

Module: Public Health Disaster Planning for Districts

Organization: East Africa HEALTH Alliance, 2009-2012

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Resource Title: Session 1.2b: Introduction to Epi-zoonotic Diseases

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Introduction to Epi-zoonotic Diseases



Bread for the World, flickr

Compiled by the Eastern Africa Disaster Management Training Core Team
Narrated by Dr. Roy William Mayega

Session Outline

- 1) Terminology and Definitions
- 2) Zoonotic Diseases of Epidemic potential in Eastern Africa
- 3) Significance of Epi-zoonotics as Emerging Diseases
- 4) Factors Promoting emergence of Epi-zoonotic Diseases
- 5) Consequences of Epi-zoonotic diseases
- 6) General Response interventions
- 7) Animal welfare

Terminology and Definitions

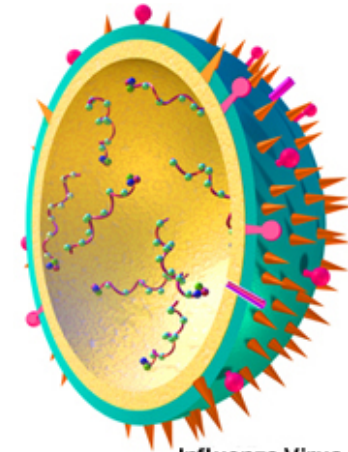
- A **zoonosis** is a disease or infection which are naturally transmitted between animals and man (WHO,1959)
- A simpler definition is a disease that normally infects animals, but can also infect humans
- **Examples of common zoonoses:** RVF, Rabies, Anthrax, Plague, Trypanosomiasis, Influenza, Ebola

Terminology and Definitions

- **An Epizootic** disease is an outbreak (epidemic) of disease in an animal population, e.g. rift valley fever
- **An Enzootic** is a disease that is endemic in animals, e.g. bovine TB
- **Exotic diseases** are those which are imported into a country in which they do not otherwise occur e.g. 'bird flu'

Terminology and Definitions

- **Emerging and re-emerging zoonoses** are diseases caused either by totally new or partially new agents, or by micro-organisms previously known, but now occurring in places or in species where the disease was previously unknown (Meslin,WHO, 1992)
- Examples: Influenza, Ebola, SARS



Influenza Virus
Credit: NIAID

 PD-GOV NIAID, Wikimedia Commons

Zoonotic Diseases of Epidemic Potential the Eastern Africa

- 1. Rift Valley Fever
- 2. Influenza A Viruses
- 3. Anthrax
- 4. Rabies
- 5. Ebola
- 6. Plague
- 7. Trypanosomiasis

Significance of Epi-zoonotics as Emerging Diseases

- Globally, there have been over 20 new diseases in the last 30 years (Jones et al, 2008)
- Over 2/3 of new disease causing agents arise from wild-life
 - Examples: SARS, Nipah, H5N1 and H1N1
- Domestic animals account for 20% of new zoonoses
- The East and Central Africa Region is a 'hot spot' for new diseases



 Mike Blyth, flickr

Factors Promoting the Emergence of Epi-Zoonotic Diseases

- **Socio-economic Factors**
 - Intensive farming without bio-security measures
 - Water-supply projects
 - Urbanization
 - Human population movement
 - Animal movement
 - Famine
 - Free-range farming systems
- **Environmental Factors**
 - Climate change (e.g. global warming)
 - Presence of vectors and/or reservoirs

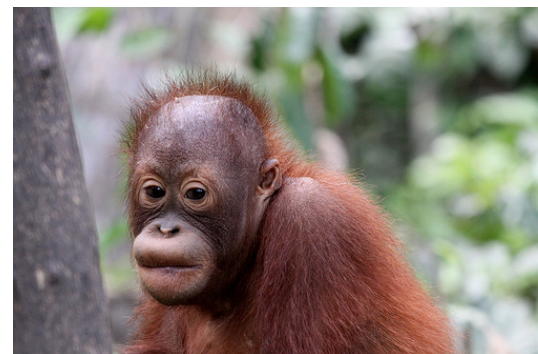
Factors Promoting the Emergence of Epi-Zoonotic Diseases

