

# Informatization of health care on the example of the workplace of the doctor

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## ABSTRACT

**Aim:** According to the Program of Informatization of Health in 2014, the electronic workplace should be provided with each doctor: As in the outpatient sector and in hospitals. **Methods:** Using the electronic workplace of a doctor, a specialist has access to all necessary services under a single software interface. It will allow the specialist to use all informational databases, an electronic library of medicine, and the programs of the computer aid in decision-making. **Conclusion:** Despite the introduction of electronic delivery system in the practical activities of medical institutions allows you to increase the availability of medical care at all levels, including primary health care, the low computer literacy of physicians was the problem of improving the quality of the service provided remains unsolved.

**KEY WORDS:** A single software interface, Electronic workplace of a doctor, Profiled medical information, Register, System of single window

## INTRODUCTION

Technology development of the electronic office - the principal way of automation of work with paper documents - encompasses more and more sectors of human activity.

A bright representative of such industries is health care, namely, that of doctors to maintaining medical records. Of particular relevance to the issue of automation of a workplace of the doctor creates the need for continuous and proper recording of information on medical statistics and insurance and the ability to work with a personal computer (PC).

The modern economy of developed countries is characterized as “innovative,” “knowledge economy,” and “third wave society,” that is, the main competitive advantages are new technologies, knowledge, and human capital. The health model should lead to high health indicators of the population. The state program of the Russian Federation until 2020 presupposes a gradual transition to health care, based on the informatization of the industry, quality training of personnel, and the creation of

modern medical infrastructure. The targeting future incomes, increasing the standard of living of the population, increasing accessibility and quality of provided health care services when investing capital are essential features that distinguish long-term investments in health care.

## MATERIALS AND METHODS

According to the Program of Informatization of health in 2014, the electronic workplace should be provided with each doctor: As in the outpatient sector and in hospitals.

Currently in all regions of the Russian Federation, the possibility of use of Federal services within the framework of the unified state information system in healthcare.

Using the electronic workplace of a doctor, a specialist has access to all necessary services under a single software interface.<sup>[1]</sup> It will allow the specialist to use all informational databases, an electronic library of medicine, and the programs of the computer aid in decision-making. For example, when choosing a medication for a particular patient, the federal service interaction medicines tell me how drugs interact while receiving, will pay attention to possible side effects and contraindications.

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Configuring the electronic workplace of a doctor, the peculiarities of the case, and federal and international electronic resources, a doctor is a handy tool which allows to extract from the huge flow of background and regulatory information, is exactly what he needs at the moment for setting the correct diagnosis and treatment. In addition, the software package of electronic working place to store all of the required doctor forms that will automatically fill-in with patients' data, print or forward that will significantly reduce the turnover of paper passing through the doctor and increase the time of communication with patients. In turn, the practical experience of every physician and the information contained in his report are the basis of forming a global knowledge base, which allows reference inside interface of the electronic workplace of the doctor, profiled to perform the selection and aggregation of information from various sources to produce the stratification of the selected data. And also to carry out various types of research, to obtain intermediate results, to generate reports according to standard templates, to create and maintain database registers of diseases, and to assist in supporting the medical decision-making.

The register is a system that covers the whole industry in general.<sup>[2]</sup> The register may not be local, it can be the only population which merges into the overall system forms a general dynamic database, allowing you to quickly make decisions by operational and dynamic information for each region, which creates a (merges) with the overall picture.

In electronic, the module uses specialized software view, reconstruction, processing, analysis, and display of medical information through universal medical profiling interface.<sup>[3]</sup> Doctor's workplace also implements the possibility of remote consultation between professionals within hospitals and beyond, for collegial discussion of issues and the analysis of the results of multicenter clinical trials.

An important stage of development profiled desktop is the possibility of video conferencing and interaction between the doctors, without leaving your desktop.<sup>[4]</sup> Through caused by a list of professionals you can contact any of them at any convenient time and thus making the conference all the conference participants will be able to see information and participate in the discussion of the patient, which will significantly speed up the process of information exchange and decision-making.

The concept of the electronic workplace of a doctor delivery system provides for the use of any sources and visualization of medical data by ghosts them to the same standard. Moreover, the use of remote

production facilities, including a cloud service, so no needs to buy expensive equipment and independence from the activities of the terminals. Electronic workplace of a doctor the system of "single window" which allows the efficient use of resources, standardized and profiled medical information for providing immediate and professional activity of the physician, as well as to conduct research activities and to improve their skills through continuous educational process. Implementation of electronic workplace of the doctor in practical activities of medical institutions will improve the quality and availability of medical care at all levels, including primary health care.

## RESULT AND DISCUSSION

In 2014, the medical organization of the Russian Federation was equipped with 839,364 personal electronic computers (PC), 39,959 mobile computers (laptops), and 23,512 units of server equipment.<sup>[5]</sup>

In 2014, the computers for the automation of patients' treatment in medical institutions of the Russian Federation consisted of 554,126 PC, laptop, and server hardware; however, it's 100 medical workers (doctors + nurses) are directly related to the provision of medical services to the population was only 34.7 computer equipment to divisions for assistance in the outpatient setting and 29.0 – stationary conditions [Table 1].

