South-Kazakhstan State Pharmaceutical Academy

Department of «Medical Biophysics and Information Technologies»

SIW

Theme: *Use of multimedia technologies in medicine.*

Written by: Shaimerdenova G.

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Use of multimedia technologies in medicine.

I INTRODUCTION

Each of us repeatedly heard that "the computer can do everything." However, in real life we will not provide convincing evidence of such statements, primarily because we had in mind the potential capabilities of the computer, known mainly to a narrow circle of specialists. The situation has changed significantly with the advent of multimedia technologies that allow us to reveal this potential in the familiar information environment. Now in the world a new stage of computerization of various kinds of activity is observed, caused by the development of multimedia (multimedia) technologies. Graphics, animation, photo, video, sound, text in an interactive mode of operation, an integrated information environment in which the user finds new opportunities.

The widest application of multimedia technology was found in education - from childhood to the elderly and from university audiences to home conditions. Multimedia products are successfully used in various information, demonstration and advertising purposes, the introduction of multimedia in telecommunications has stimulated the rapid growth of new applications. The development of multimedia technologies in the information society is rightly compared in importance with the appearance of cinema in an industrial society. Humanity is experiencing an information revolution. And now we are witnessing how the public need for means of transmitting and displaying information brings to life a new technology, for lack of a

