

## Conference Paper

# Public Awareness in ensuring Animal Originated Food Safety : A Review on "One Health" Approach in Veterinary Medicine

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## Abstract

Human and animals live in the same ecosystem bound one to another interdependently and build an harmony in an ecosystem. Since the time of Hippocrates, the One Health concept has existed, which is now we can find in AVMA's web page, the words "on Airs, Waters, and Places". One of the One Health's founders is an epidemiologist, Dr. Calvin W. Schwabe, captured the word "One Medicine" in his book, *Veterinary Medicine and Human Health*. Now we live in this century can feel the existence of various health problems involving human health and animal health affected one to another.

Antimicrobial resistance issues is nowadays one of the challenge facing the medicine. Veterinary Services has a plenty history of applying veterinary public health principles to protect human health through animals and animal products safety. The Veterinary role in the AMR problems is not a question. The use of drugs, includes antimicrobial, in veterinary practices can not be hindered, that is all to ensure safety not just for animals but also for humanbeing. Microbes contamination in the preparation of animal originated food, from farm to fork, is the main problem in connection to the animal originated food safety. Public services in this field is the entry point of microbes contamination which causing the decrease of food quality. To change the people's behaviour in processing of animal originated food chain is not easy. Continuing public awareness in preparing safety food is one of the best way to ensure the intellectuality of a nation.

**Keywords:** Global health problem; Animal originated food; Food safety in Indonesia; Human-animal health interactions; From farm to fork; Public awareness.

## 1. Introduction

At the beginning of the 2000s, the "One Health" concept was introduced to the world. More than a century, human and animals live in the same ecosystem which bound one to another interdependently and build an harmony in a ballance ecosystem. Since the

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time of Hippocrates, the One Health concept has existed, which is now we can find in AVMA's web page, the words "on Airs, Waters, and Places". One of the founders of One Health, namely an epidemiologist Dr. Calvin W. Schwabe captured the word "One Medicine" in his book, *Veterinary Medicine and Human Health*, that later he was honored by AVMA's One Health Initiative Task Force (OHITF) to dedicate its final report. Now we live in this century can experience the existence of various health problems involving human health and animal health affected one to another.

Food safety is not only the responsibility of food producers and processors, but the consumers have to ensure the safety food they eat. To know a good quality and safety food before buying is the important one.

The problem of antimicrobial resistance (AMR) is currently one of the challenges of medicine, both in human medicine and also in veterinary medicine. Veterinary Services (VS) has a plenty history of applying veterinary public health practices to protect human health by assuring animals and animal products safety. The Veterinary role in the AMR problems is not a question. The use of drugs, includes antimicrobial, in veterinary practices can not be hindered, that is all to ensure the animal health, safety of post harvest animal originated food, and last but not least to protect the human being. Microbial contamination in the preparation of animal originated food, from farm to fork, is a major problem in relation to animal originated food safety. Public services in this field is the entry point of microbes contamination which causing the decrease of food quality. To change the behaviour of the people in the processing of animal originated food chain is not easy. Through public awareness about how to prepare safety food is one of the best ways to ensure the intellectuality of a nation.

## 2. A Brief History of One Health

*"Between animal and human medicine there is no dividing line – nor should there be. The object is different but the experience constitutes the basis of all medicine". Rudolf Virchow (1821–1902)*

Rudolf Virchow, a member of German's farming family, was an early proponent of One Health. Through his mind with his words above the concept of One Health was born.

By the late decades, approximately 75 percent of emerging infectious diseases among humans was also known as zoonotic diseases, which harbour in animals. Then it updated to the modern proponents of One Health. An epidemiologist, Dr. Calvin W. Schwabe in the 1980's, provided the modern foundation for One Health by his idea

to called for a unified human and veterinary approach in combating zoonotic diseases [Schultz & Schant, 2011; Mc Connell, 2014].

One health concept continues to grow throughout the world along with the changing of times, such as the occurrence of global warming that causes global climate change that affect human, animals and the environment [CDC]. In 2004, the One Health's concept was than advanced further in the symposium hosted by the Wildlife Conservation Society, which brought together an international group of human and animal health experts to discuss shared diseases among human, wild animal, and domestic animal populations. This symposium introduced a set of priorities for an international and interdisciplinary approach to combat joint threats to human and animal health.

