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World Veterinary Day

Special Issue

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Editorial .....

Veterinarians are a special group of health care professionals and scientists because they prevent disease in animals and treat animals of all kinds around the world . Healthy animals also contribute to happier and healthier people.

In 2000, the World Veterinary Association initiated World Veterinary Day on the last Saturday of April each year to bring attention to the many ways Veterinarians contribute to the health and well-being of animals and people around the world. Most people know Veterinarians as the "Animal Doctors" for our pets, livestock, horses and a variety of more diverse animals such as zoo animals and exotic pets such as birds, reptiles and small animals.

Yet, veterinarians also are involved in public health to improve the health and welfare of animals, people and the environment, known as "One Health". Veterinarians investigate disease outbreaks that can be contagious from animals to humans, called zoonotic diseases, like rabies, bird flu and Ebola. They do research to develop vaccines and cures for diseases in animals that can also help cure and prevent diseases in people. They develop policies and promote laws to improve the care and welfare of animals around the world. They care for animals that are used for food, so that beef, pork, fish and poultry products are safe and nutritious for people.

World Veterinary Day promotes continuing education in one health....

Today's world is well aware that Veterinarians as the "Animal Doctors" for their pets, livestock, horses, and a variety of more diverse animals such as zoo animals and exotic pets , birds, reptiles, and small mammals. However, veterinarians also are involved in public health to improve the health and welfare of animals, people and the environment

Veterinarians play a crucial role in protecting global health. In all areas of the profession, they have opportunities and responsibilities to improve the health and welfare of animals, and therefore to improve the health of humans in the current era of globalization, the emergence or re-emergence of unexpected sanitary events is accelerating. It is estimated that five new emerging infectious human diseases appear each year, of which three are zoonotic.

The recent Ebola epidemics well as the too numerous human deaths caused each year by rabies, dreadfully remind us of the strong links existing between the health of people, animals and environment and consequently the need for multispectral approaches illustrated through the 'One Health' concept.

Our country depends on the performance of our National Veterinary Services, in their public and private components, not only to successfully control these diseases, but also to tackle food safety issues and to effectively prevent and control any biological disasters. Therefore, Veterinarians should be well trained to preserve animal health and welfare, as well as to tackle public health issues provided that the Veterinary profession and science are

Veterinarians are actively involved around the world in education, responsible use of medicines for animals for pain and illness, surveillance to detect and diagnose animal disease conditions and environmental protection. Veterinarians care about the health and well-being of animals, people and the environment we share together because animals affect human health.

WVD is taking place today globally to reward the most successful contribution by the Veterinary profession on the selected theme for 2016.

"CONTINUING EDUCATION WITH A ONE HEALTH FOCUS"

We wish all our Veterinarians the best on this "WORLD VETERINARY DAY 2016."

constantly evolving continuing education. It is essential for every Veterinarian to keep their knowledge updated with the latest developments, skills, and new technologies required to enable them to efficiently control health risks at their animal source.

Therefore, this year, the World Veterinary Days' theme focuses on how veterinarians continue their education efforts to increase their expertise on One Health topics, such as zoonotic diseases, food safety or antimicrobial resistance, and how they collaborate with the human health sector to tackle these issues in our state and Country, as well as their capacity to demonstrate a concrete implementation of the 'One health 'approach.

It is certain that April 30th, World Veterinary day 2016 will promote continuing education for veterinarians in one health.

On this special day The Goa Veterinary Association wishes all the Veterinarians "Happy world Veterinary day".

Dr. R. B. Dhuri

Zoonoses: Creating Awareness and their prevention

What is zoonoses?

World Health Organization (WHO) has defined zoonoses (singular: Zoonosis, plural: Zoonoses) as those disease and infections which are naturally transmitted between vertebrate animals and man (WHO, 1959).Zoonoses are caused by either bacteria, virus, fungi, parasites and prions. There are approximately 1415 infectious agents causing diseases in humans, out of which 868 (61%) are known to be zoonotic in nature. It is also important to note that more than 70% of the emerging zoonotic diseases have wild animals as reservoir hosts. Zoonoses are not new to the mankind. For example disease like plague is scourge since ancient times. As the time passed new zoonoses have emerged viz, Severe Acute Respiratory Syndrome (SARS) and highly pathogenic avian influenza H5N1. With the increase in globalization of trade, international travel, changing agricultural practices and climate change the spread and burden of zoonotic diseases is likely to increase. The major zoonotic diseases that are prevalent in India include rabies, anthrax, leptospirosis, brucellosis, listeriosis, bovine tuberculsosis, plague, Japanese encephalitis, cysticecosis, nipah virus, Kyasanur forest disease etc. Since India is blessed with rich livestock resource there is always threat of zoonotic risk to the animal contact persons.