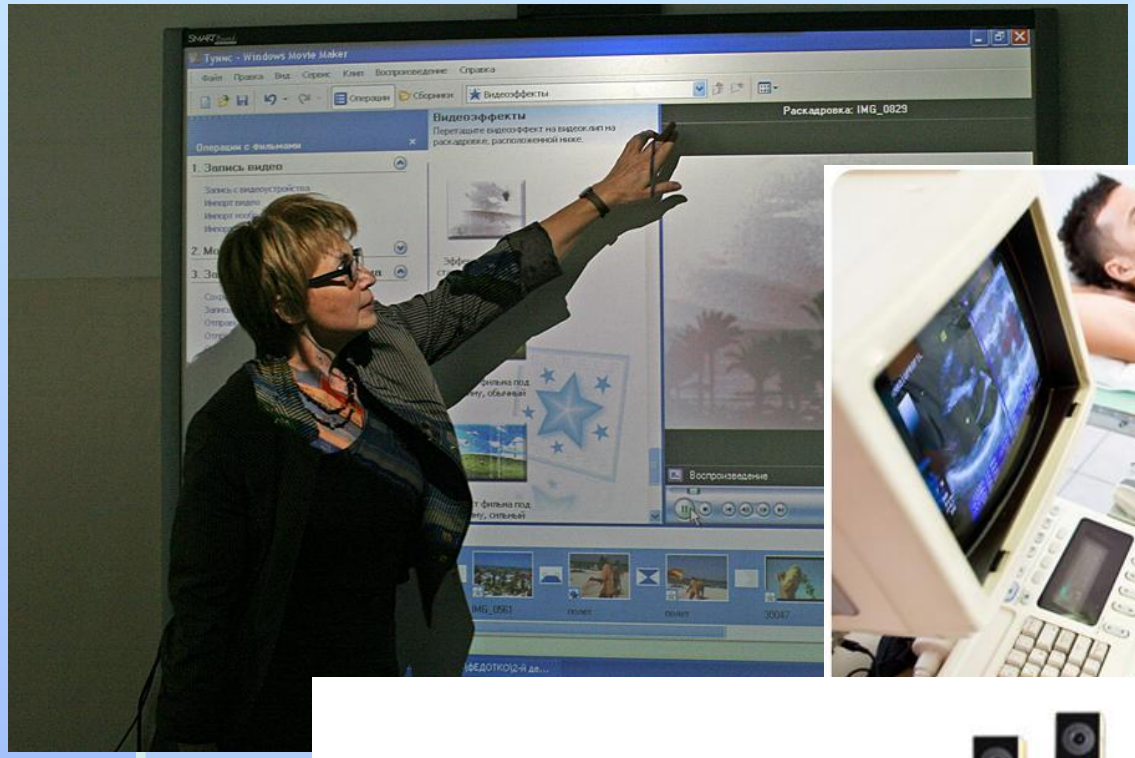
II Main part

History

30 years ago, multimedia was limited to the typewriter "Consul", which not only printed, but could also attract the attention of the sleeping operator with a melodic crackling. A little later, computers were reduced to household appliances, which allowed to collect them in garages and rooms. The invasion of fans gave a new impetus to the development of multimedia (a computer horoscope in 1980, which, with the help of a speaker and a programmable timer, synthesized vague oral threats for every day and moved the animation stars along the screen). Approximately at this time, the term multimedia appeared. Most probably, it served as a screen that fenced off the laboratories from the views of the uninitiated ("What's that you have there ringing." "Yes, this is multimedia.") However, the surge in interest in the late 80's to the use of multimedia technology in the humanitarian areas (and, In particular, in the historical and cultural) is undoubtedly connected with the name of the outstanding American computer technician-businessman Bill Gates, who owns the idea of creating and successfully implementing a multimedia (commercial) product on the basis of the official museum inventory database, using all possible " Media ": images, sound, animation, hypertext system (" National Art Gallery London. ") A critical mass of technology is accumulating: blasters," sidirums "and other evolutionary fruits appear, the Internet, WWW, microelectronics appears. Here we are witnessing how the public need for means of transmitting and displaying information brings to life a new technology, for lack of a more correct term, naming its multimedia. Nowadays this concept can completely replace the computer in almost any context. Multimedia technologies are one of the most promising and popular areas of computer science.

Multimedia is a computer technology that provides the ability to create, store and reproduce heterogeneous information, including text, sound and graphics (including moving images and animations).

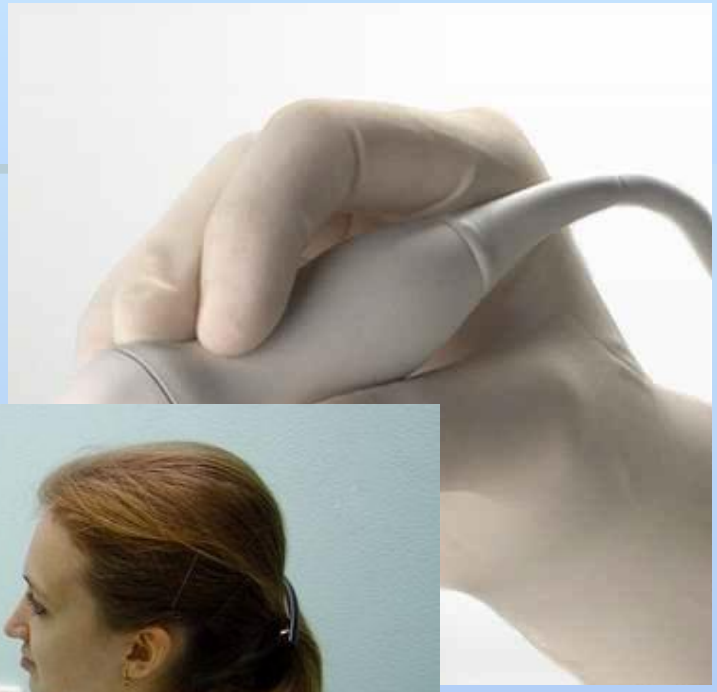
Multimedia finds various applications, including education, medicine, production, science, art and entertainment.



