

# VETERINARIANS: GUARDIANS OF FOOD AND HEALTH

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## ABSTRACT

Veterinary Service is a service, which provided by the veterinarians with the aim of monitoring and avoiding animal disease including zoonosis and keeping animal welfare. From farm to fork, veterinarians are at the frontline of ensuring that food of animal origin is safe, nutritious, and responsibly produced. Their work protects consumers, supports sustainable food systems, prevents zoonotic diseases, and strengthens global health security. Several actors play a role in AMS in food-producing animals, including regulators, farmers, and researchers. In addition, veterinarians are commonly central to antimicrobial stewardship on farms.

**Keywords:** Animal health, Animal origin, Animal products, public health, Veterinarians, Veterinary service, zoonosis, Antimicrobial resistance, food safety.

## 1. INTRODUCTION

Veterinarians are unsung heroes of nation as they are working silently for public health. apart from farm and clinic they are safe guarding the humankind by protecting people from zoonotic diseases and proving safe food. They are not only work as animal health professional but front line for health security, sustainable food systems, prevention of antimicrobial resistance and economic resilience (1) While defining the veterinary services in context of food safety and public health a brief discussion in which veterinarian work is very important and therefor the objective of this review is to highlight the importance of veterinarian as guardian of food and health for mankind (5).

## 2. ROLE OF VETERINARIAN

Veterinary services can be classified in four categories: protective services (avoiding the outbreak of diseases), production and productive service (such as artificial insemination), Human health protection service (inspection of marketed animal products) and Clinical services (treatment of diseased animals), According to World Bank, animal health services include curative and the

provision of pharmaceuticals under preventive service. Curative services include the provision of clinical care, while protective services consist of vaccination, vector control, and disease control measures such as quarantines and movement restrictions (1)

### 2.1 Role of Veterinarian in food safety

Veterinarians help to ensure that the animals raised for food are healthy and disease-free. Animal originated food are serving as potential threat if not handled properly. The role of veterinarian is not only to cure sick animal but their important job is to confirm quality edible animal products such as milk, meat and eggs to the public.

common biological hazards spread to human is via contaminated food from animal origine, like egg contaminated from *salmonella*, milk contaminated from mastitis pathogen. In addition to bacteria food can be contaminated by prion, causative agent for bovine spongiform encephalopathy (BSE). Nowadays report of (BSE) are greatly declining in numbers (1). By surveillance and prevention veterinarians manage farm-level biosecurity to prevent the introduction of pathogens and control infectious

diseases through vaccination regimens and with proper hygiene. By conducting Ante- and Post-Mortem Inspection At slaughterhouses, veterinarians perform inspections to identify diseases in live animals (ante-mortem) and inspect carcasses (post-mortem) to ensure only safe meat enters the food supply. By Traceability and Outbreak Investigation Vets maintain animal identification and traceability systems to track food contamination back to its origin, aiding in the investigation of food poisoning outbreaks (1)(6).

Not only pathogens, but chemical residues and different toxin are also hazardous to the public health. Pesticides are widely used in agriculture. Majority of poisonings occur in developing countries due to less protection against exposure, ignorance from health risk and easy access to harmful chemicals. By Judicious drug use and monitoring proper withdrawal periods Veterinarians ensure that animals are not slaughtered for food before "withdrawal periods" are met, which prevents drug residues from entering the food chain. They advise farmers on managing environmental contaminants, pesticide residues, and mycotoxins in animal feed, use of Ethno-veterinary practices. By surveillance and residue testing Veterinarians ensure animal product meet safety standards and are free from illegal, unapproved, or high levels of contaminants (3).

Antimicrobial resistance (AMR) is one of the top 10 global public health threats. One Health approach is needed to tackle antimicrobial resistance as most antimicrobials used in animals are also used in humans and affect the environment (10). Several actors play a role in AMS in food-producing animals, including regulators, farmers, and researchers. In addition, veterinarians are commonly central to antimicrobial stewardship on farms (8). Veterinary specialists guide farmers on responsible antibiotic use and alternative solution like use of herbal drugs homemade remedies and by the practice of Ethno-veterinary practices (EVP) at field level which

reduces the use of antibiotic in animal resulting in decrease of antimicrobial residue in animal origin product ultimately reducing AMR risks to animal as well as humane (8,10).

Veterinarians help prevent diseases in animals raised for food, like cows, pigs, and chickens. If veterinarians stopped monitoring and treating these animals, diseases could spread rapidly within livestock populations. For example, diseases like foot-and-mouth disease or avian influenza can cause large numbers of animals to become sick or die, reducing the supply of meat, eggs, and dairy products. This could lead to shortages and higher prices for consumers proportional to the severity of the outbreak. Most reported outbreaks of foodborne disease are due to contamination of foods with zoonotic agents, often during primary production The Veterinary Services play a key role in the investigation of such outbreaks all the way back to the farm and in formulating and implementing remedial measures once the source of the outbreak has been identified (7).

## **2.2 Role of Veterinarian in Public Health**

Veterinarians play a critical, proactive role in public health by managing, preventing, and controlling zoonotic diseases (pathogens transmitted from animals to humans) through a One Health approach. Zoonotic diseases, which are transmitted between animals and humans, have become an increasing concern in recent years, with outbreaks such as COVID-19, avian influenza, and Ebola illustrating the potential for rapid cross-species transmission and global spread. The importance of veterinary professional in preventing the risks posed by zoonoses cannot be neglected, as veterinarians are often the first line of defence in detecting, diagnosing, and controlling these diseases within animal populations. identifying early warning signs of infection such diseases in animals, play a key role in preventing the spread of these organism to humans, particularly in areas where human-animal interaction is frequent, such as rural communities, agricultural settings, and wildlife habitats (11). By the

Surveillance & Early Detection Veterinarians conduct routine herd health monitoring, post-mortem investigations, and diagnostic testing to detect pathogens like Salmonella, E. coli, influenza, mycobacteria before they affect humans. By preventive Action & Mass Vaccination of pets and livestock against rabies, brucellosis, anthrax creates a barrier that prevents transmission to human populations. By One Health Collaboration Veterinarians collaborate with public health officials and physicians to manage zoonotic risks and respond to outbreaks (e.g., COVID-19, avian influenza). BY Public Education & Risk Management vet professionals Educating pet owners and livestock farmers on infection risks and importance of hygiene for prevent of zoonotic disease (11,12,13,14).

#### 4. Conclusion

Veterinarians contribute to controlling diseases that affect people worldwide, particularly in rural or developing areas and providing safe food to the public. Without their expertise, neglected tropical diseases and other health threats could spread unchecked, especially in regions with limited healthcare resources. This could worsen global health disparities and lead to more deaths and suffering. Without veterinarians' support in public health, we would face more diseases, unsafe food, food scarcity, environmental problems, and global health challenges. Veterinarians are essential to preventing these risks and ensuring a safer and healthier world for both animals and humans.

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