Routes of transmission

The diseases may get transmitted to susceptible persons through either direct skin contact, ingestion of contaminated food and water, inhalation of aerosols, animal bites, transplacental route, bite of intermediate hosts. Some of the diseases have only one route of transmission (Trichinellosis) and others have multiple routes (Lyme disease)

Routes of transmission	Zoonotic Diseases
Oral (Ingestion of contaminated food and water)	Campylobacteriosis, Cryptosporidiosis, Escherichia coli O157:H7, Hydatidosis, Cysticercosis, Giardiasis, Salmonellosis, Toxoplasmosis, Trichinellosis, etc.
Respiratory (Inhalation of aerosols/droplets containing infectious agent)	Anthrax, Cryptococcosis, Hantavirus, Melioidosis, Nipah virus, Psittacosis, Q Fever, Tularemia, Histoplasmosis, etc.
Direct Contact (Direct skin contact with infected animals, their products, animal bites and scratches)	Anthrax, Avian Influenza, Brucellosis, Cat Scratch Disease, Dermatophytosis, Glanders, Leptospirosis, Mycobacteriosis, Plague, Q Fever, Rabies, Rat Bite Fever, Sporotrichosis, Streptococcosis, Tularemia, etc.
Vector-borne (biting of intermediate hosts viz., mosquitoes, ticks, fleas and flies)	Plague, Leishmaniasis, Lyme Disease, Q Fever, Rocky Mountain Spotted Fever, Tularemia, Trypanosomiasis (Chagas' disease), Crimean Congo
Vertical route (transmission from mother to fetus)	Haemorrhagic Fever, KFD, Viral encephalomyelitis, Japanese encephalitis, etc.
Multiple routes	Brucellosis, Toxoplasmosis, African trypanosomiasis, Listeriosis, etc.

Occupational risk groups

Zoonoses are most commonly observed among those who are in close association with animals.

- Livestock farmers who are involved in day to day care and management of animals.
- By virtue of their occupation veterinarians may get exposed to zoonotic infections while treatment, prophylaxis, obstetrical and surgical interventions.
- Medical professionals such as physicians and nurses are susceptible (eg. a physician died of Crimean Congo Haemorrhagic Fever (CCHF) in Gujarat due to accidental inoculation of blood from a CCHF affected patient)
- Persons handling animal products viz., butchers, slaughterhouse works, people working in meat processing industry and byproducts processing industry.
- Persons working in zoos, wildlife reservoirs and national parks
- Laboratory personnel who handle clinical materials for disease diagnosis

Wild life and zoonoses

Majority of the zoonotic diseases have wild animals as their reservoirs and wild animals serve as source for transmission of zoonotic agents to humans and domestic animals. Veterinary professionals play a pivotal role in health management of wild animals in zoos and biological parks. Since veterinarians work in close contact with wild animals, there is a potential risk of transmission of zoonotic diseases from wild animals to humans and vice versa. To support this fact the forest workers in Chamarajanagar district of Karnataka who were involved in disposal of dead monkeys got infected with Kyasanur Forest Disease (KFD) (Mouryaet al., 2013). Important zoonotic diseases with wild animal reservoir are rabies, anthrax, KFD, Yellow fever, Nipahvirus, Hantavirus, CCHF, multilocular echinococcosis and many more.

Climate change and vector borne zoonoses

Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity (IPCC, 2007). Climate change is a long-term variation in weather conditions, which is reflected by changes in atmospheric temperature, precipitation, winds, and other indicators (CACC, 2013). Climatic change may lead to increase in vector population and expanding their habitat in to new geographical areas leading to spread of zoonotic diseases. Considering its importance World health Organization had chosen vector borne diseases as the theme for World Health Day in 2014. Plague, Japanese encephalitis, Westnile fever, KFD, CCHF, scrub typhus, Q fever, lesihmaniasis, yellow fever are some of the vector zoonotic disease haunting the mankind even today.

