FEDERATION OF VETERINARIANS OF EUROPE

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The contribution of the veterinary profession to pandemic preparedness

Executive Summary

The Federation of Veterinarians of Europe (FVE) represents around 330,000 veterinarians across 39 European countries and strives to enhance animal health, animal welfare, public health and the protection of the environment by promoting the veterinary profession.

This Position Paper highlights the ongoing contributions of the veterinary profession to the prevention and control of animal and zoonotic diseases. It serves as a call to action for decision-makers to recognise veterinary expertise in One Health and offers recommendations for future pandemic preparedness.

The veterinary profession has championed the One Health approach to pandemic preparedness for several decades, with outstanding knowledge and experience in the prevention, management and control of animal and zoonotic disease outbreaks, which further evolved significantly through past and present epi- and pandemics, through the concept of Veterinary Public Health.

FVE recommendations to deliver an enhanced One Health response to future potential transboundary disease outbreaks:

1. **Recognise the role of veterinary expertise and acknowledge veterinary services as a public good to prevent, detect, manage and control infectious disease outbreaks in both people and animals in the WHO treaty on pandemic preparedness and response**
2. **Support the development of well-designed and resourced transboundary risk-based contingency plans to ensure rapid responses, efficient control and quick recovery to help anticipate, prevent and effectively address future pandemics in line with the recommendations of the WOAH Regional Commission for Europe Conference**
3. **Deploy the One Health approach as a holistic, intersectoral collaboration between veterinarians, medical doctors and environmental experts in full support of the Quadripartite Organizations One Health Joint Plan Of Action.**

- Veterinarians, regardless of field of employment, have always worked holistically in the prevention of diseases by applying biosecurity measures, such as quarantine, hygiene, personal protective equipment, disinfection procedures, and controlling access to premises on small (compartmentalisation, zoning) and large scales (controlled animal movements, international trade).
- Mass vaccination programmes tailored to specific diseases and populations are one of the core competencies of veterinarians. These programmes take

factors such as vaccine efficacy, coverage, differentiating potential, onset and duration of immunity into consideration, and risk-benefit balance of vaccine use in specific disease situations.

- Veterinarians possess critical competence in epidemiology and disease detection. Veterinarians inform on best prevention/control strategies, enhance monitoring and surveillance systems to contain pathogen spread, outbreak investigation, enhance preparedness and response capabilities at local, national, and global levels and use state-of-the-art accredited diagnostics.
- Veterinarians carry out continuous education, research and innovation to drive advancements in veterinary medicine and disease management. This leads to the identification of entirely new diseases, better understanding of known diseases, development of efficient and effective diagnostic tools, treatments, and preventive measures.
- Veterinarians work in and with government agencies, international organizations, research institutes, industry stakeholders, and the public to coordinate response efforts and to educate, raise awareness and disseminate accurate messaging.

Veterinarians play a key role in implementing evidence-led best practices for disease prevention, detection and management and control in livestock, wildlife and companion animals. We also promote sustainable systems for safe food production. Integrating veterinary expertise into centralised multidisciplinary task forces enhances the capacity to monitor and manage disease outbreaks on regional (epidemic) and global (pandemic) levels. Our experience with animal and zoonotic disease response broadens the understanding and scope of disease transmission dynamics, adding valuable insight. This work is essential to the global and societal response to emerging infectious diseases that affect both animals and humans.

The FVE recommendations (see box above) aim to foster the recognition of veterinary expertise in One Health and pandemic preparedness for decision-makers.

A One Health way forward:

- Prevent - The risk of future pandemics can be reduced by integrating veterinary expertise on biosecurity, biocontainment and vaccination into wider public health and environmental responses, utilising veterinary core skills in epidemiology and contingency planning concerning humans, animals and the environment.

- Respond - Timely management of infectious emerging diseases can be better achieved through an effective application of the One Health approach and through the development of specific and sensitive diagnostics, combined with data-sharing technologies providing early-detection, real-time monitoring and surveillance capabilities.