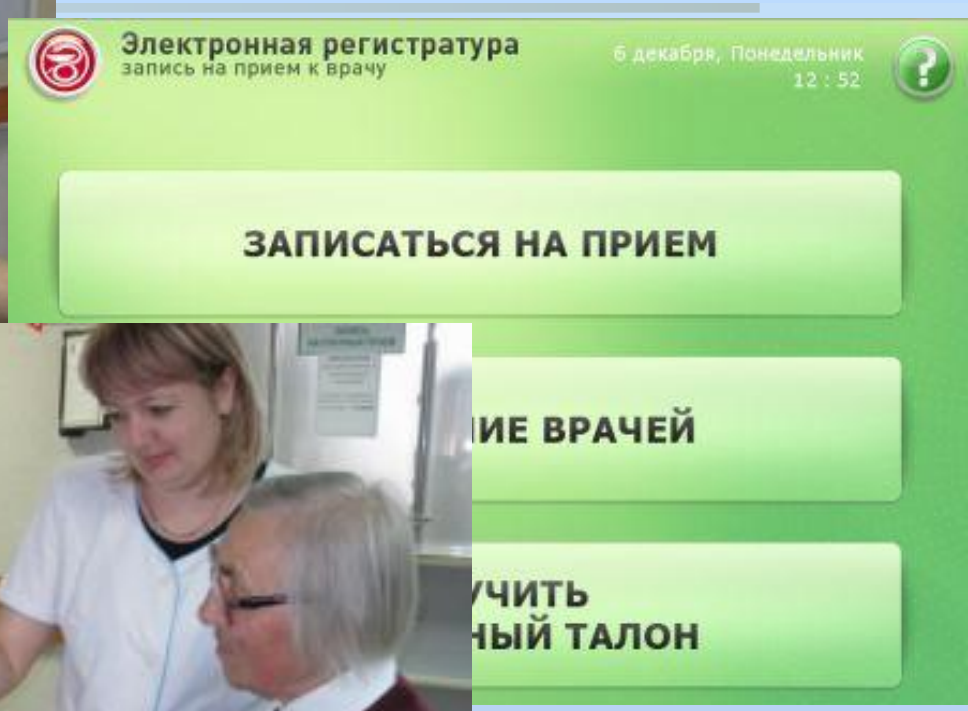
At present, computer technologies have qualitatively changed many aspects of the life of modern society. In medicine, computer technologies have found application in medical diagnostic activities (computer and magnetic resonance imaging, ultrasonic dopplerography), organization of medical services (electronic queue for specialists, accounting and analysis of medical institutions, medical documentation), and as an element Training and transfer of experience (teleconferences, teleconferences, live broadcasts and video seminars)

Computer and magnetic resonance imaging is a tomographic method for examining internal organs and tissues

Ultrasound (ultrasound) - examination of organs and tissues with the help of ultrasonic waves.



An electronic queue is a software and hardware complex that allows you to formalize and optimize the flow of visitors. The main goal of the electronic queue system is targeted referral of visitors within the organization and obtaining information about the most popular services, the time of their delivery.

