

zunehmend in englischer Sprache unterrichtet.

Die komparative Analyse verdeutlicht, dass die Schweiz die Sprachkompetenz als organischen Bestandteil der akademischen Identität betrachtet, während die Ukraine den Fremdsprachenerwerb як стратегisches Integrationsinstrument forciert.

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THE ROLE OF ARTIFICIAL INTELLIGENCE IN ENHANCING ONE HEALTH SURVEILLANCE OF ZOOONOTIC DISEASES IN UKRAINE: OPPORTUNITIES AND CHALLENGES

У статті розглянуто роль штучного інтелекту в посиленні моніторингу зоонозних захворювань у рамках підходу One Health в умовах України. Проаналізовано сучасні застосування AI для раннього виявлення спалахів, прогнозування ризиків та інтеграції даних з ветеринарних, медичних і екологічних джерел.

Ключові слова: *штучний інтелект, «Єдине здоров'я», зоонозні захворювання, епідеміологія за захворюваннями, Україна, прогнозне моделювання, біобезпека, ветеринарна медицина.*

The article examines the role of artificial intelligence in strengthening the monitoring of zoonotic diseases within the One Health approach in Ukraine. It analyzes current AI applications for the early detection of outbreaks, risk forecasting, and the integration of data from veterinary, medical, and environmental sources.

Keywords: *artificial intelligence, One Health, zoonotic diseases, disease surveillance, Ukraine, predictive modeling, biosecurity, veterinary medicine.*

The One Health approach, which integrates human, animal, and environmental health, is increasingly critical in Ukraine amid ongoing challenges such as armed conflict, climate change, disrupted surveillance systems, and persistent zoonotic threats. Priority diseases identified through CDC/FAO multisectoral workshops (2024) include tularemia (*Francisella tularensis*), zoonotic avian influenza (Influenza A viruses), rabies (Rabies virus), anthrax (*Bacillus anthracis*), Crimean-Congo hemorrhagic fever, salmonellosis, hantavirus infection, trichinellosis and others [1]. These pathogens pose heightened risks due to war-related population displacement, damaged infrastructure, and potential environmental contamination.

Artificial intelligence (AI) offers transformative potential for early detection, predictive

modeling, and multisectoral surveillance of zoonoses. This paper reviews current AI applications in veterinary and public health surveillance: machine learning algorithms (e.g., LSTM networks, random forests, graph neural networks) for outbreak forecasting based on integrated data from farms, wildlife monitoring, hospitals, satellite imagery, and open sources; image analysis (e.g., convolutional neural networks for radiology and pathology diagnostics); and big data integration to enable real-time risk assessment and pattern recognition in complex datasets [2].

In the Ukrainian context, AI could significantly enhance national zoonotic disease monitoring systems, as prioritized by CDC/FAO initiatives and supported by FAO online One Health training (2025, reaching nearly 500 professionals) [3]. It would facilitate real-time risk evaluation in conflict-affected areas with disrupted traditional surveillance, support predictive analytics for high-risk zoonoses like tularemia and avian influenza (considering migration patterns and climate factors) [4], and strengthen cross-sector collaboration among veterinary, medical, and environmental services through unified platforms and automated alerts.

Key opportunities include substantially reduced response time to outbreaks (potentially by 80-85% in some models), optimized resource allocation in resource-limited and war-torn settings, improved antimicrobial stewardship to combat resistance, and proactive identification of spillover risks from wildlife or livestock [5]. However, significant challenges persist: limited digital infrastructure and internet access in rural and occupied territories, cybersecurity vulnerabilities amid hybrid threats, data privacy concerns in multisectoral sharing, high implementation costs for hardware/software/training, and the urgent need for interdisciplinary education to equip veterinarians, physicians, and environmental specialists with AI literacy.

The study concludes that strategic adoption of AI within One Health frameworks could significantly strengthen Ukraine's biosecurity, pandemic preparedness, and public health resilience, particularly in post-conflict recovery. Recommendations include initiating pilot AI projects at veterinary universities (e.g., integrating machine learning into national surveillance databases), fostering international partnerships (FAO, WHO, EU Green Deal, CDC), developing offline-capable mobile tools for field reporting, and updating curricula to incorporate AI competencies and ethical AI use for future veterinarians [6].

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