- Communicate - An effective One Health response requires accurate and coordinated messaging to deliver public cooperation and support societal investment in delivering the human and financial resources needed to prevent and respond to pandemics

Background

Our planet is now more populated, globally interconnected, and challenged by climate change, its consequences such as droughts, floods and other severe weather events, and geopolitical crises than ever before. These drivers accelerate and facilitate the worldwide spread of animal and zoonotic pathogens, increasing the risk for the incidence of new diseases. It is estimated that 60% of emerging human diseases are zoonotic (i.e. emerging from spillover events, increased human-animal contact, consumption and utilisation of animal products or by products). In the aftermath of the COVID-19 pandemic, major efforts have been made by human, animal and environmental health professionals to improve global preparedness to predict and respond to emerging infectious health threats. This includes better coordination of education, research, innovation, diagnostics, interventions and communication at national, supranational and international levels. In 2021, WHO's 194 Member countries initiated a procedure to create and discuss a new treaty on pandemic preparedness and response. This was driven by the need to better protect and prepare communities, governments, and all sectors of society, nationally and internationally. However, FVE believes that the One Health approach and the veterinary contribution must be further emphasised to achieve our shared objectives, and has developed this call to action to national and supranational leaders, decision-makers, health professionals, and communities to recognise and build upon veterinary expertise to handle animal-related impacts of crises for a safer, more resilient future.

The veterinary profession's ongoing contributions to pandemic preparedness

The steady harmonisation of animal health and biosecurity measures across Europe has fostered a holistic approach to disease control, were veterinarians address the interconnectedness of human, animal, and environmental health in a transboundary way. By recognising that diseases do not respect national borders; veterinarians implement disease preventive measures at the source. Early detection, through monitoring and surveillance systems, is based on state-of-the-art diagnostics and a robust network of veterinary and allied professionals. Implementation of the veterinary toolbox for disease prevention, early detection, management and control, including contingency planning, is directed by the principles of One Health.

1. Prevention of diseases

Disease prevention is complex. Decisions on the appropriate approach to prevent diseases are influenced by multiple factors, such as the pathogen type, load and strain severity, host species spectrum, age and immune status, population density, and contact frequency. Key measures such as biosecurity and vaccination are particularly important.

1.1. Biosecurity

Veterinarians have developed targeted biosecurity plans to prevent infectious diseases, at farm level (e.g. *Salmonella* in chickens and bovine viral diarrhoea virus), national level (e.g. African Swine Fever) and internationally (e.g. Highly Pathogenic Avian Influenza (HPAI) and Foot & Mouth Disease). Our expertise in containing diseases on infected premises has been crucial in minimising the emergence and the spread to neighbouring premises. Many of the biocontainment and biosecurity measures veterinarians used in everyday animal disease control were employed by the public to minimise the virus spread between humans during the COVID-19 pandemic, such as:

- Cleansing & disinfection → hand sanitiser
- Reduced aerosol spread within airspaces → face masks
- Stocking density → social distancing
- Small groups (epidemiological units) of animals → 'bubbles'
- Movement restrictions → lockdown
- Biocontainment → isolation/quarantine

1.2. Vaccination

Due to a wider target species range, veterinary vaccinology contributes to a broader knowledge of vaccine designs against specific pathogens. The veterinary field has successfully developed vaccines against coronaviruses in animals (including piglets and calves) before the need for a human coronavirus vaccine arose, providing proof of principle that this could be used for successful disease control [1].

Mass deployment of vaccines is something veterinarians deploy routinely. Veterinarians regularly using the 'traditional' intramuscular, subcutaneous and intranasal routes and are also exploring the potential of oral routes. Successful campaigns, such as the fox rabies mass oral vaccination, highlight the importance of cross-species protection strategies. Veterinary expertise in population management also includes leveraging passive immunity (e.g. vaccinating dams to protect the offspring, including transfer by colostrum) and herd population immunity to control disease spread beyond individual protection [2].

2. Early warning through Monitoring and Surveillance Systems

The veterinary profession plays a crucial role in preventing pandemics through its involvement in early warning, monitoring, and surveillance systems. Ongoing veterinary surveillance of the passage of infectious agents such as HPAI between initial hosts, other animals and people has been encouraged by the Quadripartite.

2.1. Disease detection

Veterinarians play a critical role in ongoing health surveillance at the farm level, where they are instrumental in the early detection of epizootics. Regular veterinary preventive animal health visits help identify signs of emerging infectious diseases in animal populations, allowing for rapid response before these diseases escalate. By integrating their clinical expertise with diagnostic tools, veterinarians help manage outbreaks at their source, protecting both animal and human populations. Close proximity monitoring, particularly on livestock farms, is crucial for the early detection of zoonoses and other emerging diseases. Recognising the ongoing contributions of veterinary practitioners outside of emergency periods and One Health as a public good is vital for proactive prevention and effective monitoring and surveillance.

2.2. Veterinary Role in Laboratory Diagnostics and Biomedical Innovation

The animal health sector was able to back human health services during the COVID-19 pandemic by offering detection and diagnostic support. Veterinarians have the skills to interpret the significance of the results of a wide array of diagnostic tests, which are increasingly important with the advent of highly sensitive molecular tests. This included genomic testing like high-throughput sequencing, in addition to 'traditional' serological, histopathological and molecular techniques. Since these tests are often used for animal disease diagnosis for statutory purposes of economic and production importance, they are often already highly accredited to required standards (e.g. ISO:17025). In the event of another human pandemic, improved recognition of the availability of

laboratory capacity in the animal health sector, that could support One Health, is strongly encouraged [3].

