A GLOBAL VETERINARY EDUCATION TO COPE WITH SOCIETAL NEEDS

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WORLD ORGANISATION FOR ANIMAL HEALTH (OIE)
We have among the best students coming from secondary schools and entering in our faculties
The new mandate of the world organisation for animal health

‘TO IMPROVE ANIMAL HEALTH WORLDWIDE’
The Veterinary Services, including both their public and private sector components, are in the front line when it comes to improving animal health:

THEY ARE A GLOBAL PUBLIC GOOD
Infectious diseases are still at the heart of OIE activities: one of its core business
THE OIE LISTED DISEASES

Since 2005 one single list:

There are 93 listed diseases (including diseases of birds and bees) in the Terrestrial Animal Health Code;

There are 30 diseases of fish, molluscs, crustaceans and amphibians listed in the Aquatic Animal Health Code.
DEFINITIONS 1

A zoonosis: any disease or infection which is naturally transmissible from animals to humans
An emerging disease: a new infection resulting from the evolution or change of an existing pathogenic agent, a known infection spreading to a new geographic area or population, or a previously unrecognised pathogenic agent or disease diagnosed for the first time and which has a significant impact on animal or public health
DEFINITIONS 3

A trans-boundary disease:
any disease which can spread easily at
regional or global level
CRITERIA FOR LISTING A DISEASE

- International spread;
- Zoonotic potential;
- Significant spread within naïve populations;
- Emerging disease.

The list of diseases is updated annually by the general assembly of national delegates.
In 2001, a comprehensive review identified 1,415 species of pathogens infectious for humans, including 217 viruses and prions, 538 bacteria and rickettsia, 307 fungi, 66 protozoa and 287 helminths.
Out of these, 868 (61%) were classified as zoonotic and 175 pathogenic species were considered to be associated with emerging diseases. Of 175 emerging pathogens of this group, 132 (75%) were zoonotic, the vast majority of which coming from wildlife.
WILDLIFE THEREFORE CONSTITUTES AN IMPORTANT POTENTIAL OF NEW PATHOGENIC AGENTS FOR HUMANS AND DOMESTIC ANIMALS
A FOUR FOLD CLASSIFICATION OF EMERGING ZOONOSES IS PROPOSED:

- Type 1: from wild animals to humans (Hantaviruses)
- Type 1+: from wild animals to humans with further human-to-human transmission (Aids);
- Type 2: from wild animals to domestic animals to humans (rabies);
- Type 2+: from wild animals to domestic animals to humans, with further human-to-human transmission (Sars).
THE ONE WORLD-ONE HEALTH CONCEPT
THE DEVELOPMENT OF SAFE AND EFFECTIVE HUMAN AND VETERINARY VACCINES IS A PRIORITY
An updated veterinary curriculum is essential to empower future graduates to work in an international environment, applying international standards for disease surveillance, veterinary public health, food safety, food security, animal welfare, environmental health, maintenance of biodiversity.
THE UNKNOWN THREATS:
1. BACTERIA

Nowadays the estimated number of known bacterial species is roughly 5,000, but the real number could exceed 50,000. Therefore the percentage of known species is only around 10%
THE UNKNOWN THREATS 2: VIRUSES

The number of identified viruses reaches approximately 5,000 species, but the likely number could exceed 150,000 and viruses are constantly evolving.
BIODIVERSITY OF VERTEBRATES

• 1. Mammals: 5,416
• 2. Birds: roughly 10,000
• 3. Fishes: roughly 30,000
BIODIVERSITY OF MAMMALS 1

• First complete inventory in 1982: 4,170 species
• Last complete inventory in 2005: 5,416 (molecular taxonomic revision)

The estimate is that presently 99% of mammal species are already identified
• Among mammals there are 2,277 species of rodents pertaining to 481 genera (42% of recognised mammal species)
• Among mammals there are 1,116 species of chiroptera (bats), pertaining to 202 genera; bats make up 20.6% of total mammal species
There are approximately 700 cattle breeds worldwide, many of them at the verge of extinction (less than 100 breeding cows)

There are more than 300 recognised dog breeds
Imagine not being able to recognize your best friend.
FACING CHALLENGES

- Climate change
- Human population growth
- Livestock population growth
- Rapid urbanisation
- Changing farming systems
- Forest encroachment
- Opening closed ecosystems
- Globalisation of trade
GLOBALISATION: THE FIVE Ts

- TRADE
- TRANSPORT
- TRAVEL (2 billions by air in 2008)
- TOURISM
- TERRORISM
Dramatic increase in the world’s human population, expected to reach 8 billions people by 2025, mainly in Asia, Africa and Latin America.
THE LIVESTOCK REVOLUTION

In 2008, over 21 billion food producing animals were raised to feed a population of over 6 billion people. By 2020 this demand is expected to increase by 50%
COMPETITION FOR WATER: THE FIVE Fs

- FOOD
- FEED
- FORAGE
- FLOWERS
- And…FUEL
Animal welfare means how an animal is coping with the conditions in which it lives.
ANIMAL WELFARE 2: 
THE SIX BE

• Be healthy
• Be comfortable
• Be well nourished
• Be safe
• Be able to express innate behaviour
• Be free of pain, fear and distress
ANIMAL WELFARE 3: THE FIVE FREEDOMS

• Freedom from hunger, thirst and malnutrition
• Freedom from fear and distress
• Freedom from physical and thermal discomfort
• Freedom from pain, injury and disease
• Freedom to express normal patterns of behaviour
THE THREE Rs

The three international rules (three Rs) for welfare of experimental animals:

• Reduction in numbers
• Refinements of experimental methods
• Replacement of animals by *in vitro* technologies
THE DIVA STRATEGY TO AVOID MASS SLAUGHTERING
ENVIRONMENT AND BIODIVERSITY

- Prudent and responsible use of veterinary drugs
- Prudent and responsible use of antibiotics
- Prudent and responsible use of anthelminthics
- Preventive use of vaccines when available
- Preservation of biodiversity