Animals + Humans = One Health

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The Animal to Human Link

- 98.5% of the working DNA is the same between chimps & man
- 97.5% of the working DNA is the same between mice & man – thankfully this is not so obvious!!
- With animals & man sharing so much DNA, it is not surprising that
  - 60% of human pathogens are zoonotic
  - 75% of emerging diseases are zoonotic
  - Most new human diseases originate from animal reservoirs
Disease Spread

- Diseases can now spread faster across the world than the average incubation time of most diseases
The Veterinary Medicine to Human Medicine Link

- Given the genetic similarities, medicines normally work in both animals & humans

- Many medicines are developed for human use initially & are then developed for veterinary use – the reverse also happens (e.g. pleuromutilins)

- Sulfonylureas – diabetes in animal & man, herbicide in crops!

- Traizoles – antifungal in animal, man & plants!

- Animal & Human health share a lot
Avian Influenza (AI)

- The initial focus was on antivirals & body bags!
- It was also on our capacity to produce enough vaccine
- It took some time to get a little bit of the focus on the value of vaccinating poultry!
- Where eradication is not possible, vaccination has the potential to stop AI in its tracks
- This has an enormous human health benefit & the Vietnamese authorities largely eliminated human fatalities by vaccinating poultry
The concept of “One World-One Health” (OWOH)

A global strategy for preventing and managing risks at the human-animal interface

FAO/OIE/WHO concept note on health risks at human-animal interface
• Need to integrate control across animal, food & human sectors

• Human, animal & ecosystem interfaces

• Pandemic threats (H5N1 & H1N1) have highlighted the need for collaboration

• Multi sectoral & multi institutional cooperation

• Pathogen detection, risk assessment, risk management, technical capacity & research development
• Collaboration brings efficiency – avoid duplication
• Public health & food security included in focus
• The FAO-OIE-WHO Global Early Warning & Response System for Major Animal Diseases (GLEWS) already exists & includes zoonoses
• The OIE World Animal Health Information System & Database (WAHIS & WAHID) is a system to notify outbreaks of animal diseases & feeds into GLEWS
• INFOSAN (food safety), OFFLU (animal influenza) & GF-TAD (endemic & emerging animal diseases) are also relevant
• Need sustained political support to optimise existing initiatives

• Need coherence in policy making to minimise the possibility of diseases moving from animals to man

• Merge animal & human health dynamics

• Build a database of capacities – human & infrastructure - to ensure capacities & avoid duplication
So what is IFAH-Europe doing?

- European Technology Platform for Global Animal Health (ETPGAH)
  - **EMIDA** (National funders of research in Europe)
    - Building a database of capacities – human & infrastructure - to ensure capacities & avoid duplication
  - Cross Border research collaboration
    - **STAR-IDAZ** (National funders of research across Globe)
      - Equivalent to EMIDA but at a global level
    - **DISCONTOOLS**
Expert Groups – 50 Diseases in Focus

• Zoonotic – 22 diseases
  – Avian Influenza, Anthrax, Bovine TB, Brucellosis, BSE, Campylobacteriosis, Crimean Congo Haemorrhagic Fever, Clamydiosis, Cryptosporidiosis, Cysticercosis, Echinococcosis, E. coli, Hepatitis E, Leishmaniasis, Leptospirosis, Q Fever, Nipah, Rabies, Rift valley Fever, Salmonellosis, Trypanosomiasis, West Nile Virus
Expert Group – Multidisciplinary

• Process
  – Disease & Product Analysis (Critical Information)
  – Gap Analysis – top 5 gaps
  – Prioritisation of the 50 diseases
  – FP 7, International & National research
  – Focus research effort on filling Gaps
  – Eliminate disease in livestock
IFAH-Europe Activities

• We are working at making research more efficient
  – This is our area of expertise
  – This is where we can make most impact
• The ETPGAH is the vehicle for doing this
• If we can develop better diagnostics, vaccines & pharmaceuticals, we will be contributing in a substantial way by reducing or stopping disease in its tracks at the animal level
• This is our most effective contribution to the “Animal + Humans = One Health” concept
Mirror Groups!

- As the ETPGAH, we promote the development of “Mirror Groups” at a National level
- The purpose of a Mirror Group is:
  - To communicate the aims of the ETPGAH
  - To align National funding, as appropriate, to the aims of the ETPGAH
- We are delighted at the recent formation of a Portuguese Mirror Group!
- This is a direct contribution to the “Animal + Humans = One Health” concept!
Conclusions

- Animals & Humans share diseases
- We need to support the FAO-OIE-WHO initiatives
- The work of the ETPGAH has made a difference & will continue to make a difference
- The focus brought by DISCONTOOLS will be very important
- Our focus on optimising research to develop better diagnostics, vaccines & pharmaceuticals is our most potent contribution to the “Animal + Humans = One Health” concept
Thank You!

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