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REVIEW OF EARLY WARNING SYSTEMS TO PREVENT NEW PANDEMICS BASED ON THE EXPERIENCE OF THE COVID-19 PANDEMIC

ОГЛЯД СИСТЕМ РАННЬОГО ПОПЕРЕДЖЕННЯ ДЛЯ ЗАПОБІГАННЯ НОВИМ ПАНДЕМІЯМ НА ОСНОВІ ДОСВІДУ ПАНДЕМІЇ COVID-19

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The COVID-19 pandemic has revealed the lack of preparedness of healthcare systems at the global level to the challenges associated with the emergence of modern pandemics, as well as at the level of national systems and specialized international organizations. This required the adoption of new decisions at all levels.

The challenges caused by the COVID-19 pandemic in Ukraine coincided with the process of active reform of the national healthcare system, including the transformation of its organizational and financial foundations. The response to these challenges required additional organized efforts on the part of state authorities, in particular the top political leadership, the professional community and the economically active population, as well as the adoption of a new regulatory framework and the organization of the transition of the economy and the quarantine rails.

The purpose of the study is to analyze the early warning and situation monitoring systems that were used to counteract the spread of the COVID-19 pandemic.

The study applied the bibliosemantic method. A systematic approach was also used and scientific materials were analyzed in the context of general trends and relationships within the framework of the problem under study.

To assess the current situation and predict the spread of COVID-19, mathematical models were used that took into account various parameters, such as the number of infected people, intervention measures, other social and medical factors [1, 2, 3].

During the COVID-19 pandemic, monitoring information systems were actively used to track real-world data at the global level, including interactive maps and databases with information on infected people, testing statistics, the number of deaths, etc. [4,5].

Mobile applications were developed for the contact tracing system to notify potential contacts of possible infection [6] and for training, information sharing, risk assessment, symptom control [7].

Mobile applications played an important role in directing people to testing centers and tracking the health status and movements of travelers and other people who may be at risk of infection [8].

The use of artificial intelligence (AI) technologies to contain the COVID-19 pandemic was of great importance, as AI allows for the rapid processing of large amounts of data, reducing the burden on medical personnel. The integration of AI in areas such as forecasting, diagnostics, and vaccine development has become an important tool in the fight against it [9].

The use of mathematical models to predict the spread of the disease, the use of mobile applications for contact tracing, and the active implementation of AI technologies have become important tools in the fight against the pandemic, increasing the efficiency of the health system and reducing the burden on medical workers.

The experience of the COVID-19 pandemic has highlighted the need to create effective early warning systems that integrate advanced technologies for monitoring and analyzing global health threats, allowing for the rapid detection of new pathogens and preventing their spread through rapid response at the stage of outbreaks.

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