

Слайд 1

The world is changing and healthcare is forced to change too (despite its conservatory). The world's population continues to grow. And Every person is a potential healthcare client. So the demand for healthcare is growing. And the lack of a qualifier workers increases too.

Also, the aging of the population continues in many countries. Elder patients are changing the expectations and the specifics of medical services.

In addition, people improve their ~~attitude to~~ lifestyle, they are more sensible to their health and want to have opportunity to monitor its condition.

At the same time, medical services contain a lot of administrative routine, repetitive work that can be optimized.

These factors create the potential to increase the efficiency by automation, digitalization, and the deployment of AI in various parts of healthcare.

Слайд 2

AI is a very hype topic and it is not always clear what is AI and what should it do?

The main goal of AI is to increase the quality, availability, and quantity of medical services.

Usually, AI methods are used in applications and tools in medicine for the several tasks:

- To improve healthcare operations by optimizing scheduling or bed management
- To improve population health by predicting the risk of hospital admission or helping early detect cancers
- for Diagnostic tools, that covers different deep learning practice like natural language processing (NLP), image analysis, and predictive analytics based on machine learning
- Tools for optimization healthcare research and development also monitoring the effects of medical drugs.

The medical software market is growing rapidly and the top 50 medical AI-affiliated companies have received \$8.5 billion investments in 2019.

But generally, AI is solution encoded by clinical guidelines or existing clinical protocols by a rules-based system and improved by data-based models.

Слайд 3

So medical part of work has already done base but AI need a data. Each patient and each person generate a large amount of medical data every day and it should to be collected and stored, which requires a lot of resources and specialists. Today, data sets are not linked to each other, it has poor governance, and problems with access.

So Important conditions for AI to deliver its full potential healthcare will be the integration of different databases across organizations, strong governance to improve data quality, and greater confidence from organizations, doctors, and patients and the ability to manage the related risks.

In this case Data architects and data engineers will have significant role in defining how to record, store, structure and share clinical data so that algorithms can be useful for doctors.

Слайд 4

The interaction between doctors, medical management, data scientists and artificial intelligence specialists is an important factor for successful implementation of AI in workflows. And human-machine interactions should be well-designed to accelerate the digitalization process.

There are three phases implementation of AI:

1. Solutions address routine, repetitive and largely administrative tasks, optimizing healthcare operations, that should increase adoption of AI.
2. Solutions shift from hospital-based to home-based care, such as remote monitoring, AI-powered alerting systems, or virtual assistants, to increase ownership of their care.
3. AI solutions in clinical practice based on evidence from clinical trials, with increasing focus on improved and scaled clinical decision-support (CDS) tools.

The introduction of AI in medical services will reorganize the field and reduce simple labor-intensive tasks. New skills and competencies should be mastered by medical workers, therefore, to work effectively with AI, medical education should be updated and interdisciplinary specialists should be added to workflow.

And cybersecurity, data protection and encryption are important topics that need high-classes specialists, because potential medical data leaks will cause huge damage to patients and healthcare systems. And security issues still needing to be clarified.