The American Veterinary Medical Association (AVMA) and the American Medical Association (AMA) in 2007, adopted a vision supporting the concept of One Health and formed the One Health Initiative task force which than brought together U.S. human and animal health agencies, medical doctors, and veterinarians [King et al., 2008]. In 2008, the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), the World Organisation for Animal Health (OIE), the United Nations Children's Fund (UNICEF), the World Bank, and the United Nations System Influenza Coordination (UNSIC) came together to develop a document titled, *"Contributing to One World, One Health™ -A Strategic Framework for Reducing Risks of Infectious Diseases at the Animal-Human-Ecosystems Interface"*. Later on in 2010, the United Nations and the World Bank recommended adoption of One Health Approaches in the document: *"Fifth Global Progress Report on Animal and Pandemic Influenza."* The 1st International One Health Congress was held in Melbourne Australia in February 2011 [...]

### 3. One Health in Indonesia

Along with the progress of the One Health concept, teaching materials in medical schools as well as in veterinary schools also include interactions between humans, animals and the environment. Although originally not mentioned as "one health" but conceptually has been explained about a living ecosystem where there is an interaction between humans, animals and the environment. This is similar to the concept of "one health" which Dr. Calvin W. Schwabe. Furthermore, since the inception of the concept of "One Health" by AVMA, and later recognized in medical and veterinary education in the world, it becomes a compulsory topic in the lectures. As part of South East Asia One Health University Network (SEAOHUN), the Indonesia One Health University Network

(INDOHUN) was established since 2012. This organisation is a platform where leading academicians, stakeholders, scientists, communities, and professionals from Indonesia could transcend provincial and national borders to address issues of regional and global concern in Indonesia. The implementation of "One Health" at the government level in Indonesia is coordinated by the Coordinating Ministry for Human Development and Culture [ ]

Over centuries, animal production practices have evolved to meet the demand on animal originated food of the growing human population globally, including Indonesia. To push the increasing of food animal population, all farming system run modern production practices. Disease prevention, husbandry, genetics and nutrition have greatly improved the efficiency of many food animal production facilities. The industrialization of animal production was made possible by the availability of antibiotics for livestock and poultry, which can solve the problem for therapy and prevention of diseases, and growth promoters as well. Besides the benefetial impact to the animal industry and meet the needs of animal protein for the growing human population, antibiotic usage in food production also caused the emergence and disseminate of AMR.[ ]

#### 4. Food Safety Problems in Indonesia

The description of food safety, according to the latest Indonesian Government on Food Lagislation no. 18/2012, food safety is a condition and effort that is required to prevent food from the possibility of biological, chemical and other pollution that can interfere, harm and endanger the human health as well as not conflicting with religion, belief and culture of the society so that it is safe for consumption. Indonesia has to pay more attention to food safety. The great potential impacts due to food safety are the public health in domestic level, trade competitiveness in international level, and food security.

Food safety is a critical issue in many countries, includes Indonesia. Tropical climate of Indonesia is the major obstacle in controlling and preventing microbial contaminants in food. The main food safety problems are bad practices of "from farm to fork" leading to food contamination due to inadequate knowledge and awareness in food safety. The food supply chain includes export import of agricultural production, post harvest production, processed and processing food, fresh food, direct and raw consumption materials. The food safety issues in Indonesia can be concluded as follows : inadequate knowledge and skill to produce good quality and safe foods, low level of consumer awareness, very wide coverage area to be controlled and intervented, and limited number of competent food inspectors and extension workers.

The majority of consumers in the middle to lower level, due to the poor awareness on food safety, usually prefer to buy cheaper instead of choosing the good and safe food. This leads the producers reduce the production cost to produce poor quality of food and cheaper price. The poor quality food can be found in the market such as: processed foods with non-food grade additives. Other bad practices are use of textiles colorants such as methanyl yellow and rhodamine B, which were found for syrup and food vendor around school areas and working places. The use of chemicals such as boric acid and formaldehyde as food preservative were also often to be found. Food grade additives sometimes used in high concentration exceeding the governmental recommendations, in example: artificial sweeteners, saccharine and cyclamate. Food-borne pathogens are also still the leading cause of food borne daily cases, which includes the multi drug resistance (MDR) bacteria.

The impact of antimicrobial therapy in livestock is the high residue of antibiotics in animal originated food, such as chicken meat, eggs, beef, and pork.

## 5. Conclusion

The soul of one health has existed since nature and its contents was created by Allah the Almighty, it's role becomes increasingly important now. As we all experience in the last few decades, more and more human health problems have been linked to animals and the environment, causing the emerging and re-emerging of various diseases. This is due to the dynamic interaction between humans, animals and the environment, which live the same ecosystem. Due to the dynamic on the growth of human population, guidance on how to maintain a healthy life through the provision of safe food needs to be done continuously, especially in the development countries where sanitation and hygiene practices are still poor. Public awareness program is one of important tool that needs to be built by involving experts from various disciplines, including policy makers, physicians, veterinarians, environmental scholars, undergraduate information, and the stake holders.

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