- **Human Health-related:**
 - Co-infection with other diseases agents (HIV, TB)
 - Lack of knowledge on bio-security measures
 - Inadequate personal hygiene e.g. sneezing without covering mouth, not washing hands
- **Cultural and behavioural risk factors:**
 - Lack of knowledge
 - Food habits
 - Changes in life-style
 - Human-Livestock-Wildlife interaction



The Human-Animal Interface

- Intense handling of animal products with low bio-security (Brucellosis, Anthrax, Avian Influenza, etc)
- Pastoralism and Free-range systems
- Hunting , gathering, eating game meat and carcasses (Ebola, Anthrax)
- Contact with bats (Ebola, Marburg)
- Ill cooked products (Salmonellosis, Brucellosis)



Daniel Kleeman, flickr

The Human-Animal Interface

- Hygiene, rats (Leptospirosis, Hepatitis E)
- Free-range poultry and migratory birds (Flu)
- Conservation areas (Ngorongoro, Samburu)
- Ill-handling of domestic canines (Rabies)
- Socio-cultural, sharing with animals
- Cross-border risk and gender related risk



 DonkeyHotey, flickr

Consequences of Epi-Zoonotic diseases

- *What do you think are the Public Health and other Consequences of Epi-zoonotic Diseases*

Socio-economic Impact of Epi-Zoonotic diseases

1. Reduction in the level of outputs from animal production
2. Reduction in perceived or actual output quality (e.g. food safety)
3. Waste of inputs to animal production (e.g. feed)
4. Resource costs of disease prevention and control
5. Negative animal welfare effects
6. International trade restrictions

Socio-economic Impact of Epi-Zoonotic diseases

1. Human health costs
2. Effects on the environment
3. Effects on tourism
4. Effects on rural livelihoods
5. Political and social disruption
6. Increased Poverty

Public Health Consequences of Epi-zoonoses

- Increased deaths
- Increased illness
- Social disruption and panic
- Collapse of regular health care systems
- Health workers at high-risk of contracting the diseases
- Health workers may run away from health units

General Response Interventions

- Farmers should report incidents to animal health and human health workers
- Provisional Quarantine of affected area if necessary
- Confirm the occurrence of the outbreak and notify authorities



 Sanofi Pasteur, flickr



 CDC

General Response Interventions

- Activate the Rapid Response Team (RRT) (Vet, Health, leaders, Police, etc)
- Identify source of infection and
- Identify the severity of the infection and extent of spread
- Set up immediate control measures



 USFWS Mountain Prairie, flickr

General Response Interventions

- Dispose of dead animals in safe ways (Burn and/or Bury)
- Quarantine the sick and suspected and observe general conditions
- Stop movement of animals
- Vaccinate where necessary

Animal Welfare

- In outbreak situations, animal welfare situations should be taken into consideration
- Even if they are to be destroyed or killed, they should be treated in a humane manner
 - Reduce undue pain
 - Confine them in a considerate manner

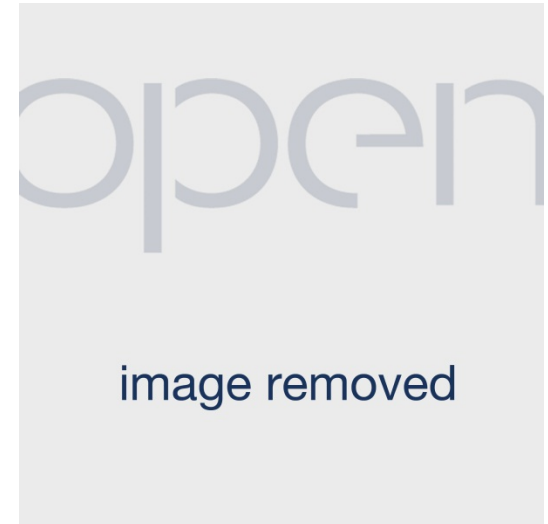


Image of animal grave removed.




 Anna Briggs, flickr

The End!




 ArranET, flickr



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