Foodborne zoonoses

Increasing population, positive trend towards consumption of animal origin protein, growing global trade of foods, changing animal husbandry practices and food habits of public have aggravated the risk of foodborne zoonoses. Foods of animal origin (Milk and meat products) could be source of zoonotic pathogens if proper pre-harvest and post-harvest food safety measures are not followed. Although India has achieved food security it is more important to achieve food safety in order to protect the health of the consumers. Salmonellosis, campylobacteriosis, E. coli O157:H7, listeriosis, cysticercosis, trichinellosis, toxoplasmosis, cryptosporidiosis are the important zoonotic pathogens transmitted through food.

Impact of zoonoses

The adverse effects of zoonotic disease are multiple. Zonoses are threat both to animals and humans since they reduce the productivity of livestock by morbidity and mortality which indirectly leads to decreased supply of animal origin foods to humans thereby leading to malnutrition.

Cost of treatment, vaccination of animals and humans, loss due to culling of diseased and at risk animals, compensation paid to farmers, money incurred for public health infrastructure (diagnostic laboratories, importing of diagnostic kits), surveillance and monitoring cause huge economic impact to the countries.

Imposing trade restriction on live animal and animal products due to zoonotic disease outbreaks such as highly

pathogenic avian influenza and BSE would profoundly affect the economic growth of countries. In India during the course of plague outbreak in the year 1994, an estimated loss of nearly $2 billion occurred due to trade and travel restrictions.

Zoonotic diseases are a major burden in under developed and developing countries because of lack of knowledge, negligence, unavailability of hygienic food and water, lack of financial assistance for public health infrastructure, political and social instabilities. Prevention and control of zoonoses require considerable cost to the national economy.

Prevention and control of zoonoses

Since zoonotic disease causation involve several interlinked factors, their prevention and control demands multipronged approach. Under the umbrella of "One Health' inter-sectoral collaboration is required between animal health authorities, medical professionals, environmental agencies, policy makers to formulate prevention and control measures. Essential elements of prevention and control involve continuous surveillance, strategies for disease control in animal's strategies for humans and environmental hygiene.

Disease Surveillance

Disease surveillance is a valuable tool to determine the trend of a disease. It helps to identify the fluctuation in disease occurrence and to make decision regarding control program. The surveillance is achieved through testing of animals, for example serological testing of animals for brucellosis, skin testing for bovine tuberculosis. Slaughterhouse survey is also essential to find tout the prevalence of zoonotic diseases viz., cysticercosis, hydatidosis and trichinellosis. Use of sentinel animals to monitor the disease (example to monitor the activity of plague (Yerseniapestis), dogs can be used). Once the disease outbreak occurred the animal and human health authorities must be notified immediately to bring in the preventive measures as soon as possible. For surveillance purpose a strong political support is required in the form of establishing network of diagnostic laboratories for rapid disease diagnosis.

Control strategies for animals

Animals are the source zoonotic infection to humans. Therefore unless the diseases are controlled in animals, it is almost impossible to protect human health. Test and slaughter, test and segregation are often helpful in eliminating diseased animals and to prevent their spread to the susceptible population. Vaccination is a time tested mechanism to protect animals and effective vaccines are available against zoonotic diseases viz., rabies, leptospirosis, anthrax, brucellosis. Quarantine should be practiced for animals for specific periods to prevent ingress of exotic diseases into the country. Isolation and prompt treatment of sick animals is required for early recovery and to prevention of further spread. Wherever possible animal population control should be practiced to prevent the disease perpetuation (eg. animal birth control in dogs to prevent rabies). Good farm practices and good agricultural practices should be followed to keep the animals healthy and stress free.

Control strategies environmental hygiene

Environment is an integral part of animal and human habitat and must be taken into consideration while designing disease control programs. Hygiene of micro and macro-environment surrounding the animal is required to prevent the menace of vectors (mosquitoes, ticks, mites, flies, fleas, bugs) and rodents. Vectors breed in unhygienic environment and are source of transmission of disease to animal and humans. Therefore, safe disposal of farm waste, prompt burial or incineration of dead animals and aborted material, spraying of acaricides to animal sheds, periodic de-contamination and fumigation of hatchery, proper sewage disposal through drainage system, prevention of water logging and pest control measures must be in place to make sure the environment is safe and hygienic. Sewage treatment and disposal from slaughter house is imperative because hydatidosis spread through feeding of infected offals to dogs which are the definitive hosts for the Echinococcus. Avoiding encroaching of forest or avoid entry into previously inhabited areas such as caves.

Control strategies for humans

Many zoonotic diseases can be prevented just by following basic hygienic measures such as food hygiene to thorough cooking of food, separation of raw and cooked foods, storage of cooked foods at refrigerated temperature,