schoolchildren's adaptation to physical workload decreases on 8-9%[22].

It can be concluded that about 75% of deaths in RF are due to chronic diseases[24]. About 75% of these deaths are preventable. Only 4% of national product in Russia goes to medicine (in USA – 15%, WHO recommendation – minimum 5%).

After Perestroika only about 50% of costs of medical care are covered by government[25]. The Semashko health system model generally was destroyed. No ascent to prevention medicine was attended.

### 3. Present Day System

#### 3.1. Dispanserization

In 2006, the Ministry of Public Health decided to reconstruct the system of dispensarization[26]. It was made up as one of the national priority projects, developed by the president of country. But nowadays the system of dispensarization does not work.

The first years of dispensarization (2006-2009) demonstrated to take in observation about 10% of working people. But WHO proposed that prevention programs are only effective if it includes 80% and more. In 48% of cases the patients examined non-regularly. The untimely examination under all types of diseases took place in 34.3%; incomplete examination took place in 41.7%, the health promotion activities had lower quality in 39.9% and in 36.4% the counselling of specialists provided untimely[27].

Every year Ministry of Public Health publishes plans of dispensarization. But this plans are not realised (Table 4). Also it is visible, that the main cases of dispensarization are making up in the end of the year. So, the quality of such dispensarization is a very big question. Also, about 10% of women do not have any access to mammography on the living territory. Some territories have problems with laboratories to make up biochemical analysis of blood[28].

**Table 4.** Percent of Implementation for Plans of Dispanserization [28]

Territory	Percent of Plan									
	2006		2007		2008		2009		2010	
	1	2	1	2	1	2	1	2	1	2
Central	29	82	14	76	29	92	30	95	48	
North-West	33	88	29	75	43	82	40	96	22	
South	20	98	35	76	32	90	35	96	ND	
Near-Volga	44	85	33	82	5	92	17	970	ND	
Ural	35	89	17	80	33	95	29	93	40	
North	ND	80	25	75	37	97	35	75	ND	
Far-East	ND	85	15	83	ND	83	17	84	45	
All Russia	32	87	24	78	30	90	29	94	39	

1 – as it is on the 1 September

2 – as it is on the end of the year

ND - no data

New dispensarization is now restricted to observation of health conditions. Dynamic observation is no longer in-

cluded in dispensarization. Some of methods of health observation are not supported by evidence-based-medicine. In one time period used doctors and additional clinical methods of health observation (without any indications). Some of laboratories do not have certifications. Mean age of doctors is five years before retirement. Some doctors do not have the required education[29].

It is demonstrated the need to change the legal base of dispensarization, including the forms of accounting reporting documentation. It is necessary to return into dispensarization the patients' examination rooms and checklists to organize the personified registration of risk factors propagation in population [30].

### 3.2. Centre of Health

In 2009, the Ministry of Public Health organized the "centre for health" [31]. In 2010, 502 centers were open in different parts of the country. In 2011, their number was 695. It was supposed that such centers will organize all prevention work in the territory, with the main accent to primary prophylaxis. But also this system does not work (Table 5):

- "Centre for health" is open for everybody. More then 80% visitors are people older 75;
- There is about 50% shortage of doctors and nurses working in such centers. Many doctors and nurses already worked, but do not have appropriate education;
- Many centers do not have any possibility for health promotion (for example, as commercial);
- Near 4 million of people went centers in 2011, which is equal to 2,8% citizens of Russian Federation;
- Only 25% of visitors did the visit due to prophylaxis reasons;
- 74.5% of visitors come to centers only one time a year.

**Table 5.** Results of Working for Center of Health [32]

Criteria of Effectiveness	2010	2011
Number of centres	502	695
Number of visitors:		
total	2 364 402	3 882 158
coming only one time a year	1 962 644	2 553 825
coming for prophylaxis reasons	2 164 368	2 920 380

## 4. Conclusions

The public health system of RF based on Semashko model failed down during Perestroika. The main principles of the system nowadays do not work. A new system still did not appear. Ministry of Public Health provides policy of both preservation of Semashko model, and its reform in the same time. It may be concluded that Ministry of Public Health does not strongly know what to do with public health system. Special sanitary agency (Rospotrebnadzor) and special agency to control work of Ministry of Public Health (Roszdravnadzor) were organized, but nothing generally changed.

In present-day public health system money allocates only for immunization as a prevention work. Some money for health promotion is in Ministry of Public Health. But pro-

gram have low effect. The budget for health promotion is about 10% of the same for commercial of one of fast-food restaurant.

In the same time, it is registered dramatically growing up prevalence of risk factors for non-communicable diseases[3]. The first stage of reform of public health system is going on now (2009-2015). But no serious changes were registered.

In 2010 the Government of RF adopted National Anti-tobacco Policy[33]. It is planned that to 2015 smoke will be reduced on 10-15%. What will be happen, we will see.

In general, there is no state position about how prevention work has to be done. There is total deficient of access to stadiums, swimming-pools, fitness clubs and other places of physical activity. Sometimes when there is some access, the price for visit is too high. TV commercial in general provides unhealthy behaviour. There are no state school health programs.

Chronic disease prevention programs in RF nowadays are initiated by the initiative of local parliaments of international organizations (for example, Moscow, Kazan', Hanty-Mansi'sk). All initiatives of Ministry of Public Health are non-effective or low-effective. So, the Ministry exhausted all the trust itself. Only if the Parliament of RF will be the main in organization of prevention programs something positive seems to be done.

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