In 2014, in the Russian Federation, indicators of availability of computer equipment for automation of the treatment process at the clinic 1 were 28.1 and 1 hospital - 48.2 computer equipment [Table 2].

The Ministry of health of the Russian Federation issued order No.290H from 02.06.2015 (registered in the Ministry of justice 24.08.2015) "On approval of the standard industry norms of time for performance of works related to one patient visit to paediatrician of the district, the district doctor, a General practitioner (family doctor), neurologist, otolaryngologist, ophthalmologist, and obstetrician-gynecologist." In which established standard time for the patient comes to the doctor in the clinic. We are talking about local doctors (therapists, pediatricians, family) and medical specialists (neurologist, audiologist, ophthalmologist, obstetrician-gynecologist). Time norms are used in the provision of primary medical primary and specialized health care on an outpatient basis, and when visiting a patient a doctor or specialist at home.

The standard time for one visit of doctor-specialist due to illness, are required to perform in the outpatient setting of action for medical assistance (including time for execution of medical documentation):

**Table 1: Provision of medical organizations with computer for the automation of the treatment process in the Federal districts of the Russian Federation on 100 medical workers (doctors+nurses)**

The name of the Federal districts	Availability of 100 medical staff (in %)	
	Units providing care in the outpatient setting	Units aid in stationary conditions
Russian Federation	34.7	29.0
Federal districts		
Central	31.6	31.7
Northwest	39.8	33.4
Southern	28.7	22.6
North-Caucasian	13.3	9.9
Volga	36.7	30.7
Ural	43.8	33.2
Siberian	41.3	29.2
Far East	41.5	32.8
Crimean	3.1	3.5

**Table 2: Provision of medical organizations with computer equipment for the automation of the treatment process in the Federal districts of the Russian Federation on 1 institution**

The name of the Federal districts	Security at 1 institution (%)	
	Units providing care in the outpatient setting	Units aid in stationary conditions
Russian Federation	28.1	48.2
Federal districts		
Central	24.2	62.2
Northwest	32.3	59.0
Southern	19.2	39.4
North-Caucasian	13.3	14.8
Volga	32.3	50.6
Ural	41.6	54.5
Siberian	31.9	40.2
Far East	26.2	37.9
Crimean	3.7	7.5

- The pediatrician district - 15 min;
- Physician-district - 15 min;
- Family doctor - 18 min;
- Neurologist -22 min;
- Physician-otolaryngologist - 16 min;
- Ophthalmologist - 14 min;
- The doctor-obstetrician-gynecologist - 22 min.

The effectiveness of the expenditure of this time is determined not only by the quality of work of the user, design, ease, maturity and performance of the medical information system. It is bad when the user does not possess a fluent typing or does not know how to use a computer. But even worse is when the most popular user actions the system makes long, difficult or inconvenient. Every action – whether the document is opened, the recording and the rest is a certain sequence of events, each of which, in turn, also consumes time.

Evaluating human potential, which today offers our healthcare you can come to the conclusion that the information education will be carried out over a long period and to go contrary to the main priorities of the doctor.<sup>[6]</sup>

This means that the order in the allotted time for documentation may have less action with different

shapes than if it was held in the usual paper form. But still the allotted time is fully spent on nursing documentation time, though is more careful recording, for example, a more detailed description of the patient's complaints, objective status or issued recommendations.

Furthermore, there are absolutely identical methods, as there is similar patients, specific diseases, life history, and many other factors that make up each particular situation.<sup>[7]</sup>

## CONCLUSION

In the study on the automation of medical diagnostic process, the provided computer equipment delivery system can make the following conclusions. The provision of medical organizations with computer equipment in the Russian Federation began to involve not only the automation of the workflow of the departments of statistics, accounting, and human resources Department of a healthcare organization but also the automation of the medical diagnostic process.<sup>[8]</sup>

As showed the analysis equipment of PC per 100 health workers: 34.7 items of equipment in outpatients

in polyclinics and 29 in a stationary, approximately 1/3 of the necessary equipment and were clearly not sufficient.

Equipment computer equipment for the fully automated provision of medical services should approach the rate of 60–80 units/100 health workers.<sup>[9]</sup>

Doctors do not follow the timing regulations. For this, it is advisable to establish methodological recommendations on the organization of provision of medical services by doctors in the workplace.

It is also possible the comparison of expected and actual socio-economic effects of a workplace doctor, to implementation and use, including on the part of citizens. On the one hand the openness and transparency of services, on the other hand, a redistribution of priorities not in favor of the patient, and in favor of the application system. In addition, patient to the standard time of admission reduces the ability of the service consumer - the patient realizes their needs.

Workflow automation, the equipment of the computer delivery system is not quite aimed at improving the quality provided to citizens of medical services.<sup>[10]</sup> It often leads to unjustified increase of the number of used hardware and software solutions, excessive costs, lower effectiveness of the use of information, and communication technologies in the regions.

It is necessary to create a body that ensures coordination, control, estimation of efficiency of actions of participants of the project on introduction of information technologies in health care. Until the equipment is no closer to full staffing of medical organizations, to assess the quality of healthcare organizations is not possible.

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