



Vanguards of Food Safety and Security: Acknowledging the Humble Veterinarian and One Health

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Food and nutrition as a topic is perhaps one of the points that are often mentioned when One Health is discussed but it doesn't seem to get as much attention as other issues like emerging zoonotic diseases. The Australian Institute of Food Safety (1) defines Food Safety as the "handling, preparation and storage of food in a way that best reduces the risk of individuals becoming sick from foodborne illnesses." Hence, food safety as a field of science and as a conscious practice plays an important role in our day-to-day lives. The World Health Organization (2) reports that around 600 million people annually are becoming sick by eating contaminated food – that is about 1 out of 10 every year. It is true that food safety and security are important facets of veterinary public health. However, the invaluable contributions of veterinarians in the food processing chain often go unrecognized. Moreover, the roles played by veterinarians in agriculture – at the interface of animal and crop production – also go unnoticed. Because only a few seem to praise the thankless veterinarians who do good work in food and nutrition, I'll acknowledge the humble veterinary profession and their contribution as vanguards of food safety and security and the significance of One Health in this paper.

As previously mentioned, veterinarians are vanguards of food safety and security. In the Philippines, the food hygiene course under the veterinary public health suite of our Doctor of

Veterinary Medicine degree has taught us that health and sanitation from farm to fork is vital in ensuring that meat and other food items of animal origin are safe for human consumption. Within this context, we therefore have the tough responsibility of addressing potential zoonotic foodborne pathogens within the farm stage of livestock and poultry production. *Escherichia coli*, *Salmonella enterica* and typhi, Noroviruses, *Campylobacter jejuni*, *Leptospira interrogans*, *Listeria monocytogenes*, *Vibrio* spp., and foodborne parasitic infections have been noted by various papers as food pathogens of public health concern (3-8). Illnesses caused by these foodborne agents should be managed through appropriate and sanitary production methodologies and hygienic processing post-harvest so they will not result in foodborne disease outbreaks (4-5). Integral post-harvest roles played by veterinarians include meat inspection and ensuring abattoir hygiene.

Aside from the prevention of foodborne pathogen transmissions, veterinarians are also concerned with the health and welfare of animals that are to be consumed as nutritional provisions. An important function of this is controlling and eliminating infectious diseases (both zoonotic and non-zoonotic) that may be transboundary in nature. These diseases have the potential to not only cause severe economic consequences but also have important nutritional and health implications. As an example, Alders et al. (3) noted that Newcastle Disease has been affecting small-scale, community-based chicken production in Tanzania, Zambia and Timor-Leste. Animal diseases that result in huge economic losses in poultry and livestock production do not only affect the pockets of farmers but also the stomach of the community that rely on these production systems. Moreover, with meat being the main source of dietary protein in these developing countries, the proliferation of infectious animal diseases results in food security issues that lead to the undernutrition of community folk and stunting among children (9). Invariably, these individual or household level nutritional problems affect the development of the country as a whole. In the Philippines, the African Swine Fever (ASF) epizootic has caused severe damage to the country's 100-billion-peso swine industry since its entry in mid-2019 (10). With the soaring prices of pork and the obliteration of small-scale, household-based hog raising in affected parts of the country, ASF has indeed left its mark among the Filipino masses.

The integration of One Health in sustainable food production has highlighted the importance of veterinary medicine in safeguarding animal health and as an aspect of environmental management. One Health, as an approach to

achieving global health outcomes, involves the integration of human, animal and environmental health (11). Moreover, the paradigm highlights the interconnections between humans, animals and their shared environment – all three pillars of One Health are inextricably linked and are dependent on one another (12). Therefore, it is important that One Health be incorporated as an educational paradigm in the curricula of agriculture, social sciences, engineering, and food-related programs. Garcia et al. (4) highlighted that, “there is a need to disseminate the One Health model to other areas of study in science, engineering, and humanities in order to achieve collaborative and trans-disciplinary approaches to solve complex problems at the intersection of soil, plants, animals and humans”.

Veterinarians, as vanguards of food safety and security, play an integral role in securing the continuous production of high quality and disease-free food items of animal origin. And veterinarians are essential in the control and elimination of zoonotic diseases and other illnesses that threaten animal health and welfare. In approaching the achievement of global health outcomes via the One Health paradigm, veterinarians safeguard animal health, both domestic and wild, which in turn benefit humans and the environment. An important aspect of their role in One Health is monitoring and responding to foodborne zoonotic diseases. It goes without saying that our humble veterinarians have fundamental contributions to societal development and for this, they must be acknowledged.

Conflict of interest

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Authors' contributions

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