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INTRODUCTION OF INNOVATIVE TECHNOLOGIES IN THE VETERINARY MEDICINE IN KAZAKHSTAN

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Today, people can hardly imagine their life without modern technologies. For example, it is almost impossible to go outside without a mobile phone or MP3 player. These devices have become an important part of our lives. Moreover, almost every day, either a new technology is invented or an old one is improved. To stay up to date, people keep buying new products. Soon, our homes and workplaces will look like electronic stores.

Technology is all around us. First of all, we need it for our work. All modern offices are equipped with computers, scanners, printers and other useful machines. One of the most important devices today is a Wi-Fi modem, as it provides Internet access. Second, technology surrounds us at home, in cars, and everywhere. There are televisions, radios, refrigerators, vacuum cleaners, washing machines, CD players, e-books, cameras and much more. Perhaps the most important thing about technological progress is that it allows us to do many things that would not be possible without it. For example, we can communicate with friends from other countries using computers. We can even see them and have a live conversation.[1]

The use of technology has also provided better care results – not only for pets, but also for their owners. In Kazakhstan, the following technologies will be used in the field of veterinary medicine in the future

Over the past decade or so, veterinary medicine has undergone many changes in terms of diagnosis, treatment, and care. MRI (Magnetic resonance imaging), ultrasound scanning, and laparoscopy, which were used exclusively on humans, are now the norm for treating pets and other animals. This is followed by digital radiographs, which replace X-ray films for digital communication, thorough evaluation, and effective treatment. Digital dental X-rays and state-of-the-art oral surgery tools also follow this pattern, allowing veterinarians to improve oral health in pets. The new inventions also address pet health issues not only in clinics, but also on a comprehensive basis for prevention and improved care. This is the technology that is being used in our country in the future. .[1]

1. Wearable devices

Wearable devices for animals are increasingly being used to monitor animal health. These devices, which capture vital statistics such as body temperature, heart

rate, respiratory rate, pH level, etc., help keep a pet's health under constant review. Such devices also improve diagnosis and lead to better, faster, and more accurate treatment. .[2]

Surgical procedures using minimally invasive methods can now be performed on almost any part of the pet's body, including the heart and other internal organs. This technology dramatically reduces the postoperative recovery time of pets and helps them return to normal life as soon as possible.

2. 3D printing

3D printing is extremely beneficial in surgical procedures for animals. The technology provides veterinarians with almost real information about the internal bone and muscle structures of the animal that is going to operate. This facilitates rapid prototyping, which helps to create models of animal bones based on information collected using computed tomography. Such achievements are also a boon for pet owners, as they help them learn the anatomy and physiology of their pet. 3D printing technology is also widely used to make specially designed prosthetics for animals, which are usually difficult to find or obtain. .[2]

Also, with modern technologies in veterinary medicine, there are new methods of treatment.

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Other advances in veterinary medicine include the detection of microchip fractures in bone fractures, surgical monitoring devices, corrective laser eye surgeries, an oral pill chamber that receives 360-degree internal images when swallowed, and so on.

Advances in technology have helped not only veterinary medicines, but also veterinary practice. veterinary computer programs, while not new to the market, got a facelift when most software vendors moved to the cloud. There are many advantages here.

In the veterinary practice, the usual modern technologies are used. Let's find out their benefits in agriculture: .[3]

1. Easy access: When patient data and medical records are stored in the cloud, veterinarians can access them at the touch of a button from any Internet-enabled device. This becomes extremely important when medical records need to be available on the go or during an emergency.

2. Better cooperation: Pet care requires teamwork. Electronic medical records stored in the cloud allow all team members to access and work with the latest data, even if they are distributed across different locations or time zones. New veterinary practice management software allows clinics and hospitals to directly access the results of diagnostic laboratories, which significantly reduces treatment time and makes life easier for pet owners. This exchange of information over the Internet also increases the effectiveness of treatment and reduces the likelihood of medical error. .[4]

3. **Secure Data:** Data stored in the cloud-based veterinary practice management software is stored, backed up, and restored in a remote location, thus preventing theft or damage due to equipment failures, disasters, etc.

4. **Cost-effective:** Cloud-based practice management software saves veterinarians time, effort, and money spent on servers, program installations, updates, or field consultants. Most systems offer flexible pricing plans that match the size and needs of the practice, which also results in a faster and better return on investment.

Computer software systems, advanced medical technologies, and advanced web marketing strategies are driving the global veterinary services market, which is currently poised to reach \$ 200 billion in 2020. Thus, the introduction of new technologies in veterinary medicine, as well as in veterinary practice, becomes necessary for veterinarians, clinics and hospitals seeking to expand their practice.

The biggest problems in agriculture are infectious diseases in animals. Infectious diseases are diseases that have a specific pathogen and may be transmitted between animals or from an animal to a person and back. It is very important to detect the infection process in time, start treatment, and prevent the spread of the disease.

The fight against infectious diseases requires modern solutions. To do this, we will use the translation method in the future. [4]

Translation-protein synthesis in the cytoplasm on ribosomes according to the information available on i-RNA. The translation process consists of initiation (the beginning of the synthesis from the start codon AUG), elongation (build-up of the protein molecule) and termination (the end of the synthesis is determined by the codons-UAA, UAG or UGA). The aim of the research was to study the dynamics of DNA transformation of VNK-21/2-17 cells during the reproduction of FMD virus in them. It was noted that the destruction of the main cell population coincided with the increase in apoptic cells and the amount of detritus. 3 h after infection of the cell culture, an increase in apoptosis and debris, a 17-21% decrease in the G1 phase, and a 2.3-fold increase in multinucleated cells were observed. After 7 hours, cell death increased dramatically. It was revealed that at all stages of FMD virus cultivation, the diploid cell form-G1(2n), which was the basis for virus reproduction, prevailed in the suspension cell line VNK-21/2 – 17. Cells in the synthetic (S), G2, and M-phases were less susceptible to the virus. Flow cytometry made it possible to determine the quantitative parameters of the phases of the cell cycle during reproduction in FMD virus cells. A comparison was also made between these phases, the viability of the cell culture, and the dynamics of virus reproduction. Studies of the cytopathic effect of FMD virus in the cells of VNK-21/2-17 have shown that one of the ways to optimize the production of culture vaccines can be the use of a proliferation inhibition factor at a certain phase of the cell cycle. [5]

The field of the latest technologies and methods has also come to veterinary medicine. Agriculture needs an industrial and reliable means to protect animals and resources. Modern technology of veterinary medicine can effectively and

comfortably solve all the problems of animal diseases. The environment is our wealth, and it must be protected at all costs. This is the goal of humanity!

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