ONE HEALTH
BY PROTECTING ANIMALS, WE PRESERVE OUR FUTURE

Animal and human sectors work together to protect health and ensure food safety and security

60% of human pathogens are of animal origin
5 new human diseases appear each year
20% of animal production losses are caused by diseases globally

With regards to animal health, veterinarians are key players of the ‘One Health’ concept

Early detection of diseases and infections at animal source can prevent their transmission to humans or introduction of pathogens into the food chain

From Farm to Fork

Healthy animals maintained in humane conditions

Production

Only healthy animals transported

Transport

Verification of hygiene, Cold chain integrity

Slaughterhouse

Before slaughter:

- Analysis of the health data from the farm
- Clinical examination
- After slaughter:
  - Inspection of the carcass
  - Laboratory analysis

Processing, Storage, and Distribution

Verification of hygiene, Cold chain integrity

Supermarket, Restaurant

Safe food for consumers

Throughout the food chain, veterinarians are responsible for regulations on animal health, animal welfare, traceability, food safety and safe trade of animal products

Zoonotic Diseases

» 6 out of every 10 known infectious diseases in people are spread from animals

» 3 out of every 4 new or emerging infectious disease in people are spread from animals

Most dangerous zoonotic diseases in the US:
- Lyme disease & Rocky Mountain spotted fever
- West Nile, Dengue, malaria, and chikungunya
- Salmonella
- E. Coli

Animals as Sentinels of Human Health

» In early 2010 ducks began to disappear in Northern Nigeria

» Months later, public health officials learned that hundreds of children had become sick, and two villages 1/4 had died within the past year

» An investigative team found unsafe levels of lead inside most of the homes and community wells, which was the cause of the spike in mortality rates (caused by unsafe gold mining practices)

» When asked, the villagers noted there were unusual deaths of ducks in the months prior

» This missing clue could have alerted officials of the crisis earlier

https://www.cdc.gov/onehealth/in-action/lead-poisoning.html

Other examples of veterinarians protecting the health and welfare of animals, and thus also protecting the health of humans

Antibiotics

Ensuring appropriate use of drugs in animals to preserve their effectiveness

Avian Influenza

- Prevention and control of animal diseases
- Early detection of sanitary events, including wildlife

Rabies

- Eliminating diseases and infections at their animal source to save human lives
- Tracking and controlling animal diseases, including those transmissible to humans

Case Report

https://www.oie.int/onehealthec.europa.eu/dgs/health_food-safety

https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html

Facts

https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html
Antibiotic resistance – when bacteria change and cause antibiotics to fail – is happening RIGHT NOW, across the world

Without urgent action, many modern medicines could become obsolete, turning even common infections into deadly threats.

A GROWING CRISIS WORLDWIDE

In the EUROPEAN UNION, antibiotic resistance causes 25,000 deaths per year and 2.5m extra hospital days

In INDIA, over 58,000 babies died in one year as a result of infection with resistant bacteria usually passed on from their mothers

In THAILAND, antibiotic resistance causes 38,000+ deaths per year and 3.2m hospital days

In the UNITED STATES, antibiotic resistance causes 23,000+ deaths per year and >2.0m illnesses

The full impact is unknown. There is no system in place to track antibiotic resistance globally.

The number of new antibiotics being approved has steadily decreased over the past 30 years.

Drug manufacturers are focusing on more expensive medications to develop, such as cancer treatments.

Nearly 2 million Americans develop healthcare-related infections per year.

From these 99,000 deaths result, mostly due to antibacterial-resistant pathogens.

CAUSES OF ANTIBIOTIC RESISTANCE

- Over-prescribing of antibiotics
- Poor infection control in hospitals and clinics
- Poor hygiene and sanitation practices
- Unnecessary antibiotics used in agriculture
- Lack of rapid laboratory tests
- Patients not taking antibiotics as prescribed

HOW CAN WE STOP IT?

1. Improve labs: Countries need medical labs to identify bacteria and choose the right drugs to treat them.
2. Collect and share data: Countries need systems to track cases and report results globally to make better policy decisions.
3. Use antibiotics wisely: To ensure antibiotics are here when we need them, they must be prescribed and taken correctly now.
4. Take measures to prevent infections: Especially in healthcare settings, good infection control practices are critical to stopping spread of resistant germs.

Antibiotics and Resistance

- In many countries antibiotics are unregulated and are available over the counter without a prescription.
- The number of new antibiotics being approved has steadily decreased over the past 30 years.
- Drug manufacturers are focusing on more expensive medications to develop, such as cancer treatments.
- Nearly 2 million Americans develop healthcare-related infections per year.
- From these 99,000 deaths result, mostly due to antibacterial-resistant pathogens.

https://www.cdc.gov/drugresistance
If you are interested in learning more about One Health and the interconnectedness between human health, animal health, and the environment, see the resources below:

**Mobile Apps**
- TravWell
- Tickborne Diseases
- Can I Eat This?

**Books**
- One Health: People, Animals, and the Environment
- The Omnivore's Dilemma
- One Health: The Human-Animal-Environment Interfaces in Emerging Infectious Diseases

**Websites**
- American Veterinary Medical Association
- World Organization for Animal Health
- One Health Initiative
- Center for Disease Control and Prevention

**Journal Articles**
- Towards a conceptual framework to support one-health research for policy on emerging zoonoses
- Impacts of biodiversity on the emergence and transmission of infectious diseases
- Ticks and tick-borne diseases: a One Health perspective
The health of people is connected to the health of animals and the environment. This connection requires a multisectoral, One Health approach to improve health for all.

**Epidemiologists**

**Microbiologists**

**Infectious Disease Specialists**

**Veterinarians**

**Ecologists**

**Medical Doctors**

**Public Health Professionals**

**Human Health**
- Zoonoses
- Epidemiology
- Environmental hazards
- Metabolic disorders in humans and animals
- Global health
- Parasite infections
- Human-animal bond
- Joint and skeletal diseases in humans and animals
- Veterinary medicine
- Viral infections
- Public health

**Animal Health**
- Infectious diseases in humans and animals
- Food safety
- Vector-borne illnesses
- Population health
- Cancer and cardiovascular diseases in humans and animals
- Ecosystem health
- Human-animal health
- Molecular and microbiology

**Environmental Health**
- Toxic threats
- Exposure to humans and animals
- Ecological and molecular
- International policy
- Global health