First cybernetics’ institutes appeared in 1950s in our country. First computers were giant calculation machines what worked on the base of vacuum tubes and punch cards and were requiring a huge space, amount of electricity and staff to keep working, so medical establishments couldn’t afford those machines and were obliged to rent some computing time in special centers and institutes for their tasks’ resolution. Those tasks were mainly in field of processing of big data massives, statistics and first experimental attempts to automatize the diagnostic process. The first medical establishment which could organize their own cybernetics laboratory, was the National Medical Surgery institute named after A.V. Vishnevsky, in 1959. In 1960-1970s such laboratories and centers spreaded more widely across the country, became more available for medical sphere workers, the specter of their functions expanded: now these centers work not only in field of statistics, but explore new directions in this sphere such as telemedicine (on Earth and in space). The first experiments in distant diagnostics were made in A.V. Vishnevsky institute of surgery. Consultative diagnostics and disease progressing prediction also developed that time. These directions are still new scientific frontier even in XXI century.

Now medical practitioners have to rely on computers heavily in order to be efficient and successful in their profession. Exchange of medical information among the medical professionals has become a common thing now. With the help of computers they are able to share valuable information with a high level of confidentiality. Modern trends in medical informatics today are mainly similar to directions that were discovered in 1960s. It’s telemedicine, big data processing, automatization of the diagnostic and predictive work. The telemedicine signifies the use of ICT to improve patient’s outcomes by increasing access to care and medical information (the WHO definition) [1]. A top of telemedicine in future will be a robotic surgery with the remote control from another hospital (there is the first Russian surgical robot, which was presented in Moscow, 2017. In some characteristics it exceeds its American analog, da Vinchi). An automatization of the diagnostic work is now realized in self-examination terminals in rheumatological hospital departments, for example. The symptoms chosen by patient in the terminal are degreeed in DAS28 scale and putted into his medical card in real-time mode, that saves doctor’s time. Lack of time for management of patients because of filling dozens of forms and documents is going to stay only in past. An artificial intelligence now can analyze a visual medical information and make conclusions. For example in some rheumatological clinics the immunofluorescent samples are analused and a provisional diagnosis is established by a special program. The next challenge for the medical IT at the dawn of a new century is a data safety. There are a lot of precedents of hacker attacks in medical establishments to steal some data in order to get money. There are even life-threatening accidents, for example Tyumen, summer 2018, where hackers turned off all the equipment in surgery during the neurosurgical operation but patient lived only because of doctor’s medical skills. Of course, in future anti-hacker protection in medicine will be akin to antiterroristic protection.

In conclusion I would like to say that a technology now determines healthcare development more than anything else and in future it will continue to develop in dramatic ways. Its development doesn’t seem predictable. Some occupations and fields will go extinct, some of them will appear. But people will never stop need medicine and doctors, it’s indispensable.

References:
1. [Internet recourse]
not only in medicine, but also be skillful in engineering, biochemistry, biology, technology and so on.

Nowadays telemedicine is successfully developing in Russia. This year the project «Electronic medical card » get started [3].

Electronic medical card is a set of personal medical records relating to one person, collected, stored and used within one medical organization. This is an analogue of a paper version of case report, access to which is available only to the doctor and the patient. It includes personal data, information about vaccinations, blood type, rhesus, earlier diseases, previous appointments, the results of analyses, ultrasound and x-ray examinations. By 2020 60% of polyclinics and hospitals in Russia will have used electronic medical cards. Different on-line consultations today are hold in and out of clinics and hospitals. It also became possible to make a distant concilium with the best specialists. Due to these modern technologies medicine in Russia stepped far forward.

Surgeons of leading medical centers in our country do operations with the help of robots making small incisions. It is very important for patients because of minimal influence on tissues, for example, during brain operations.

Intravascular surgery of cervical, coronary and brain vessels is also successful due to modern X-ray equipment. Doctors remove blood clots and put stents inside different vessels making little snips. In some cases these operations give the only chance to save patients’ lives.

Genetic and tissues engineering specialists also achieved a lot. The goal of tissue engineering is to assemble functional constructs that restore, maintain, or improve damaged tissues or whole organs. Artificial skin and cartilage are examples of engineered tissues today [1, c.152].

Now medical genetics is progressing in making research of role of inheritance and variation in genesis of hereditary diseases and different pathologies. It is possible to reveal genes which predispose osteoporosis, coronary heart disease, benign prostatic hyperplasia, diabetes, asthma. Also different oncogenes have been identified. Making a genetic analysis allow specialists to prevent numerous pathologies and make a genome editing.

Alexander Maximovs’ scientific work about stem cells in 1909 gave a start for developing of cell-technologies [2, c.53-57].

5. I will not be ashamed to say "I know not," nor will I fail to call in my colleagues when the skills of another are needed for a patient's recovery.

6. I will respect the privacy of my patients, for their problems are not disclosed to me that the world may know. Most especially must I tread with care in matters of life and death. If it is given me to save a life, all thanks. But it may also be within my power to take a life; this awesome responsibility must be faced with great humbleness and awareness of my own frailty. Above all, I must not play at God.

7. I will remember that I do not treat a fever chart, a cancerous growth, but a sick human being, whose illness may affect the person's family and economic stability. My responsibility includes these related problems, if I am to care adequately for the sick.

8. I will prevent disease whenever I can, for prevention is preferable to cure.

9. I will remember that I remain a member of society, with special obligations to all my fellow human beings, those sounds of mind and body as well as the infirm.

10. If I do not violate this oath, may I enjoy life and art, respected while I live and remembered with affection thereafter. May I always act so as to preserve the finest traditions of my calling and may I long experience the joy of healing those who seek my help [4].

References:
3. [Internet-resource] https://finapp.co.in/salary-mbbs-doctors/ (Date:12.11.2018).