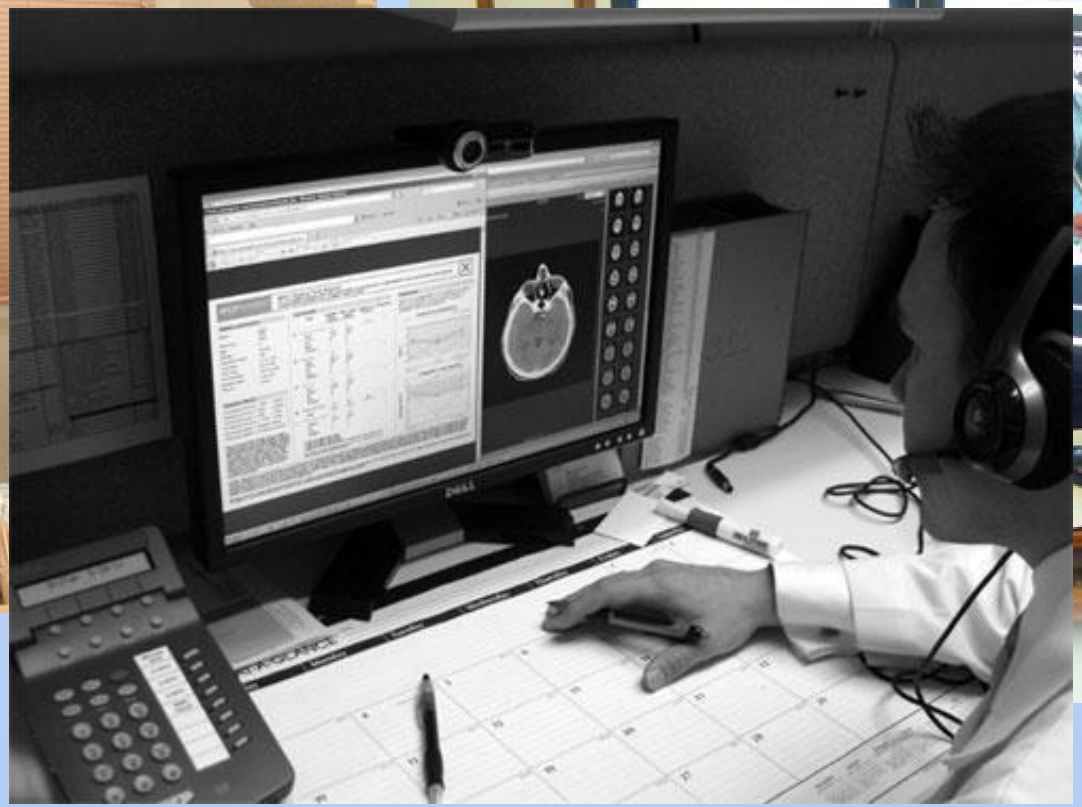


Teleconferences and Tele-conceptions

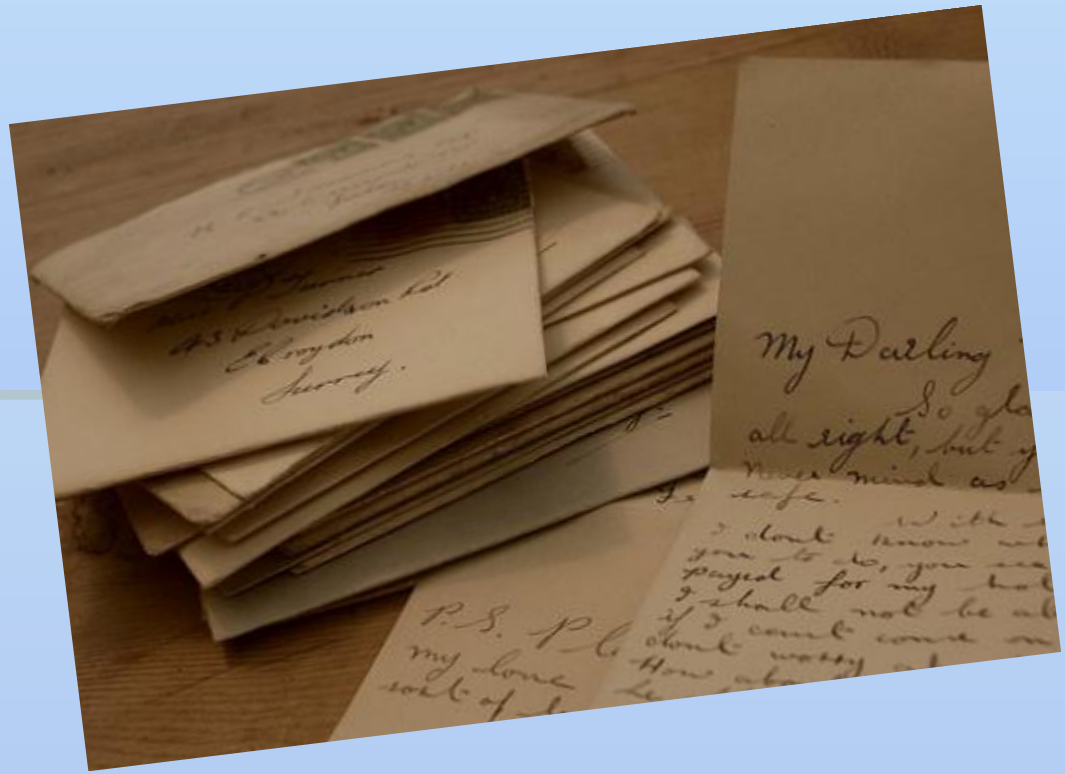
Tele-conceptions are a meeting of several scientists of one or several specialties, whose members are territorially removed from each other and which is carried out using telecommunication means. The consultation may be necessary to establish the health status of the examinee, the diagnosis, the determination of the prognosis, the tactics of further examination and treatment

Telemedicine

Currently, the term "telemedicine" refers to the remote provision of medical assistance and the provision of medical services through computer and telecommunication technologies. In each historical period, the most advanced and advanced technologies were used for telemedicine purposes. The development of remote delivery of medical care and services is based on the progress of telecommunications. Thus, the history of telemedicine can be represented as a succession of stages of progress in the means of communication and the remote exchange of information.