In addition, veterinarians play a vital role in biomedical research, ensuring the ethical treatment and welfare of laboratory animals, particularly during the increase in experimental studies which are often noted during pandemics. Aligned with the 3R approach, the veterinary profession is committed to also investing in alternative approaches to replace, reduce, and refine animal testing. These alternatives not only enhance research efficiency but also uphold animal welfare, advancing innovative biomedical research and strengthening preparedness for future health challenges.

3. Build upon the experienced veterinary toolbox for disease management and control

Veterinarians have extensive experience in understanding and controlling the spread of infectious diseases. We have developed models, control programmes and eradication strategies based on spatiotemporal disease dynamics to mitigate the impact of outbreaks. However, and despite all efforts, to this day only two diseases have been eradicated globally – human smallpox and cattle rinderpest (cattle plague). In the case of rinderpest, a coordinated effort in diagnostics, vaccination and international commitment contributed to the UN and WHO declaring the disease globally eradicated in 2011, one of the greatest veterinary achievements of our time [4]. With the right commitment, coordination and investment, similar efforts could eradicate several key diseases such as canine rabies and Peste des Petits Ruminants.

3.1. Contingency planning

Veterinarians play a key role in contingency planning and business continuity during pandemics. During COVID-19, many countries deployed veterinarians to take diagnostic swabs, investigate case sources and contacts and administer vaccines to people, while we had to maintaining veterinary care and essential services provision for animal and public health: Veterinarians continued their core business to ensure the health and welfare of animals as well as food safety and security by ensuring that only healthy animals and their products enter the food supply chain. Veterinary services were declared essential services during the crisis.

However, ensuring enough human and financial resources are essential to support this vital role to maintain a robust veterinary network for a continued presence of veterinarians in the field. FVE's workforce shortage report highlights the need for addressing these gaps. Maintaining ample access to veterinary services in both rural and urban areas is crucial. It ensures that the benefits of veterinary expertise are accessible to all communities, contributing to a healthier and more resilient society. By preserving and further improving the European animal health and welfare standards, veterinarians and well-equipped veterinary services can be effective in contributing to public health alongside allied professionals and stakeholders and resilient communities.

4. Operationalizing One Health

The interconnected health of people, animals and ecosystems underscores the importance of the One Health approach within the "prevention is better than cure" paradigm. With most of emerging human diseases being zoonotic, a joint cross-sectoral, transdisciplinary approach, through improved communication, cross-border collaboration and networking between animal health, human health and

environmental health professionals, is essential for effective pandemic prevention and response. Through the Veterinary Public Health concept, we have been contributing to One Health since the very beginning of veterinary profession.

More efficient resource use fostered innovation in disease control, and promotion of sustainable ecosystem management lead to shared outcomes, including expected reduced pandemic frequency and severity, improved global health security, reduced economic losses and greater resilience in communities. This will ultimately save lives and protect biodiversity.

4.1. Public engagement and education

A sometimes-overlooked key element of disease management and control is the need for public education and cooperation in implementing preventive measures. Veterinarians and allied health professionals must turn to citizens and animal caretakers to educate them about the benefits of infection control protocols and responsible behaviour toward animals, products of animal origin, and medicine. Public cooperation is essential to ensure that infection control guidelines are followed, and disease risks are minimised, particularly in areas where veterinarians cannot always be present.

Empowering citizens with accurate information is as vital as the technical interventions veterinarians deploy, and it complements other tools such as vaccination and diagnostics. We are available for public education campaigns and contribute to raising awareness, especially through collaboration with educational institutions. This approach not only supports disease prevention but also fosters a culture of responsibility among animal owners and the wider public.

Further reading

- Improving 'One Health' is more important than COVID-19 blame game
- Prevention is better than cure: regular animal health visits make this happen
- Veterinarians continue to look after animals and public health during the pandemic: they also need protection
- The Official Veterinarian's role in food hygiene: an essential public good
- Veterinarians – vital for animals, vital for people
- Berlin principles on one health – Bridging global health and conservation
- Cross sectoral evidence-based governance for One Health in the EU

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Notes to the Editor

The Federation of Veterinarians of Europe (FVE) and strives to promote animal health, animal welfare and public health across 39 Europe member countries. For further information, consult the FVE website www.fve.org or contact the FVE by e-mail info@fve.org