ARTIFICIAL INTELLIGENCE IN HEALTHCARE

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Abstract. This article looks at the role of intelligence in healthcare today. During the study, we found out how artificial intelligence can help with services like preventing diseases treating patients and making personalized medicine. We also talked about the things about artificial intelligence and some problems that come up when we use it like keeping patient data safe, high costs and not having enough experts. The study shows that artificial intelligence is an important tool for making the healthcare system better. We need to solve some technological and ethical problems so we can use it well.

Key words: intelligence, healthcare, medical technologies, individual treatments, medical system, data analysis.

Аннотация. В данной статье рассматривается роль искусственного интеллекта в современном здравоохранении. В ходе исследования мы выяснили, как искусственный интеллект может помочь в таких услугах, как профилактика заболеваний, лечение пациентов и персонализированная медицина. Мы также обсудили аспекты искусственного интеллекта и некоторые проблемы, возникающие при его использовании, такие как обеспечение безопасности данных пациентов, высокие затраты и нехватка экспертов. Исследование показывает, что искусственный интеллект является важным инструментом для улучшения системы здравоохранения. Нам необходимо решить ряд технологических и этических проблем, чтобы эффективно его использовать.

Ключевые слова: интеллект, здравоохранение, медицинские технологии, индивидуальное лечение, медицинская система, анализ данных.

Annotatsiya. Ushbu maqolada bugungi kunda sog'liqni saqlashda intellektning roli ko'rib chiqiladi. Tadqiqot davomida biz sun'iy intellekt kasalliklarning oldini olish, bemorlarni davolash va shaxsiylashtirilgan tibbiyotni yaratish kabi xizmatlarga qanday yordam berishi mumkinligini aniqladik. Shuningdek, biz sun'iy intellekt va undan foydalanganda yuzaga keladigan ba'zi muammolar, masalan, bemorlar ma'lumotlarini xavfsiz saqlash, yuqori xarajatlar va yetarli mutaxassislarning yo'qligi haqida gaplashdik. Tadqiqot shuni ko'rsatadiki, sun'iy intellekt sog'liqni saqlash tizimini yaxshilash uchun muhim vositadir. Undan yaxshi foydalanishimiz uchun ba'zi texnologik va axloqiy muammolarni hal qilishimiz kerak.

Kalit so'zlar: intellekt, sog'liqni saqlash, tibbiy texnologiyalar, individual davolash usullari, tibbiy tizim, ma'lumotlarni tahlil qilish.

Introduction. In the few years, artificial intelligence has been growing fast and is being used in all parts of our lives. In healthcare artificial intelligence is becoming very important. It helps with things like preventing diseases, treating patients one on one, finding diseases early and making treatment better. In the way of doing medicine, doctors make decisions based on what they know and what they can do. Now artificial intelligence is helping doctors

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by analyzing images like X-rays, MRI and ultrasound. It does this faster and more accurately than humans. There are also problems in healthcare like not having doctors and nurses and more patients. Artificial intelligence can help solve these problems. The main goal of this article is to look at how important artificial intelligence’s in healthcare what it can do for people and what problems it can cause.

Method. We did a high-level analysis for this study. We looked at articles from 2018 to 2024 reports from international organizations and information about medical technologies (Jiang et al., 2017).

We got our information from these places:

- Technology journals
- Reports from international health organizations
- Research from technology companies

We paid special attention to these areas:

1. Treating patients one on one
2. How artificial intelligence helps with diagnosing diseases
3. Finding diseases
4. How artificial intelligence helps with managing services
5. Problems and limitations

We looked at the data times compared it and drew some general conclusions. In addition, specific examples of the practical application of artificial intelligence were analyzed.In particular, such areas as medical image processing, patient monitoring, disease prediction, and individualization of treatment were studied separately.

Data were collected from various sources and sorted taking into account their reliability and relevance. The results obtained were logically analyzed and general conclusions were drawn. At the same time, the effectiveness of artificial intelligence systems was assessed based on a comparative analysis with human activity. The study used a multi-stage learning method as a research methodology. At the first stage, the activities of scientific programs and platforms based on artificial intelligence were studied. At the second stage, real-life results were compared. The use of intelligence in the health care system is analyzed on the example of different countries. This is driven by global technology trends. Research studies, statistical studies and logical reasoning methods.

In addition, theoretical models were also considered to implement the mechanism of operation of some artificial intelligence systems. This gave a deeper understanding of the topic.

Result. Our study shows that artificial intelligence has been very effective in areas of healthcare and has made some positive changes. First, it has helped doctors diagnose diseases accurately. Machine intelligence can look at images and give accurate information. For example, it can detect skin cancer well as a dermatologist (Esteva et al., 2017). Second, it can help find diseases early. Computer intelligence can look at a lot of data and find risk factors. This helps prevent diseases like heart disease, cancer and diabetes. Third, it has helped make treatment more personal. Artificial intelligence looks at a patients genes, lifestyle and medical history. Makes a treatment plan just for them. Fourth, it has made managing healthcare more efficient. For example, it helps with waiting lists giving out resources and keeping documents. Fifth, it has helped make new medicines faster. Synthetic intelligence can test new medicines quickly and easily. This saves time and money. We should know that intelligent systems can also cause some problems in healthcare. For example, it can make doctors and nurses worry about their jobs. It can also make them less active and more lonely

which can cause physical problems (Northwestern Med J. 2025). At the same time, some studies show that artificial intelligence systems demonstrate higher accuracy and speed than human experts in certain tasks. The analysis revealed that artificial intelligence is working effectively at various levels of the healthcare system. One of the most important aspects is the ability to predict diseases. AI systems can study the previous medical history of patients and provide early warning of possible future diseases.

Another important result is the development of remote medical services. With the help of artificial intelligence, patients are constantly monitored and have the opportunity to receive advice without having to meet a doctor in person.

Discussion. Our results show that artificial intelligence is changing healthcare in a way. One of the things about artificial intelligence is that it can look at data quickly and accurately. This helps doctors make decisions and treat patients. We need to be careful when using artificial intelligence. Especially when it comes to data. We need to make sure it is safe and private (Northwestern Med J. 2025). Another important thing is that artificial intelligence should help doctors not replace them. So artificial intelligence and humans working together is the way.

I think we should do research on these problems. Like:

- Making artificial intelligence algorithms transparent
- Protecting patient data
- Training doctors to use artificial intelligence
- Making artificial intelligence more available and affordable

In addition, the creation and implementation of artificial intelligence systems requires significant financial resources.

This may limit the widespread use of these technologies in some developing countries. Another important aspect is the issue of training specialists. The lack of qualified personnel who can work with AI also remains a problem.

Ethical and legal issues also play an important role. For example, the question of who is responsible in the event of an incorrect diagnosis still does not have a clear solution. Therefore, it is advisable to develop artificial intelligence not as an independent decision-making system, but as an auxiliary tool supporting the activities of doctors.

In general, cognitive computing is one of the important factors shaping the future of the healthcare system, and its correct and rational implementation can achieve significant results in protecting human health.

Conclusion. In the end, artificial intelligence is very good for medicine. It helps doctors diagnose diseases accurately makes treatment, more personal and makes healthcare more efficient. We need to solve some technological, ethical and organizational problems before we can use it fully. Smart technology will definitely be a part of healthcare in the future but it will only be really effective if we use it with human thinking and experience.

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