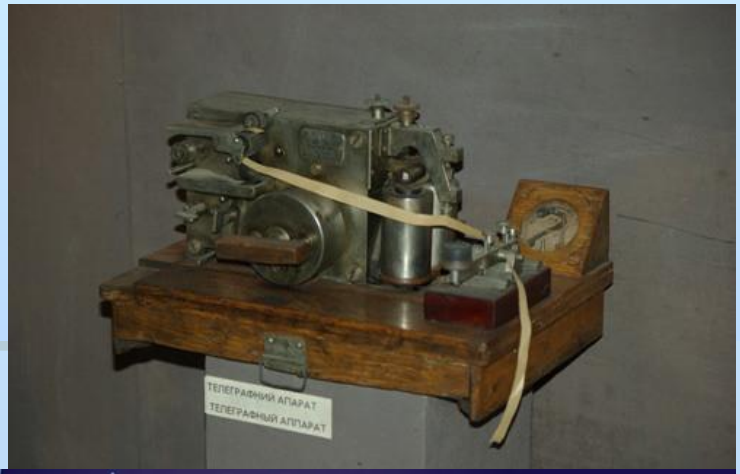


In the history of telemedicine, some scholars singled out "pre- Electric "period, when the exchange of paper correspondence Was used for prescription, diagnosis; also, Describes the use of smoke signals for Epidemics, etc. However, telemedicine is still effective Instrument of the health care system and clinical medicine - inseparably Related to electrical, electrical and electronic technologies.



Periodization of telemedicine development by technological types of telecommunications:

- *Telegraph;*
-*radio;*
-*telephone;*
-*television (cable, wireless);*
-*satellite communication;*
-*computer networks, the Internet;*
-*Wireless networks and protocols.*



The main directions of telemedicine:

Telemedicine consultations

Tele-education

Translation of surgical operations

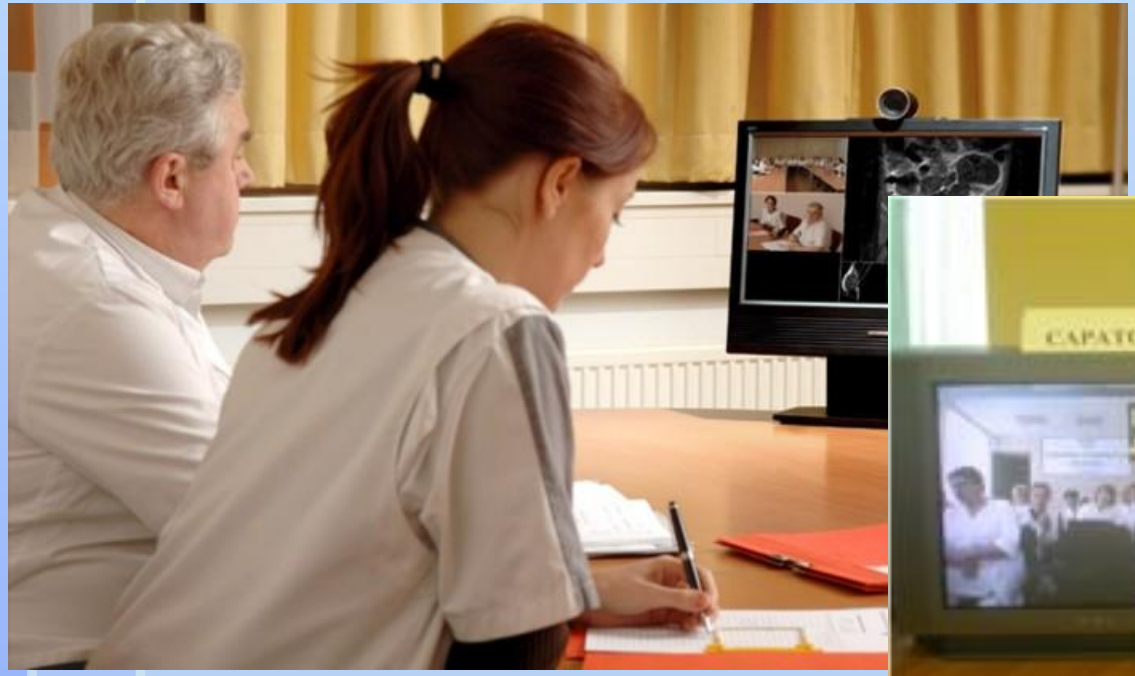
Mobile telemedicine complexes

Systems of remote biomonitoring

Home Telemedicine

Telemedicine consultations

Telemedicine consultations are carried out by the transfer of medical information through telecommunication channels. Consultations can be held both in "deferred" mode and in real time.



Deferred teleconsultations

This is the cheapest and easiest way to organize a consultation at a distance by sending medical information via e-mail. It is not suitable for emergencies, but it is low-cost and very effective with proper organizational support of the process.

Consultations in real time

A telemedicine system that provides real-time advice. These consultations are more demanding for technical equipment, they are conducted using broadband communication channels and video equipment. There are scheduled, emergency video consultations and video conferencing. In all these cases, direct communication between the counselor and the attending physician is provided. Most often, such consultations are conducted with the participation of the patient.

Telemedicine systems allow you to organize a dialogue with an expert physician (videoconference) at any distance and transfer practically all the medical information necessary for a qualified conclusion (extracts from the medical history, X-rays, computer tomograms, ultrasound images, etc.).

Tele-education

Conducting lectures, video seminars, conferences using telecommunications equipment. During such lectures the teacher can have an interactive contact with the audience. Lectures, like video consultations, can take place in multipoint mode, so the lecture can be read immediately for listeners from several regions.

Translation of surgical operations

The use of network cameras allows organizing the translation of a surgical operation.

Mobile telemedicine complexes

Mobile telemedicine complexes are being developed for work at the accident sites. Small-sized mobile diagnostic complexes can be used in the absence of telemedicine cabinets and centers, directly there where there was a necessity. By these means, it is advisable to equip ambulances, family doctors, district and rural hospitals. The modern mobile telemedicine complex combines a powerful computer that is easily interfaced with a variety of medical equipment, short-range and long-range wireless communications, video conferencing facilities and IP broadcasts.

Systems of remote biomonitoring

Tele-medical dynamic monitoring systems are used to monitor patients suffering from chronic diseases, as well as at industrial facilities to monitor workers' health (for example, operators at nuclear power plants). The direction of development of such systems is the integration of sensors into clothing, various accessories, mobile phones. For example, a vest with a set of biosensors that record ECG, blood pressure and a number of other parameters, or a mobile phone with the ability to register an ECG and send it via GPRS to a medical center, as well as the ability to determine a person's coordinates in the event of a life threat.

Home Telemedicine

This is the remote provision of medical care to a patient undergoing treatment at home. Special telemedicine equipment collects and transmits the patient's medical data from his home to a remote telemedicine center for further processing by specialists. This is important, for example, for patients with heart failure who need regular and frequent examinations. Complexes including sensors that measure body temperature, blood pressure, ECG and respiratory functions are connected to a desktop monitor, which in turn automatically sends data to the telemedicine center.

Find the words

p	i	j	a	m	a	r	m	t	e	x	t	c
p	a	z	l	t	e	l	e	p	h	o	n	e
a	p	u	t	r	u	e	d	c	t	r	a	s
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t	i	m	a	g	n	e	t	i	c	u	p	s
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Modern life is hard to imagine without multimedia. Multimedia technologies are used daily by tens of thousands of people. Today, it is almost impossible to overestimate the importance of these technologies. This is due to the fact that multimedia technologies are getting more and more active every day in all spheres of life. The main advantage of using them is that thanks to them for us new opportunities are opened, before that you could only dream about.

The development of multimedia has been going on for several decades and it is impossible to predict what the same interactive whiteboard will look like and whether it will exist at all or it will be replaced by something more perfect.

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