



WorldHorseWelfare
the new name for the ILPH

Prevention and Control of Equine Infectious Diseases

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Epidemiology

- “Epidemiology” is the study of the occurrence of disease in populations and the application of this knowledge to control or prevent disease (Sellon and Long, Saunders 2007).
- “Disease does not occur randomly”
- Identify cause
- Identify risk factors
- Environmental factors
- Management factors



How to use the epidemiological approach

Questions to ask:

Which horses are sick?

– What do they have in common?

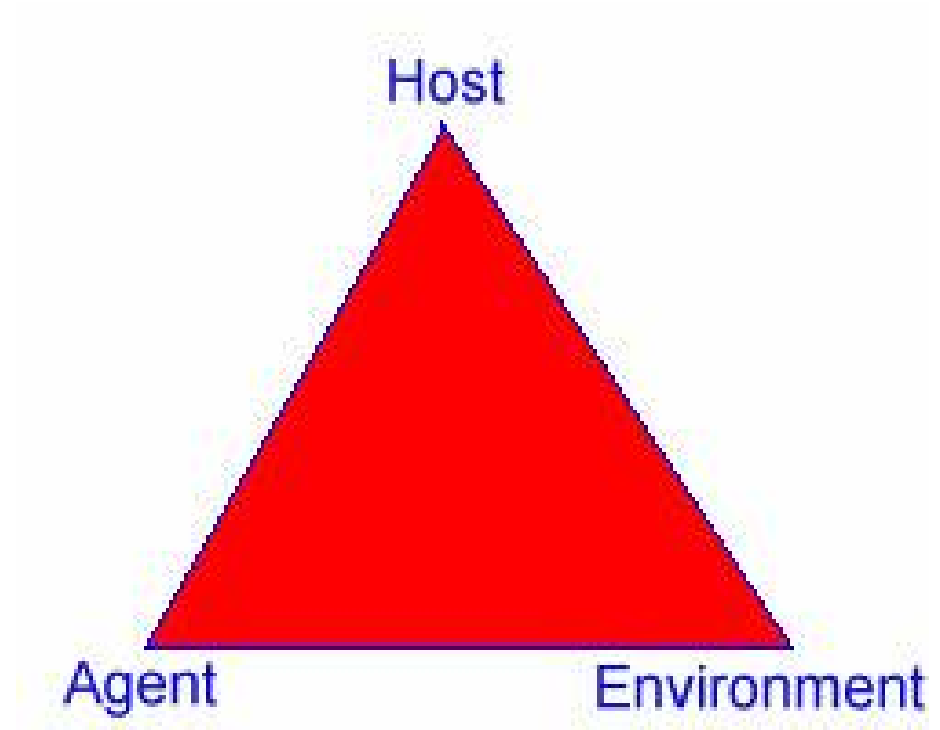
Which horses are healthy?

– What do they have in common?

Groups affected?

Other animals affected?

Humans affected?





Example: Mare Reproductive loss syndrome 2001

Central Kentucky in 2001

Agent: bacteria

Host: Eastern Tent Caterpillar

Environment: Rapid temperature increase in the spring

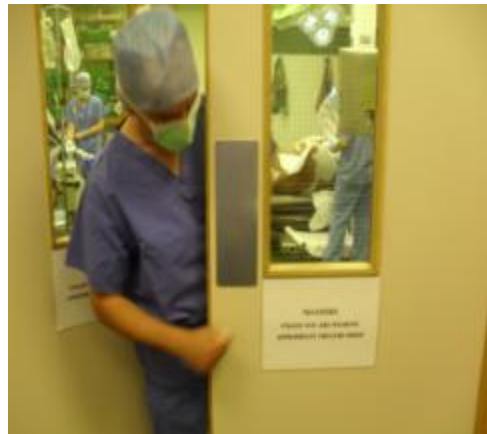




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Disease agent:

- Infectiousness
- Contagiousness
- Pathogenicity
- Virulence





Host

- Age
- Breed
- Gender
- Inherent susceptibility to infectious agents
- Inherent immunity to infectious agents





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Environment

- Location
- Climate
- Local surroundings





Individual

- Management practices
- Cleanliness
- Ventilation
- Housing
- Diet
- “Stress”





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Population

- Herd Immunity





Strategy for prevention of disease

- To prevent disease – change has to occur in either
- The host
- The agent
- The environment
- A herd is most able to resist infection and disease if the horses are
- A) Immunised
- B) Properly nourished
- C) minimally “Stressed”





Managing an outbreak of an infectious disease

- This has to be a **SYSTEMATIC AND LOGICAL APPROACH**
- 1) Identify the **cause- MAKE A DIAGNOSIS and VERIFY IT MEDICALLY.**
- 2) Identify the **source**
- 3) Define a “case” – do all the sick horses have the same clinical signs and if so is the same diagnosis verified?
- 4) How big is this problem?? – **ATTACK RATE**
- 5) Describe the outbreak temporally and spatially, and animal characteristics
- 6) **Implement disease controls**
- Mass treatment, quarantine, environmental hygiene, mass immunisation if possible.



Biosecurity



- “Biosecurity” is that the same as infection control??
- Biosecurity can be used interchangeably with infection control to discuss all practices to prevent introducing an infectious disease and to prevent spread of an infectious disease once it has entered the population.
- Biosecurity in hospitals
- Protection of public health and promotion of animal wellbeing
- Zoonotic infections



Zoonotic infections

- Relatively small number of zoonotic infections from horses to humans
- Increased risk of infection in young, elderly and immunocompromised people.
- *Salmonella enterica*, *Clostridium difficile*,
- *Cryptosporidium parvum*.
- *Rhodococcus equi*
- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- Rabies





Antimicrobial resistance

- Emerging problem
- Has public health implications
- Multidrug resistance strains – MDRs
- MRSA
- Biofilms



Preventative measures

- Hand hygiene
- Protective clothing
- Barrier nursing
- Isolation of a patient on a premises
- Cleaning and disinfection
- Use of pasture





Biosecurity in equine ambulatory practice

- Diseases can be transmitted by the veterinary surgeon travelling from one patient to the next
- Greatest risk are pathogens that survive a long time in the environment – Rotaviruses, canine parvovirus, FMD virus, *Salmonella enterica*, *Streptococcus equi equi*, *Corynebacterium pseudotuberculosis*
- Wash hands, wear protective overalls if infective disease suspected, change of clothes, footbaths
- Clean and disinfect equipment





Biosecurity in the Veterinary Hospital

- Large numbers of stressed, sick and immunocompromised animals together in a small area
- Frequent contact increases exposure to infective agents
- Hand hygiene is the single most important factor in preventing spread of infection
- The more qualified the person, the less likely they are to comply with hand washing regulations! No one is exempt from being a fomite!!





Biosecurity on the horse yard

- Focus on preventing infectious agents entering the premises
- Secondly, to prevent the spread of a disease between horses on the yard should an outbreak occur
- Vaccinations
- Quarantine all new arrivals or horses returning from another facility
- History of respiratory disease or diarrhoea



Protection of travelling horses

- Possible exposure of horses at sales and competitions
- Travelling horses may have compromised immune systems
- Important not to travel for long time periods
- Limit direct contact with essential people only
- Hand sanitisers



Conclusions:

- A logical approach to disease outbreak is essential to prevent further spread
- Understand the relationship between host, agent and environment
- Biosecurity and infection control are important in day to day work, not only when there is an outbreak of an infectious disease
- Leadership by example
- Hand hygiene is essential